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Report No. **215**

Going Green Digitally? Environmental Crisis, Consumption Patterns and the Evolving Role of Media

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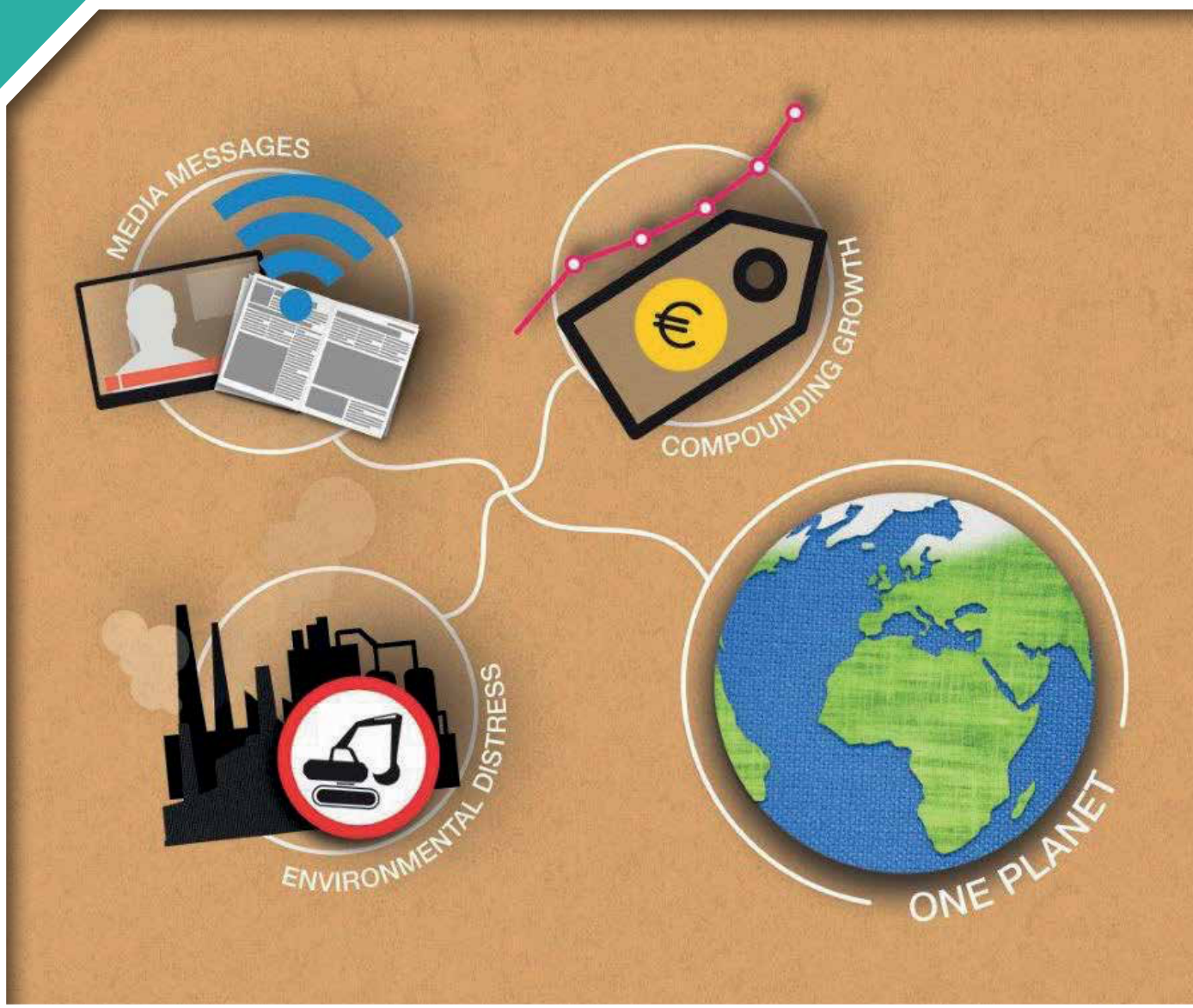

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

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ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

Our Responsibilities

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We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities *(e.g. landfills, incinerators, waste transfer stations)*;
- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants)*;
- intensive agriculture *(e.g. pigs, poultry)*;
- the contained use and controlled release of Genetically Modified Organisms *(GMOs)*;
- sources of ionising radiation *(e.g. x-ray and radiotherapy equipment, industrial sources)*;
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- waste water discharges;
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- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

EPA RESEARCH PROGRAMME 2014–2020

Going Green Digitally? Environmental Crisis, Consumption Patterns and the Evolving Role of Media

(2013-SD-FS-1)

EPA Research Report

Prepared for the Environmental Protection Agency

by

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DISCLAIMER

The EPA Research Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

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Executive Summary

The need to move towards a sustainable society is fast becoming an urgent one. Climate change is a focusing device that highlights the threats to our ecosystem caused by the unsustainable lifestyles of those in the Global North. The findings from this research acknowledge this and suggest a pressing need in Ireland for behaviour change towards sustainability. It analyses the role of the media industries as actors that can either encourage behaviour change or support unsustainable "business as usual" practices.

Key to this project is the concept of "creative destruction". This indicates an opportunity to imagine economic scenarios that address the inequalities and negative legacy of neoliberalism, while transitioning to a sustainable economy and society. It implies that out of a crisis – in our contemporary setting both economic and environmental – opportunities can arise for a reimagining of the future. The research therefore explores ideas from economics such as growth, waste, crisis, "fixes" to crisis, resilience and progress. The aim is to re-evaluate our baselines for so-called progress, to move beyond narrow economic indicators such as gross domestic product (GDP), and to favour measurement tools that also factor in societal measures and environmental stability. The research also explores ideas about our environment, how it is valued in our current economic system, and how it can be thought of in a more rounded way as a "metabolism" involving both economy and society.

The project adopts the stance that, for the purposes of analysis, the media industries cannot be studied in isolation from their broader economic contexts. Therefore, the project is situated against the backdrop of the economic crisis that began to unfold in 2007. When considered in this way, the media industries are revealed as subject to market influences, the requirement to restore growth and "business as usual" policies in the wider economy. These industries often depend on advertising for their own growth, which in itself is dependent on continued unsustainable consumption. In the Irish context, the state broadcaster is a key actor in disseminating information about sustainability. The project therefore analysed television news broadcasting during the release of the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) in 2013–2014. It found that the journalistic content could be considered "bundled" with advertising content, potentially diluting messages toward sustainability.

The project also analysed policy at international, regional [European Union (EU)] and Irish levels to ascertain the extent to which "business as usual" measures are foregrounded. It found a range of policy instruments, some of which were progressive and some of which favoured aggressive market-based solutions, with little regard for the extent to which these instruments acted merely as a temporary "fix".

The report on this project is broken down into six chapters. Chapter 1 provides a short introduction to the project, its aims and themes, and its structure. Chapter 2 outlines the three key areas of enquiry that the project undertook. These were under the themes of economy, environment and media. Chapter 3 provides a summary of the policy research undertaken at international, regional (EU) and Irish national levels. Chapter 4 provides a case study of Irish news and current affairs media, undertaken during the release of the IPCC AR5. Chapter 5 outlines the dissemination strategies adopted, including the provision of digital media animations for dissemination. Chapter 6 identifies key pressures for Irish society when charged with the remit of moving towards greater sustainability. It offers some suggestions for informing policy, and it develops suggestions for solutions to the issues raised through the research. It also provides some concluding remarks on the systemic issues that the project identified as potential barriers to sustainability.

1 Introduction

1.1 Overview

This report provides a summary of the research project *Going Green Digitally? Environmental crisis, consumption patterns and the evolving role of media.* The project was undertaken to ask critical questions about the role of media in behaviour change strategies towards sustainability. The project findings suggest that it is naïve to assume that the media can act as a platform for promoting significant behaviour change towards sustainability. This is because, in common with many other sectors, the media and cultural industries are increasingly privatised and profit-making industries. They are therefore dependent on advertising revenue for income, which in turn is dependent on the continuation of an unsustainable, consumerist way of life.

The project was conducted at a time of financial crisis, which has often overshadowed the environmental crisis that has also been unfolding and accelerating. For a time after the 2007 crash, the media reflected about "what went wrong" with the economic model, and there was some potential for a more rounded and critical discussion of wasteful consumerism. However, more recently the discussion has been reverting to a "business as usual" discourse on the consumerist economy, triumphantly reporting on recovery when people are once again spending. Advertising is likewise encouraging the public to "shop locally" for the sake of the environment, but also urging people to treat themselves with an annual upgrade of a particular digital device, or to show affluence by purchasing the latest car. This is in the face of an unprecedented parallel environmental crisis which, over the last 2 years, has seen the most extreme weather conditions and temperature changes ever recorded across the globe (NASA, 2016).

It is against the backdrop of these crises that this project was developed. It investigates how the media and cultural industries act as a platform for generating ideas and practices around consumption and sustainability. This report acknowledges that the media possess a "unique symbolic potency" due to their qualities of "volume, verisimilitude, and velocity" (Maxwell and Miller, 2012: 5). In other words, the media "proliferate everywhere and all the time; they are good at producing the truth; and they are increasingly quick at doing so" (Maxwell and Miller, 2012: 5). This report therefore suggests that the media and cultural industries are an important area through which to investigate potentials and limits to encouraging behaviour change towards sustainable economic practices. It suggests that it is simplistic to assume that only positive media interventions are possible, given the media industries' relative positioning in the economy and their being subject to market forces and pressures. Therefore, this project offers a critical analysis of the media by taking account of their positioning within the overall economy. This is to avoid a rush to the conclusion that positive behaviour change towards sustainability can be achieved solely through media influence or information dissemination. Rather, looking at the system as a whole, it seeks to ascertain other inputs and pressures on behaviour change towards sustainability.

The report takes the backdrop of economic and environmental crises as its departure point. It investigates how the economic system is based on assumptions of growth, where economic recovery is predicated on the continuing expansion of the finance sector and its institutions, relative to the overall economy. This is known as financialisation. Yet key thinkers in economics are questioning the possibility of returning to the levels of growth seen in the years preceding the crash (Mody, 2013; Blanchard, 2016; Donnan, 2016). The project also investigates how key thinkers are beginning to address economic concepts that take account of resource depletion and environmental sustainability. It outlines alternative thinking which questions how we think about the environment in relation to our economic system. This is intended to feed into a more rounded model of economics that allows for environmental sustainability as well as social justice and equality, to a greater degree than is currently found in neoliberal economic practices.

1.2 Themes and Aims: From Creative Destruction to New Imaginaries

Key to the backdrop of this report is the concept of "creative destruction". This is the understanding that in the midst of a crisis there lies an opportunity to address practices that are unsustainable, and to investigate new visions to drive future policies with the potential to change attitudes to consumption and sustainability. We therefore think of the imaginary as a space in which to develop potential practices that "go against the grain" of prevailing thought. While this thinking might be drawn to technological solutions, it might also include discourse on emerging environmental thought on sustainability, "post-growth" economics, beyond "green" consumption, downsizing and concepts of "enough" (Hamilton, 2003; Ryan, 2009; Skidelsky and Skidelsky, 2013). Therefore, we not only look to technology to transcend the economic and environmental crises, but also question assumptions and norms around consuming for pleasure, and think about the waste left behind by our consumption practices. This needs to encompass not only models of sustainable *economic* practices, but also necessary and new ideas and ways of thinking about sustainable *environmental* models.

The core theme of this report is therefore centred on the role of the media and cultural industries at a time of economic and environmental crises. The core aim is to explore the extent to which new and necessary ideas of sustainability can be discussed by the media and cultural industries. The media of public communication, including public service broadcasters, play a special role in the shaping and formation of public knowledge and opinion. They are therefore very important actors in behaviour change. However, these industries are increasingly influenced by private corporations, finance and commodification. For example, the recent controversy over Volkswagen's cars and its altering of emissions data points to a wider turn towards the commodification of diesel fuel for cars, without a critical analysis of the knock-on effects on pulmonary health. Therefore, the media can be seen as dependent on the same growth paradigm that stands at odds with notions of environmental sustainability. This project evaluates the extent to which the media and cultural industries can provide positive intervention around sustainability, while also being critical of their place within a society dominated by consumerism and unsustainable consumption.

1.3 Report Structure

The questions asked about the media and sustainability in this report fall under three main areas: the economy, the environment and the media itself. The report therefore introduces the reader to these three key areas of enquiry. It then looks at relevant international, regional [European Union (EU)] and national (Irish) policy to assess the general policy and planning landscape for initiatives around sustainability in the face of climate change. Following this, a case study of broadcast media is provided, in which journalistic and current affairs content is analysed in the contexts of its "bundling" with advertising content in the Irish setting. These domains provide varied sources of idea generation on consumption patterns and are components of our potential imaginary on sustainability. This project assesses their potential as areas that could encourage behaviour change, and asks to what extent this potential might be realised given the position of the media and cultural industries within the wider economy. The implications for promoting, publicising and encouraging behaviour change towards sustainability are discussed through this case. The report outlines the key dissemination outputs, before identifying the implications for society and policy, and discussing potential solutions in a contested space between economy, ecology and the media.

2 Three Major Areas of Enquiry

2.1 Introduction

The main themes of the project are spread across three areas: the economy, the environment and the media. In this section, these areas are introduced. Within these domains of knowledge, themes of growth, waste, ethics, resilience, the environment, sustainability, media, culture, society and knowledge production are discussed. The project is developed against a backdrop of crisis. Therefore, the concept of "creative destruction" has informed the themes of this project, driving the exploration of the potential for new economic and environmental imaginaries at times of crisis. It therefore asks to what extent the media and cultural industries are positioned to foster an awareness of potential new paradigms and imaginaries that can lead society towards greater environmental sustainability.

Within the theme of the economy, the project acknowledges that the dominant economic model is currently neoliberal capitalism, which assumes that the free market is the best judge of value and progress, encourages deregulation for the sake of industry, and promotes consumerism and individualism to maintain economic growth. Areas explored in this section include those related to the growth logic of capital, the resolution of crisis through "fixes", the role of finance in everyday life and the "waste" economy. Within this theme, the report also critiques growth and gross domestic product (GDP) as markers of social and environmental progress, and a discussion of new economic imaginaries and alternatives.

Within the theme of the environment are discussions about how we understand the environment in the current economic and societal setting. This includes an analysis of work on the philosophy of nature, including how society is in a "metabolism" with the environment, yet can treat the environment as external, or as a resource to be controlled, used and managed for the benefit of society. This theme also provides a discussion of how the environment is treated under our current economic system, which requires growth. This includes a discussion of resilience and whether resilience is about "bouncing back" to economic recovery that is bad for the environment, or about "bouncing forward" into new potential areas of economic wellbeing and environmental sustainability. This is in the context of how new visions can shed light on how best to ensure benefits for society, the economy and the environment.

The third theme of media takes a systemic, strategic approach to media rather than focusing on the content of the media stories. This theme focuses on how the media industries are increasingly bound up in the economic system, while at the same time the influence of the media is evolving and growing. In this area, the report also explores concepts of autonomy in the media industries in the context of crisis. It questions the erosion of autonomy through practices such as commodification, conglomeration and financialisation. The report further discusses the waste economy and media, acknowledging the "soft" waste associated with advertising.

2.2 Enquiry Area 1: The Economy

2.2.1 Growth

One way to reach an understanding of how sustainability can work, and what the limits to sustainability are under current economic conditions, is to see our economic system as a set of agreements that states have complied with, rather like a game. The "game" itself is the economic system in which most of the world has agreed to play: capitalism. This set of agreements has rules. Any state actor who wants to be involved in the economic conditions of capitalism needs to understand and abide by these rules. Its first rule is that the economic system is one based on *growth* of capital. For the economy to work, more capital value needs to be constantly created on an ongoing basis. Fundamental to societies that are built on this type of economy is profit making, which "requires the existence of more value at the end of the day than there was at the beginning", which in turn requires "an expansion of the total output of social labour" (Harvey, 2014: 232). Without this continuous expansion of value, no capital can be derived from

economic processes. It is generally considered that a 3% year-on-year growth rate in a capitalist economy is the healthy minimum for it to operate successfully.

Over time this rule or agreement becomes significant. While we may not think of 3% year on year as very much, it represents *compound* and *cumulative* growth. Therefore, over time we can see the material effects of growth. Findings from research into the impacts of growth (Steffen *et al.*, 2006: 5–6) show not only an increase in the economy but a compounding of the increase. Over time the growth increases exponentially, including the growth of resource use and waste. Ultimately, in these growth curves, an inflexion point is reached. This can be considered a significant turning point that can have profound effects, where, because of the fundamental rule of growth, the trend continues upwards at an accelerating rate until the growth rate over time is, literally, off the charts (Figure 2.1). This is the reality of the long-term expansion of the global system of capital, which has hit an inflexion point in compound growth (Harvey, 2014: 253). Therefore, while we may not notice growth in a particular year, over time we see the material and spatial effects of growth. This will become important for environmental matters, as we will see in the following section.

2.2.2 Crisis

The requirement of compounding growth is a continuous problem for economies built on capitalism. We have seen that growth is the rule upon which we all agree to do business, conduct exchanges and take part in the market. However, the rule of growth is set in stone, whereby "a zero-growth capitalist economy is a logical and exclusionary contradiction. It simply cannot exist" (Harvey, 2014: 232). Therefore, the rule that applies to societies is an important one: if zero growth, or even low growth, occurs in a capitalist economy, such an economy is in crisis (Harvey, 2014: 232).

When the last such crisis occurred, starting in 2007, we got a glimpse of the effects of low and negative growth, and the steps taken under neoliberalism to restore growth. Such was the need to restore growth that agreements to rescue the economy were made between sovereign states and the financial institutions

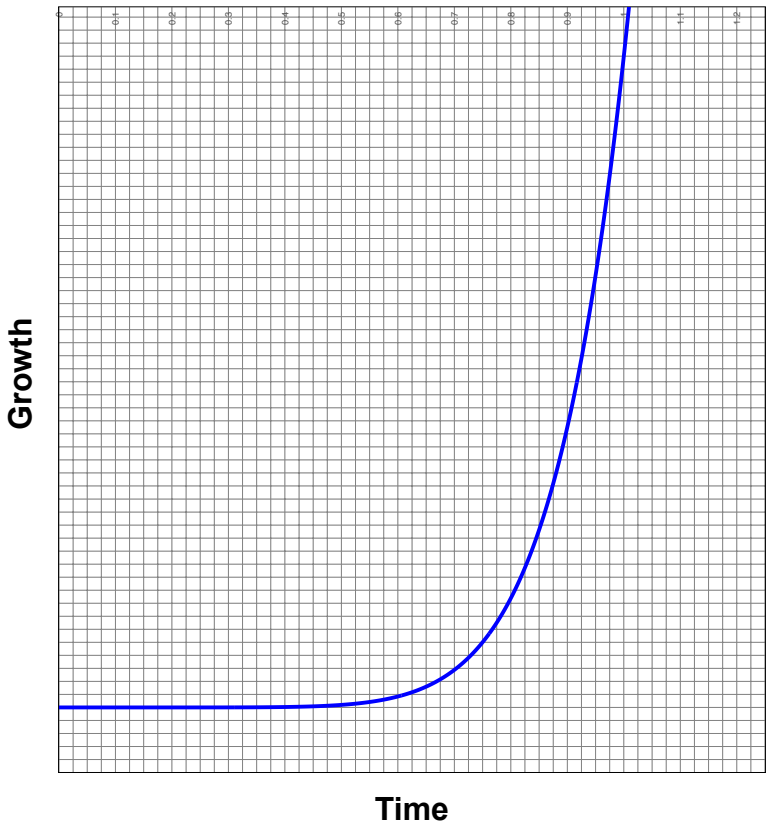

Figure 2.1. Compounding growth over time (visualisation by the author; compiled from data in Steffen *et al.*, 2006, and Harvey, 2014).

that arguably had brought about the crisis (Choonara, 2009; Lapavitsas, 2013). Agencies such as the International Monetary Fund (IMF) supervised and oversaw this arrangement, making it seem legitimate and indeed perhaps the only way of keeping capital flowing (Harvey, 2010: 49). Money was taken from the public and society in what critics call "accumulation by dispossession" (Glassman, 2006). State assets previously considered "common property resources" (Harvey, 2010: 49) were privatised (see also Klein, 2007). Indeed, part of the IMF "recovery" strategy for countries in crisis generally stipulates the privatisation of natural resources such as water, forestry and gas. In line with the general rules of neoliberal capital, resources considered part of the "commons", which traditionally included health and education, but also environmental entities, have increasingly been handed over to private interests for administration and profit making, if not outright ownership.

Therefore, projects that were developed under public and social ownership are removed from that ownership, dispossessing the citizenry while allowing private interests that had no hand in their development to profit from them. We have seen the growth in so-called vulture capitalism practised by private equity groups, whose role is to take over public assets, "rationalise" the workforce, asset strip the company and then return the company to the public domain once it is profitable to do so (Harvey, 2010: 50). Ultimately, these are ways of trying to get the economy back to growth when it experiences crisis, often at the expense of societal wellbeing and cohesion, and of protection of the environment. The practices can therefore be seen as "fixes", a concept to which we now turn.

2.2.3 Fixes

Critics of the "business as usual" economic position point to the problem of the crisis tendencies of capitalism. An environmental critique also brings into the discussion the ecological limits of the planet, arguing that it is necessary to practise "degrowth" or at least encourage a transition to a "steady state" type of economy (Jackson, 2009; Ryan, 2009; Kubiszewski *et al.*, 2013). One logical solution is to dampen the production of goods and its associated waste. This is an impossibility under current economic "rules of the game", however, in that "in a growth-based economy, growth is functional for stability. The capitalist model has no easy route to a steady-state position. Its natural dynamics push it towards one of two states: expansion or collapse" (Jackson, 2009: 64). Capitalist economies are therefore fundamentally unsuited to a steady state, let alone downsizing. We can therefore quickly see that it is usually a priority for governments to encourage growth, as it prevents or mitigates economic crises. This is true even in the face of environmental crisis, where growth usually takes priority over care of the environment.

This brings us to "fixes". The concept of a "fix" pertains to a way of resolving economic crises. Fixes can take different forms, but the most well known is the spatial fix. This spatial fix "is a general term that refers to many different forms of spatial reorganization and geographical expansion that serve to manage, at least for some time, crisis-tendencies inherent in accumulation" (Castree and Gregory, 2006: 146). A fix does not provide a long-term solution to crisis. Rather, it is a way of deferring, deflecting or "fire-fighting" crisis tendencies so that they are no longer immediate and urgent, but resolved to a state of temporary equilibrium. A fix is therefore a suspension, or postponement for another future crisis. Indeed, the spatial fix only ultimately intensifies crisis tendencies in the long run, as the core causes of crisis are never resolved, merely moved around and spread in space. The spatial fix is viewed as a necessary part of capitalist economies, in that the inbuilt tendencies towards crisis are temporarily deferred by spatial expansion and transformation. However, this spatial dimension *is* the environment in which the economy has to unfold. Therefore, if space is reorganised in the service of the economy, this points to a fundamental tension between the economy and the environment.

As successive iterations of crisis unfold, the spatial fix, and indeed "cascading spatial fixes", encourage the expansion of the crisis-prone system, spreading and intensifying the inherent crisis tendencies (Harvey, 2010: 50, 149). Related to the spatial fix is the temporal fix, whereby capital finds temporary solutions to crisis through finance and credit. The operation of finance and credit help to defer potential lack of return on investment by providing dividends, stocks and future value guarantees before the maturity or viability of the capital investment is assured. However, this has ultimately led to an entire "shadow banking" sector of "credit default swaps, currency derivatives, interest

rate swaps" in which not only banks but other private corporations have extensively participated (Harvey, 2010: 24). Corporations that were previously engaged in production entered the financial markets, deriving more profits from that aspect of their business than the productive aspect (Harvey, 2010: 23).

The temporal fix can also be seen in everyday consumer credit, where credit is used to defer payment. This masks the long-term neoliberal trend of wage suppression, where wages are no longer rising in line with productivity. This situation would have led to market stagnation, had the "temporal fix" of consumer credit not been introduced. Therefore, "the gap between what labour was earning and what it could spend was covered by the rise of the credit card industry and increasing indebtedness" (Harvey, 2010: 17; see also Lapavitsas, 2013).

2.2.4 Progress

There is little doubt that growth has had its benefits. It has, however unevenly, provided wealth, stability and prosperity for some parts of the world. It supports dynamism and innovation. However, having looked at growth, crisis and fixes, our ideas of growth and what qualifies as "recovery" of the economic system become more problematic. A further critique of compounding economic growth might stem from its erroneous association with happiness and wellbeing (Hamilton, 2003; Jackson, 2009; Sandel, 2013; Skidelsky and Skidelsky, 2013). This has implications for our collective understanding of progress in society, in that growth purports to promise a better future life, and indeed the idyllic "good life" that includes ecological benefits to society (Skidelsky and Skidelsky, 2013). From this ideological perspective, growth is equivalent to progress, and to critique the benefits of growth is deemed at best regressive. Indeed, any questioning of the unilateral benefits of growth is "deemed to be the act of lunatics, idealists, and revolutionaries" (Jackson, 2009: 14). Therefore, it can be seductive to assume that growth is not only beneficial for society, but a necessary precondition for societal progress and wellbeing.

However, despite the raising of living standards that have been associated with growth, indicators of social progress, happiness and human flourishing have at best remained level, if not decreased, over the time that neoliberal policies have been to the fore (Social Progress Imperative, 2015). Such policies also fly in the face of any meaningful engagement with the progressive and aspirational United Nations (UN) Sustainable Development Goals. Rather than bringing social progress, pursuing economic growth regardless of social conditions merely "fosters empty consumerism, degrades the natural environment, weakens social cohesion and corrodes character" (Hamilton, 2003). The neoliberal era has allowed markets to grow relatively free from regulation. At the same time, social protections have been forcibly weakened through the undermining of job and social security, along with the financialisation and privatisation of health, education and elder care. Statistics show that wellbeing peaked before the introduction of neoliberal policies, and has been declining since the 1970s (Hamilton, 2003; Skidelsky and Skidelsky, 2013). The wellbeing promised by growth has therefore been replaced by a pale imitation, driven by consumerism and advertising. Indeed, this consumerism is driven largely by faith that it will bring about utopia: "the compulsion to participate in the consumer society is not prompted by material need or by political coercion: it is prompted by the belief of the great mass of ordinary people that to find happiness they must be richer, regardless of how wealthy they already are" (Hamilton, 2003).

Despite the regressive social policies that have prevailed under neoliberalism, the "growth fetish" remains dominant in policy discourses. Institutional approaches that prioritise growth are touted as the touchstone of policy success (Hamilton, 2003), promising to alleviate societal issues from unemployment to health and education spending. The myth promises that with more growth the social goods that were eroded in the neoliberal era might eventually be reinstated. What is not pointed out is that, when GDP was less, economies could offer more social protection. Despite the compounding of growth and worldwide GDP, therefore, other debt burdens have eroded the potential for social progress. The financialisation of everyday life (Lapavitsas, 2013) is acknowledged as a way for the citizen to meet the debt burdens of living in contemporary capitalist economies. For the citizen this has resulted in a financial burden that is larger than in times of less GDP. Therefore, the link between increasing GDP and the promise of a "good life" is problematic.

2.2.5 Summary of this area of enquiry

In this section we have looked at some of the economic areas of relevance to this project. We have seen that our economy is based on growth. Yet, compounding growth over time leads to an inflexion point where the compounding requires more and more inputs to be maintained. We have also noted that the economy is crisis prone, and that when crisis hits, the public and society take second place to restoring growth (Polanyi, 2001; Hamilton, 2003; Harvey, 2010). Often the means of restoring growth are not only unjust and unfair, but temporary "fixes" that just move the crisis around in space and time. What is more, growth, while having some benefits, does not equate with wellbeing or happiness, and can devalue anything that is not a commodity. These tensions are discussed here to outline the systemic issues active in the consideration of how effectively to foster and encourage behaviour change towards sustainability.

2.3 Enquiry Area 2: The Environment

2.3.1 Environment and economy

In this section we discuss the influence that current economic thinking has on our concepts of the environment. This discussion reveals that, by default, economic logic sees environmental matters as external to economic matters. Therefore, it can be difficult to evaluate environmental costs and to weave them into economic models. Furthermore, the connection between the exponentially growing economy and the environment is important to the issue of behaviour change towards sustainability. In this section, therefore, we investigate the influence of the economy on environmental processes.

The influence of the economy on the environment is increasing, inevitably so, given that the size of the economy must also increase. Over time this means that the natural world itself is incorporated into the economy, to the point that "even genetic identifications are now claimed as private property" (Harvey, 2014: 253). With this influence, we also see how concerns for the environment are discussed through economic factors, with, for example, a representative from the World Bank famously decreeing that Africa is "under-polluted" (Foster, 1993). There is also a potential danger when decisions about pollutants are made by the market, to incentivise either the foregrounding or ignoring of particular pollutants (Smith, 2007a: 10–11). For example, use of diesel as fuel for domestic cars was incentivised by market forces. However, when diesel emissions were increasingly revealed as a threat to public health, the market was able to react (through advertising, promotions and publicity) to quickly restore the sales of diesel cars. Furthermore, as the average temperature rises under conditions of climate change, profits stand to be made in the area of weather futures and indeed extreme weather events, as seen in financial instruments such as hurricane futures markets (Smith, 2007b: 777). Under our current model, therefore, the economy and finance are seen as significant actors in mitigating climate change. This was articulated substantially in the influential Stern report (Stern, 2006), and subsequently was adopted into a more neoliberal framework (Spash, 2010). Overall the model is firmly within the boundaries of "business as usual", with little critique of how such financial instruments might exacerbate the issues, or act merely as a temporary "fix".

We must therefore consider the possibility that financial and market interventions act merely as a "fix" to ecological crisis. They offer solutions to such crisis without altering the economic status quo of compound economic growth. As we have seen, the economy is inherently crisis prone and requires such "fixes". However, these fixes are only temporary ways of lifting the economy out of immediate crisis, and merely move the problem around. Despite this, the importance placed on them by conventional economic thought potentially renders strategy hamstrung by requirements to leave the economic domain undisturbed. At worst, it could encourage society to actively participate only in economic solutions, while labouring under the misapprehension that there is no alternative to solutions that prioritise the economic status quo. Given the tensions between the current economic system and the requirement to move towards sustainability, this is a key systemic tension that needs to be taken into account when planning for behaviour change towards sustainability.

2.3.2 Resilience

Usually discussed in environmental contexts, resilience is understood as a key strategy in climate adaptation. It therefore requires mention for its

potential in fostering behaviour change towards sustainability. As a concept, resilience is synonymous with maintaining as much structural (i.e. social and cultural, but especially economic) stability as possible in the face of requirements of societies to adapt to climate change (Pelling, 2011). It is seen as "good" to aspire to resilience (Davoudi, 2012: 299), implying that to be vulnerable to ecological crisis is a collective weakness or failure. Resilience is a significantly popular figure of speech, with actors including the UN, Oxfam and the World Bank all emphasising "pathways to resilience" or "climate resilient pathways" to promote and ensure continued economic development. It is therefore threaded into policy and best practice discourses as a positive ambition.

The stance of international actors recognises that a strategy needs to be adopted in the face of environmental crisis. However, resilience as an adaptation strategy is problematic because it presumes or proposes the continuation of the economic status quo, rather than critiquing the system and allowing alternative, less wasteful and more equitable paradigms to be admitted into adaptation discourses (Pelling, 2011; Davoudi, 2012). This is of significance to a discussion of behaviour change towards sustainability, as it potentially limits the range of options for transformative non-consumerist practices. Resilience is therefore characterised by its foregrounding of the concept of "bouncing back" rather than "bouncing forward" to alternative, transitional or transformative pathways. The strategy of resilience can over-emphasise the ability of societies to adapt, while strongly suggesting that maintaining the status quo is the only option. Therefore, resilience is critiqued here for its dominance, which can overwhelm the discussion of other strategies, including transition and transformation (Pelling, 2011).

Climate change is seen as a type of epochal development that is bound to precipitate major regime change, but this is not a foregone conclusion (Klein, 2007; Pelling and Dill, 2010). Indeed, even in the face of environmental crisis, a dangerous contradiction of our current economic system lies in the fact that nothing need change, and that "it may be perfectly possible for capital to continue to circulate and accumulate in the midst of environmental catastrophes" (Harvey, 2014: 249). So-called "disaster capitalism" can continue to be mobilised to further expand the economy in the face of localised environmental disasters (Klein, 2007). Therefore, while many might conclude that profound change is necessary to shift the economy to a fairer and more environmentally sound model, the likelihood of this change is by no means certain, and the system may continue unhindered as it mines to exhaustion the very ecosystem upon which it depends.

This project therefore contends that, when a critical approach to resilience is taken, we can begin to think about other adaptive and transformative ways of thinking about our relationship with the environment. This in turn can reveal strategies beyond those currently in place. At a time when an exploration of a wide range of socioeconomic futures is required because of the spectre of environmental crisis, governance structures are hitched to the yoke of resilience. However, a key finding from this project is that other concepts are available that describe society's relationship with the environment in more nuanced and, it is suggested, more helpful ways. It is to these that we now turn.

2.3.3 The production of nature

The problems described above point to the need to explore other ways of thinking about the economy and the environment. If alternative discussions of the potentials of social and cultural innovations are marginalised, we may not find the best portfolio of solutions to move society towards environmental sustainability. It is now well established that the marks that our economic system has left on the environment are all but indelible. An economic system that has used the "free gifts" of nature for accumulation inevitably treats the environment as an "externality". As we have seen, the system requires growth, including spatial expansion, which transforms space for economic use. When one region has supplied all it can, capital moves on, leaving its detritus behind with no necessity to replenish or restore the space. Therefore, a key point for how we consider the economy and the environment is that capital transforms the environment upon which it acts. This is cumulative, with growth over time becoming more and more evident in its use of space and materials.

We can therefore consider the "production of nature" as part of economic processes (Smith, 2007a,b), whereby economic thinking assumes that the environment is "out there" to be used and manipulated

for production. Contemporary economic thought, influenced by neoliberalism, also suggests that humans are merely individuals who want to maximise their utility in the marketplace (Sandel, 2013). It therefore considers individuals in a very limited context, external to the environment, which in turn encourages thinking of the environment as "other" and existing merely for exploitation of resources. Therefore, in current thought "concepts of nature are less vanquished than co-opted to the present purpose", a view which turns the environment into an economic resource and reduces and simplifies its complexities to a resource for economic ends (Smith, 2008: 11). Indeed, the turn to "ecosystem services" and discourses of "natural capital" place further faith in the financialisation, privatisation and commodification of natural resources and processes, for the supposed benefit of the environment. This mistakenly conflates ideas of common ownership of natural resources with a "free for all", known as "the tragedy of the commons", and suggests that we are unable to manage our ecosystems sustainably without placing a monetary value on them (Ostrom, 1990). Following from this erroneous and simplistic conception, the environment becomes something to be exploited and used as a universal productive resource. Ideas of sustainability are therefore ignored, as the environment is still ultimately seen as separate from society, merely an external entity that can be used for production.

What these assumptions do not take account of is that humans are deeply embedded in natural processes even when most of society does not see these processes at work (Smith, 2008: 28). Therefore, a more rounded way of thinking about the environment is largely precluded in the current economic system. A complex relationship has been reduced to discussions of "nature versus society" or "economic versus environmental crisis". The economy is seen to affect the external environment, or the environment is seen to affect the possibilities of continual and perpetual growth in the economy. The research suggests that this is not a helpful way to consider the interrelationships between society, economy and the environment.

To come to a more nuanced understanding of our relationship with the environment we need to look further than the default assumptions that our economic system foregrounds. This report concurs with the observation that "an urgent necessity for the world today is […] to develop an understanding of the interconnections between the deepening impasse of the capitalist economy and the rapidly accelerating ecological threat – itself a by-product of capitalist development" (Foster, 2013: 1). This perspective acknowledges the pervasive impact of our economic development on the environment. It encourages dialogue with the two conceptual domains of economy and ecology in a way that acknowledges that the economy and the environment are deeply interconnected.

If we consider the economy as not separate from the environment, we can imagine them as mutually interacting with each other. In this light, our environment is "in" capital, in that nature is brought into, and internalised in, economic processes. We can go further with this perspective and begin to investigate "production all the way down" (Smith, 2007a). This is where the commodification of the environment is not a minor feature of the economy, but has become a "global ambition" (Smith, 2007a: 7). If the environment becomes central to economic processes for the purposes of profit making, the environment itself can be reconfigured through, for example, genetic engineering, use of agricultural chemicals and the remaking of natural environments into built environments (Harvey, 2014: 247). While societies have always "remade" the environment for progress, it is different under the current economic system because the remaking of the environment is now happening "increasingly in the name of capital and not of humanity" (Harvey, 2014: 247). It is therefore important to be circumspect about the financial instruments, stocks and markets that serve to make profits from environmental goods, services and even extreme natural events. This is particularly pressing under conditions of environmental distress.

Just as the environment is "in" the economy, we can also consider our economy as existing "in" nature (Moore, 2011). This perspective makes the interconnectedness of the two areas much clearer, with their internal processes, contradictions and tensions interacting with each other. Indeed, if we look at these areas in a rounded way, we soon see that, until the present environmental crisis, the economy historically faced the possibility not of absolute global natural limits to resources, but only of local limits that could be transcended and thus externalised through spatial and temporal "fixes". What makes this crisis far

more profound is that, for the first time, capital is now known to be challenging absolute limits of the planet in a series of what Rockström *et al.* (2009) identified as nine planetary boundaries, with their associated tipping points. These boundaries are climate change; ocean acidification; stratospheric ozone depletion; interference with the global phosphorus and nitrogen cycles; rate of biodiversity loss; global freshwater use; land-system change; aerosol loading; and chemical pollution (Magdoff and Foster, 2011; WWF, 2014). In challenging the limits of these boundaries, the system is flirting dangerously with the absolute capacity of the planet's ability to replenish itself. In short, therefore, when we consider the environment and the economy as deeply interconnected, a more nuanced relationship between them can emerge that is not generally discussed in contemporary economics.

2.3.4 The environmental metabolism

If we consider that the economy and the environment are interconnected, we can soon take the conceptual leap from thinking that the two areas are separate domains to considering economic production in terms of a social process that takes place within "the universal metabolism of nature" (Foster, 2013: 5). If we consider the environment and its relationship with society as a metabolism, we can begin to see how it provides wealth and resources that support society. However, this metabolism can proceed independent of human intervention, and indeed can exist without humans at all – although it would be a different metabolic system without humans. Weisman (2007) provides a thought experiment of what the world would be like if humans disappeared tomorrow, to leave natural processes to shape the materials of our homes, our cities and indeed what would be left behind in the form of microplastics and non-biodegradable materials. These observations encourage us to reimagine our relationship with the environment to encompass the perspectives of both the economy "in" nature and nature "in" the economy. Our economy is an ecological system that has the potential to transform nature "all the way down". However, its processes also take place within the environment and are therefore influenced by it. Therefore, if we consider this metabolism, we can think of this relationship as deeply central to the sustainability of societies. Otherwise societies become vulnerable to an "irreparable rift in the interdependent process of social metabolism" (Foster, 2013: 5). This puts questions of stewardship, care and environmental ethics more to the fore, if for no other reason than the maintenance of current economic and societal processes. The concept of metabolism therefore provides a way of acknowledging that economic production is a social process dependent on the integrity of environmental resources. If we degrade the resources to the point of total depletion, production will no longer be possible.

2.3.5 Summary of this area of enquiry

In this section we introduced some concepts about the economy and the environment. We learned that conventional and contemporary economic thought treats the environment as having little to do with it other than to provide resources for free. In this model, the environment never needs to be compensated for its destruction. Therefore, our economic model incorporates goods from the environment for growth. However, it does not provide an easy way for us to understand that the economic system is also situated within the environment. The default way of thinking in our economic system is that the environment is separate. This is not the case, however, and the concept of metabolism is introduced here as a more nuanced way of thinking about the relationship between the economy and the environment. When we consider the relationship in this way, we can conceptualise how the metabolism can become unbalanced and how it requires us to act to move it towards a sustainable equilibrium.

2.4 Enquiry Area 3: The Media

As the above overview of thinking on the environment has revealed, our relationship with the environment is influenced by society and the economy. We have also seen that society exists within nature (Smith, 2008: 33; see also Schmidt, 2014). Given that our understanding of the environment is influenced by society, it is important to understand how society understands the environment. As discussed above, part of this understanding comes from economic thought, which tends to separate the social process of exchange from the resources and materials that the environment provides. However, to an important extent our understanding of the relationship between

the environment and society is communicated through the media and cultural industries. These industries can influence our relationship with the environment either by simplifying it or by revealing the complexity of its metabolism with society. The media industries are central to understanding the extent of public knowledge on a subject, in that "what the media report – or fail to report – affects what is known" (Curran *et al.*, 2009: 16). It is also of central concern here to observe that the media are not neutral in how they produce, disseminate and problematise the salient issues of the day. Indeed, framing of salient public issues can be performed in such a way as to influence public opinion on government policies that are not in the public interest. For example, taxation policies that favoured the wealthy and generated greater economic inequality in the USA were presented in the overall context of economic growth, while inequality was de-emphasised despite becoming a salient issue for the majority (Bell and Entman, 2011). This resulted in a television news environment that "shaped an environment favorable to tax policies that exacerbated economic inequality in the United States and rendered America an outlier in income distribution among wealthy democracies" (Bell and Entman, 2011: 548).

2.4.1 Media and society

Human beings are deeply and inherently social (Garnham, 2000: 3; see also Hodgson, 2012). Part of our social evolution has involved "the development of the systems of inter-personal communication necessary for social co-ordination, beyond the context of unmediated face-to-face communication extended through space and time" (Garnham, 2000: 3). Therefore, media and cultural systems developed, improved and facilitated this extended form of communication as human societies grew more complex. Today, the media and cultural industries have become an integral part of broader contemporary society. The study of these systems therefore provides an important insight into the socioecological relationships with which we are concerned here.

As this project takes a themed approach to understanding interrelationships between the economy, the environment and media, it adopts the perspective that we must attempt to understand the media in its interactions with the economy, and how that also influences the ways in which society understands the environment. Garnham observes that "who can say what, in what form, to whom, for what purposes, and with what effect will be in part determined by and in part determine the structure of economic, political, and cultural power in a society. Thus one cannot be studied without the other" (Garnham, 2000: 4). Therefore, questions of who gets to produce the information that is received by audiences is of great significance for sustainability issues. When the media and cultural industries act more like a company, questions of institutional control, influence and positioning within the broader field of capital become ascendant in assessing their capacity to produce either an "affirmative culture" (Adorno, 1991) or one with transformative potential.

This is important for ascertaining how the media are likely to treat information and knowledge regarding the environment, and indeed sustainability. If we acknowledge the research that indicates that the media industries can be more concerned with economic matters than with alerting us to environmental distress and unsustainable practices, we can begin to understand how those industries might put out a message that nothing can be changed, or that change can only happen as long as growth is also maintained. Therefore, when faced with an environmental crisis, the apathy to transformative practices potentially promoted by the media and cultural industries is of concern. The relationship between the media and the economy is therefore significant for us to keep in mind when assessing the media as a platform for behaviour change towards sustainability.

2.4.2 Commodification

In the contemporary setting, the media and cultural industries are not external to the economy, or impervious to economic influence, but occupy a position within the broader field of capital (Garnham and Williams, 1980; Bourdieu, 1984). Added to this is a sense of relief when the media announce a recovery in the stock market, or in GDP, as it supposedly signals a positive upturn in the "real economy" irrespective of the conditions imposed on those affected by the measures taken to "fix" the latest crisis. Therefore, the role of the media in perpetuating a limited range of economic and environmental discourses is of significance to us.

Even the term “media and cultural industries” itself reflects how these communication systems are perceived under our economic system. As we saw above, these domains were historically considered social and public systems for extended, remote social and democratic communication. The Enlightenment depended on “the free exchange of ideas about the world and about social relations with fellow-citizens in order to arrive at truth and a freely chosen and shared moral community” (Garnham, 2000: 41). The mere change of wording to describe these domains as “industries” reveals much about how modes of social communication are deemed not so much social entities as commodities to be presented for exchange in the marketplace.

Present-day commodification of the media marks a significant transition in public discourse. When media are commodified, the range of what is produced becomes based on market demand, rather than on social appropriateness, need or the idea of a public good. Therefore, when the media, given their commodification, turn their attention to environmental issues, questions of what is reported, and how, take on a dimension that requires robust analysis and critique.

State or public sector media are also subject to commodification. For example, the BBC was heavily criticised for “false balance” in climate change reporting, whereby, in the name of journalistic balance, it gave equal weighting to opinions and scientific fact regarding climate change. This gave the impression to the public that the science of human influence on the climate was not settled (House of Commons Science and Technology Committee, 2014). To a greater extent, the privatised media sector are willing participants in the growth imperative, and are unlikely to critique consumption or promote responsible attitudes to waste, as they are dependent on other corporations and consumerism for advertising revenue. Therefore, a key issue for this research on sustainability is that the mainstream media industries are unlikely to supply discourses of alternative thought that prioritises wellbeing over consumerism, sustainability over conspicuous consumption, and downsizing over depletion and waste. This tendency is especially to the fore in market-dependent media industries.

2.4.3 The “waste” economy and media

Orthodox economics posits that the market is a public sphere where rational actors fairly buy and sell products based on their perceived worth. Therefore, consumerism is seen as “natural” in contemporary economic thought. However, according to Baran and Sweezy’s (2013a) theory of monopoly capital, since around the turn of the 20th century, the economy has been characterised less by dynamism and competition than by monopolistic tendencies, cartels and price fixing. According to the theory, this has exacerbated stagnation tendencies in economies due to excess capacity. Under these conditions, consumption and investment cannot keep pace with productive capacity, and the core underlying tendency to stagnation presents itself ultimately in crisis. The excess surplus needs to find outlets, in what is known as the “waste” economy. This waste economy is composed of channels that do not provide a use value, but are centred on exchange value that provides profits without a value based in the material, “real” or productive economy. Also included in this part of the unproductive economy is what Baran and Sweezy termed the “sales effort” of advertising, which included wasteful practices such as “spurious product differentiation, artificial physical and/or ‘moral’ obsolescence” (Baran and Sweezy, 2013a: 35). The sales effort enacted through media and advertising industries is therefore of importance to us when considering the role of the media in behaviour change towards sustainability.

A key characteristic of industrialised media is as a “cultural apparatus” where such media intend to “reach and influence the largest possible audiences” (Baran and Sweezy, 2013a: 40), rather than serving educational or informational materials to audiences. This aim, rather than promoting alternative, radical or even democratic views, “motivates the promotion of least controversial, hackneyed, and corny productions” (Baran and Sweezy, 2013a: 40) in the service of profit making. Even when the materials are shocking, lurid or extreme in content, they are conservative in terms of critiquing existing structures and thus should not be confused with notions of such media being in any way rebellious or radical in terms of new transformative practices (Baran and Sweezy, 2013b: 61).

The sales effort of advertising is part of the "waste" economy that is involved in the persuasion of citizens to consume. The media and cultural industries are therefore implicated in the production of non-useful "waste" for the absorption of profits. In the environmental context, this "cultural apparatus" does not concern itself with promoting less wasteful and consumptive norms that could move societal practices towards more sustainability. Rather, by seeking to appeal to the widest of audiences, it promotes the absorption of excess productive capacity through consumerism. In this form, these industries are concerned with creating a "mass society culture" centred on commodification and incorporation of more and more social areas into the market (Foster and McChesney, 2013: 4). Grasping the extent to which media industries are implicated in foregrounding "business as usual", rather than attempting to discuss new, alternative or better ways to help the environment, is therefore key to understanding how they can help societies to move to more sustainable futures.

2.4.4 Summary of this area of enquiry

Human beings are a profoundly social species, who use mediated communication to discuss, explore and propagate ideas. When we consider the media in relation to the economy, we see that increasingly the media are not public domains, but more and more privatised. They rely on advertising for revenue, and are therefore not likely to discuss ideas that are critical of the consumerist way of life. It is therefore important to understand the limits this places on their capacity to discuss sustainability.

2.5 Highlights from Three Areas of Enquiry

The next part of this report focuses on policy research. However, before we move on, the report presents a concise summary of key points that were discussed above in the three major areas of enquiry of the project.

2.5.1 Economy

- The economy is built on growth, but this growth is compounding. This has material effects on the planet, which is coming under increasing stress.
- The economy is also inherently crisis prone.
- Crises are never resolved, merely moved around in space and time through "fixes".
- Growth has benefits up to a point, but is no longer associated with wellbeing or happiness, merely encouraging wasteful and unsustainable consumerism.

2.5.2 Environment

- The economic system, based on exchange, tends to see the environment as a resource that provides "free gifts" without economic compensation being necessary.
- A more holistic way to look at the relationship is that the economy takes place within the environment.
- If we think of the relationship between the economy and the environment as a metabolism, we can see that it needs to be balanced to keep the metabolism healthy.

2.5.3 Media

- The media were previously seen as a means of exchanging information for the public good. The Enlightenment would not have been possible without them.
- Increasingly, the media are not public but private. Profits raised through advertising revenue take precedence over information.
- Advertising promotes "business as usual" consumerism, even when placed alongside news stories about environmental distress.
- Relationships between the economy and the environment become simplified under this form of media, and transformative practices away from consumerism are not likely to be discussed to any great extent.

3 Policy Research

3.1 Introduction

This project investigated selected climate and sustainability-related policy at international, regional (EU) and national (Irish) levels. This is to understand the range of solutions offered by existing policy so that, when planning for climate change mitigation and adaptation, we can understand how sustainability fits in with policy directives. The policy is examined at three levels, as it is important to understand the role of the Irish state as an actor with outward-facing links to the EU and then to international realms. What follows is a short summary of some key themes and findings from this part of the research. A comprehensive account can be found in Morgan (2016), from which this summary is drawn.

As the project established, there are interrelated economic and environmental issues of concern to us, which have implications for how to plan for the future. The concept of "fixes" was discussed in the previous section on the economy (section 2.2.3). The policy research has been undertaken with this in mind. Upon analysing the policies, it became evident that there is a particular type of fix in operation when it comes to climate change and sustainability. This demanded a new term to describe it: the "techno-finance fix". This term describes the intensive adoption of both financial and technological solutions in climate change mitigation and adaptation, from which pathways to sustainability are formulated.

It is important to stress that the "techno-finance fix" concept implies that technology and finance are in a symbiotic relationship which operates under the conditions of global capital. In their mutual self-enforcement, these processes combine to form a powerful narrative, the logic of which influences decision making at political and policy levels. In short, when it comes to climate policy, which in turn influences sustainability practices, the dominant discourses first acknowledge the problem of climate change, and then set to the task of mitigating it by placing faith in technology. This faith in technology is added to in turn by faith in the ability of financial instruments to fund technological breakthroughs, and also to act as arbiter for greenhouse gas (GHG) reduction through futures trading in GHGs and other pollutants.

Therefore, when planning for the future, policy is likely to offer suggestions within technological and financial frames. However, as we have seen, a fix merely defers crisis points, and this is of concern for us with respect to sustainability. Notwithstanding this, some policy reveals that opportunities for non-market and more socially progressive actions towards sustainability exist.

3.2 The Backdrop of Climate Change

The need to plan for sustainability comes largely from the threat of climate change and its effects. Climate change has risen to relative policy prominence since the release of the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC). Consensus is growing that economic "business as usual" is not ecologically sustainable because fossil fuel remains the dominant source of energy production. The need to reduce carbon consumption globally by up to 70% by 2050 is seen as the only scenario in which there is a likelihood of keeping the global temperature rise below 2°C above pre-industrial levels (IPCC, 2014a: 12–13). This goal, according to the IPCC, is achievable with a combination of mitigation strategies and alternative energy mixes (IPCC, 2014a,b). The minimal costs associated with acting in the short term to start this mitigation are set to increase, however, as mitigation is delayed (Stern, 2006; IPCC, 2014a,b). Therefore, immediate action is required to plan strategically for both mitigation of GHG emissions and adaptation to the climate change that has already taken place, which is, to date, in excess of 1°C above pre-industrial levels. This places the need to plan for a sustainable future at the core of urgent climate change action.

However, conflicting perspectives emerge on how to achieve emissions reduction targets, as maintaining the economy has been the priority of international and regional actors. This is despite warnings about "business as usual" issuing from the Stern Report (2006). Under pressure to encourage an economic

recovery, the relatively small costs of immediate mitigation take on significance in a global economy that has been in crisis. Any policies related to climate mitigation or ecological sustainability, let alone the implementation of these policies through strategic and robust planning, are in tension with restoring growth. This is evident in the energy landscape of recent years, where, because of a "renaissance of coal", the most efficient energy has been in the form of coal-fired power. This has led to an increase in the rate of carbon emissions, as illustrated in a stark finding from the IPCC (IPCC, 2014a: 7). This reveals that, despite an increase in binding treaties and the implementation of policies aimed at limiting emissions, not only have emissions continued, but the rate of emissions growth has increased from 1.3% (up to about 2000) to 2.2% (since 2000), pausing only briefly during the financial crisis in 2008–2009. Notwithstanding this, there have been positive developments since the release of the most recent IPCC reports, with renewables such as wind and solar now becoming economically competitive and overtaking fossil fuels as the world's largest source of energy capacity. Since the IPCC reports, much progress has been made in this area, with approximately 500,000 solar panels installed per day globally, and in China, two wind turbines installed per hour (Clark, 2016).

While developments in renewals are undoubtedly positive, economic and ecological priorities nonetheless exist in tension with each other at a policy level, with the economic agenda usually taking priority over the environmental agenda (Princen, 2013: 203). However, significant events can move and change policy priorities. Such "focusing events" (Kingdon, 2003: 94) are "powerful because they put one particular (aspect of an) issue in the spotlight, while simultaneously detracting attention from other (aspects of) other issues" (Princen, 2013: 202). The IPCC AR5 reports and the 2015 Paris Climate Conference (COP21) have acted as two such focusing events. Yet, the IPCC findings have emerged in a broader context that is embedded in a paradigm of maintaining growth, with the political economy of neoliberalism to the fore in economic, social and indeed environmental decision making and planning. Following on from the recent release of the IPCC AR5, COP21 in November 2015 was seen as a key moment to secure international, meaningful and legally binding targets on mitigation of GHGs, to ensure that global warming remains less than 2°C above pre-industrial levels. At first glance, the opportunity to secure meaningful and universal action was successfully realised at COP21. A binding agreement was reached by all 196 countries involved, including not only an ambition to keep warming below 2ºC, but a further ambition of keeping it to 1.5°C.

Given these tensions, it becomes important to analyse policy in terms of assessing its ability to function as an effective tool for achieving the necessary targets to minimise climate disruption and move to a more sustainable economy. The role of planning is also key, as clearly there is a mismatch between the goals of environmental policy to reduce carbon emissions and the reality of the economic drivers of emissions.

The project therefore analysed selected policies at three spatial categories: the international, regional and national levels. This is to build a contextual understanding of tensions and conflicts between environmental policy and perceived economic imperatives. The international context for the purposes of this work includes major global actors such as the UN, the IPCC, the Organisation for Economic Co-operation and Development (OECD) and the World Bank. In the regional context, the region chosen for this analysis is the EU. The EU is a major world region, rather than a micro-region. It is a significant part of the industrialised world, which historically industrialised on the basis of cheap availability of fossil fuels. It is therefore deemed one of the world regions historically responsible for current levels of pollutants in the atmosphere, which now require international interventions to offset.

At the national level, Ireland has been chosen for analysis. Ireland is an example of a state within the EU that leans towards neoliberalism, in the context of its status as a small, late-developing and geographically peripheral actor. Therefore, while environmental policy prompts are issued from the EU, Ireland in general adapts the prompt in ways deemed suitable for this setting, where development and spatial geography issues converge. In this instance, Ireland has chosen a policy of loose regulation and strong adherence to market strategies (Ó'Riain, 2014; Breathnach, 2010). This is further illustrated in Ireland's industrial policy, where indigenous agriculture is prioritised for development along the lines of expansion and intensification, as set out in the Food Harvest 2020 programme and the subsequent Food Wise

2025 programme, discussed below. Aside from the aggressive growth policy enshrined in domestic agricultural policy, multinationals are prioritised for investment supports, and foreign direct investment is a policy holy grail.

3.3 International Policy

The selection of international policy analysed in the project started with work from the UN, from which the IPCC draws its remit. The IPCC reports themselves were analysed for evidence of the "techno-finance fix". Documents from the OECD and the World Bank, key actors that can reinforce prevailing thinking, were also analysed. They are therefore included here, along with a report from the World Wide Fund for Nature (WWF), a non-governmental organisation with significant international standing. The inclusion of these actors is timely in a global ecological context where "the liberal environmental norm complex emerged during the 1970s out of struggles between the UN, the OECD and the World Bank over the nature of the connections between environmental protection and international economic development. Due in large part to the increasing influence of the OECD within the United Nations Environmental Programme, liberal environmentalism emerged as a compromise between environmental policy and emerging neoliberal orthodoxies" (Whitehead, 2013: 1356).

3.3.1 Key findings

Key findings from international policy reveal that economic growth is foregrounded, from the top down, by the United Nations Framework Convention on Climate Change (UNFCCC) (UN, 1992). This convention stipulates that its ultimate aim is to stabilise GHG emissions to prevent climate change. However, of interest to those who are aware of potentially conflicting economic and environmental priorities, the convention states that "such a level [of emissions reduction] should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and *to enable economic development to proceed in a sustainable manner*" (UN, 1992: 9, emphasis added). The growth paradigm is unchallenged. It is therefore of concern that, right from the top, an economic caveat is included in the terms of climate change mitigation. For the purposes of this project, this is deeply connected with moves to change behaviour towards sustainability, in that the requirement for ongoing and increasing consumption is not fundamentally challenged.

The brief of the IPCC is drawn from the UNFCCC. Working under these guidelines, the IPCC is charged with finding solutions that are potentially in tension with prevailing economic thought, despite the latest pronouncements that the "business as usual" growth-based economic and social formations are not an option (IPCC, 2014a). This is also a significant finding for the purposes of the current project, revealing the extent to which "business as usual" thinking applies.

The IPCC itself consists of three major working groups (WGs). WGI is concerned with the physical science basis of climate change (IPCC, 2013), while WGII is concerned with risk and adaptation, and WGIII with mitigation strategies. Being concerned with the scientific basis of climate change, WGI does not pronounce on economic or social formations and is not subject to analysis here. With overwhelming agreement on the physical science basis, this report asserts that it would be unhelpful to debate the validity of the findings of WGI, lest any hint of climate change denial be suggested. To be clear, this project asserts that the "what" of anthropogenic climate change is not being contested. Rather, it explores how climate change can be treated under conditions of growth-based economics that offer technological and financial fixes rather than alternative socioeconomic formations and new imaginaries towards sustainability.

A key finding when analysing IPCC WGII is that it discusses issues of uneven development: the Global South is more vulnerable to climate change, as a result of underdevelopment, yet these regions historically have not contributed to the problem (IPCC, 2014a,b). For the purposes of our analysis, this is positive in that there is some discussion of wealth distribution, however vague, admitting that these issues are "incompletely" considered in the research (IPCC, 2014b: 11). WGII also helpfully calls for an exploration of "a wide range of socioeconomic futures in assessments of risks" (IPCC, 2014b: 11), challenging the usual economic refrains of "there is no alternative" and "business as usual".

Another finding from WGII is its discussion of the impacts of climate change on economic sectors and services. The key message is that most economic

sectors will be adversely affected by climate change (IPCC, 2014b: 19), with uncertainty about the level of impacts if there are sudden or catastrophic events or tipping points. Indeed, according to the evidence, impacts are especially difficult to predict with warming above 3ºC as "losses accelerate with greater warming" (IPCC, 2014b: 19). This sends a message to even the most ardent proponents of cumulative growth that economic "business as usual" is threatened as impacts of climate change intensify. If for no other reason than to protect economic development, the message of WGII is clear: immediate mitigation and adaptation strategies are required. If not opening discourse on alternative or new socioeconomic paradigms, the discussion at its most conservative still requires immediate and sustained action within the current paradigm. Of course, if the economy is not fundamentally changed, any actions for the purpose of maintenance of growth-based paradigms are potentially bound to enter the realm of "fixes".

In short, therefore, WGII strongly and admirably advocates the urgent need for solutions beyond a "techno-finance fix" for these issues, for vulnerable societies in particular. While WGII mentions the use of technology to assist with climate adaptation and mitigation strategies, it also discusses non-technological changes in social, economic and political fields. WGII stresses that "business as usual" cannot continue, and that we need to find alternatives to the current economic system.

WGIII aims to function as a "map-maker" to provide policymakers with an overview of mitigation strategies without being prescriptive (IPCC, 2014a). The document is concerned with the costs of mitigation, couching those costs largely in economic terms, by necessity. However, WGIII is aspirational in its approaches to mitigation, in that it acknowledges that exceptionalism and self-interest among states is counterproductive, and that issues of equality, justice and ethics are part of mitigation (IPCC, 2014a: 5-6).

A key concern for policy is that WGIII indicates not only that GHG emissions have increased since 1970, but that the rate of increase has itself intensified, slowed only briefly by the economic crisis in 2007–2008. The group makes the startling observation that "despite a growing number of climate change mitigation policies, annual GHG emissions grew on average by [...] (2.2 %) per year from 2000 to 2010 compared to [...] (1.3 %) per year from 1970 to 2000" (IPCC, 2014a: 6). The group also observes that "about half of cumulative anthropogenic CO_2 emissions between 1750 and 2010 have occurred in the last 40 years" (IPCC, 2014a: 7). Therefore, WGIII acknowledges that the rate of emissions has been rising despite increased numbers of policies targeted at limiting emissions (IPCC, 2014b: 84). This connection is important because it underlines that, despite efficiency measures in resource use, mitigation strategies, caps and trades, there is an overall upward trend. However the analysis does not go as far as to critique the underlying active mechanism in this process, which is a world economy built on compounding growth. If this compounding growth problem were at least articulated, it might provide a partial explanation for the rate of increase in emissions despite the increased implementation of mitigation policies.

With the emissions rate increase highlighted by WGIII clearly at odds with the requirements for decarbonisation, the group observes that a low-carbon future is characterised by a rapid transition to a "full portfolio" of mitigation technologies and low-carbon fuel sources, including nuclear and carbon capture/storage (IPCC, 2014a: 17). The technological aspect of the "techno-finance fix" is therefore somewhat apparent, with great store set by the largely untested BeCCS (bioenergy with carbon capture and storage) technology, along with similarly aspirational CDR (carbon dioxide removal) technologies. It also must be noted that such untested and aspirational technologies are also proposed as means by which fossil fuels might continue to be used for electricity generation, in the belief that BeCCS and CDR will be installed at power plants to remove and store the carbon emitted on site.

The report of WGIII can be seen as offering a choice of energy mixes that require untested, emergent technologies and/or a nuclear option. The technology fix is problematic, particularly if the responsibility for waste management is in the hands of profit-making companies that are subject to the vicissitudes of the market. Moreover, with energy disruption from extreme weather more likely as the climate changes, the safety of certain technology fixes is profoundly contested. Secondly, the finance fix that prioritises the market as the best means to provide the best solutions is also evident in the WGIII report. This is problematic, in that the most economically competitive energy has

presented itself in recent years as coal. While this situation is shifting, with renewables undergoing rapid deployment, their development is still couched in terms of markets and costs, and therefore subject to further vulnerabilities that are part and parcel of a crisis-prone market system. Indeed, market forces dictated that the "best" energy for fuelling power plants in recent years was coal, leading to a rate increase in emissions, despite increased regulation and mitigation policies. It is therefore somewhat naïve to assume that a market fix alone will support the cleanest or most efficient technology in the consistent and stable manner required for future energy transition. Government intervention in the form of subsidies, grants and support for transition to renewables is a key instrument here as well. Yet, the foregrounding of market-based solutions downplays the key role of government instruments to encourage transition.

3.3.2 Other international documents

The World Bank has published three key documents, collectively titled *Turn Down the Heat* (World Bank 2012, 2013, 2014). The documents largely acknowledge myriad unprecedented challenges, with both regional and global effects. They acknowledge the difficulty in assessing the full scale of challenges but admit that, "although no quantification of the full scale of human damage is yet possible, the picture that emerges challenges an often-implicit assumption that climate change will not significantly undermine economic growth" (World Bank, 2012: 64). The acknowledgment of this "elephant in the room" does little to encourage hope for a paradigmatic shift in overall World Bank policies, however.

The subtext throughout these World Bank documents is that economic development must not be threatened by climate change. Therefore, the areas identified as vulnerable are of concern because they are also sites for the expansion of capital. Temporal and spatial fixes are in evidence, including "smart agriculture practices" and "promoting economic growth and the eradication of poverty and inequality" (World Bank, 2013: xv). Of course, economic supports for development may be necessary to lift impoverished regions up to decent living standards. However, the eradication of inequality is and has been compromised not through climate change alone, but rather through the social structure of the neoliberal economy. When the World Bank documents advocate the "techno-finance fix" among associated spatial and temporal fixes, they assume that "smart" techno-practices and the market will supply answers to climate change, while maintaining and extending the prevailing economic paradigm.

The WWF Living Planet Report (WWF, 2014) notes a massive reduction in biodiversity (a decline of 52% in their "Global Living Planet Index" between 1970 and 2010), and also that planetary overshoot is intensifying. This is linked to living standards, further highlighting that the developed world has a greater ecological "footprint" than underdeveloped regions. The document observes that a major challenge is "for countries to increase their human development while keeping their footprint down to globally sustainable levels" (WWF, 2014: 12). However, further into the report there is a graphical demonstration of the existence of a correlation between development and unsustainability. While the EU fares considerably better than the USA, the analysis reveals that "no country meets both of these criteria", i.e. good standards of living while not exceeding the biocapacity of the planet (WWF, 2014: 60). This is a key finding for this project, and undermines the assumption that "green growth" can be achieved, with implications for sustainability under the current economic system.

The WWF report foregrounds that any economic paradigm must operate within designated safe living spaces, avoiding planetary overshoot while ensuring an acceptable standard of living for all societies (WWF, 2014: 68). The report is thus critical of policies "with a myopic focus on economic growth and narrow interests", and business models "that focus on short-term profits and fail to account for externalities and long-term costs". It also critiques consumption for the sake of consumption "that makes few happier or healthier" (WWF, 2014: 68). This is progressive, in that it acknowledges the disconnect between GDP and wellbeing (Hamilton, 2003; Sandel, 2013; Skidelsky and Skidelsky, 2013), and avoids the position that more economic growth is required to provide better social and ecological living conditions. The report suggests that best practice is that which does not "silo" environmental policy, but sees it as integral to fiscal and social policy. This is a key finding for the purposes of this project.

The OECD document *Towards Green Growth* (OECD, 2011) sends a core message of how beneficial growth has been, and how a continuation of growth is required to maintain the benefits already accrued. The critique of development and ecological footprint in the WWF report is absent here, with the report declaring instead that "the ability of reproducible capital to substitute for (depleted) natural capital is limited in the absence of innovation. By pushing the frontier outward, innovation can help to decouple growth from natural capital depletion" (OECD, 2011: 10). This is despite overwhelming evidence that, to date, there has been no decoupling of increased living standards and ecological overshoot. The salient message from this report is therefore that market and finance fixes are to be encouraged. It promotes the intensification of commodification, noting that "barriers to trade and investment can place a serious break on the development and diffusion of green technologies globally. Reducing these barriers while providing effective protection and enforcement of intellectual property rights (IPRs) are essential to encourage the development and diffusion of technologies and the facilitation of foreign direct investment and licensing" (OECD, 2011: 12). Under these terms, a resource has to be enclosed and made a commodity for it to have any value.

In short, the thinking emerging from selected international policy ranges from reports that are critical of the potential of growth and consumerism to be reconciled with sustainability, to those that favour aggressive growth, as long as it is "green" growth.

3.4 Regional (EU) Policy

At the EU level, a selected number of policy documents are of interest for their attempts to challenge consumption norms, to take account of ideas of wellbeing and to offer concrete policies for carbon mitigation. The documents analysed were a technical report from 2012 titled *Policies to Encourage Sustainable Consumption* (EC/Bio Intelligence Service, 2012), the European Commission's 7th Environmental Action Plan, titled *Living Well within the Limits of Our Planet* (EC, 2013), the 2014 EEA Signals document (EEA, 2014) and the European Council Conclusions on 2030 Climate and Energy Policy Framework 2014 (European Council, 2014).

From the analysis of the documents, some key points of interest emerge. One is that the EU-level documents see connected roles for citizens and government actors with respect to sustainability strategies. Another is evidence of a willingness to problematise conventional growth-based assumptions of economic development, and to critique consumerist economics and the role of advertising. These are all progressive in terms of potential discussions that can occur in planning for behaviour change towards sustainability, in that these selected EU documents collectively foreground the need for a range of socioeconomic pathways to mitigate climate change and move towards sustainability. While the underlying growth paradigm is, unfortunately, to the fore, these documents are partially critical of the "business as usual" stance. There is also present in them some degree of creativity in thinking about alternatives, including small-scale initiatives to foster community involvement in sustainability practices. The work of non-governmental organisations such as the Climate Reality Project (www.climaterealityproject.org) is of relevance here; they work in countries such as Nepal, where workshops on "sustainable solutions" engage local stakeholders to build not only awareness but also on-the-ground involvement in sustainable practices. This indicates that there is an openness at this level to empower citizens, government actors and the planning domain to think creatively about responses to consumerism, waste and growth. This is an important finding for this project, as it suggests that such measures can be applied nationally to encourage behaviour change towards sustainability.

3.5 National Policy

Having looked at general policy frameworks at international and EU levels, we now apply those frameworks in the context of Ireland, an EU Member State characterised by geographical peripherality, late development and tendencies to adopt neoliberal policies in the hope of achieving a "path to economic nirvana" (Boland, 2014: 70). This is while Ireland fails to heed warnings that such strategies amount to "a 'dangerous obsession' for spatial planning" (Boland, 2014: 70), hampering efforts to achieve behaviour change towards sustainability, as seen previously.

In Ireland this tendency has been evident in particular during the economic bubble known as the "Celtic

Tiger". When the extensive liberalisation of the Irish economy occurred during the "Celtic Tiger" years, the planning domain was also influenced in this direction, developing a speculator-led planning process characterised by short-termism and loose regulation characteristic of neoliberal strategies (Kitchin *et al.*, 2012: 1306). During this time the planning system "became beholden to development, being progrowth in orientation with a presumption for development operating, and was consistently undermined with localism, clientelism, cronyism, and low-level corruption" (Kitchin *et al.*, 2012: 1314). Therefore, while an aspirational spatial strategy was in place, it lacked implementation because of "a lack of joined-up planning between local, regional, and national strategies" (O'Callaghan *et al.*, 2014). This led to unsustainable development of land, and speculator-led housing developments.

Therefore, when the larger global financial crisis unfolded, a perfect storm of neoliberal banking and financial practices dovetailed with clientelism and corruption in planning, along with a general tendency to deregulation in both sectors, despite an aspirational spatial planning policy. Ireland is therefore significant in terms of its historical and contemporary reactions to growth, and the tensions between restoring growth and environmental and sustainability factors.

Despite being a small country, Ireland is a significant actor in terms of climate change. It has one of the largest GHG emissions per capita in Europe (Figure 3.1). This is largely due to its proportionately high percentage of GDP output from agriculture, which is twice the EU average. It is estimated, for example, that the agri-food sector constitutes 7% of Ireland's GDP (Teagasc, 2016). The tensions between active and intensifying growth in this sector and balancing ecological sustainability are therefore to the fore. This sector contributes €24 billion to the Irish economy, a figure which is set to rise with Ireland's Department of Agriculture, Food and the Marine having launched its Food Harvest 2020 programme in 2010 (DAFM, 2010) and subsequently its Food Wise 2025 programme in 2015 (DAFM, 2015). The latest programme aims to increase the value of agricultural output by 85% while achieving an export target of €19 billion for the sector (DAFM, 2015: 10). The programme also projects 70% growth in value in the agri-food, fisheries and wood products sector, and the addition of 23,000 new jobs in the agri-food sector (DAFM, 2015). Part of this expansion entails an increase in the size of the national herd and its ensuing methane outputs (DAFM, 2015: 35). The beef and dairy sectors are expected to account for 70% of the value of this aggressive growth policy, along with 70% of the added value (DAFM, 2015: 19).

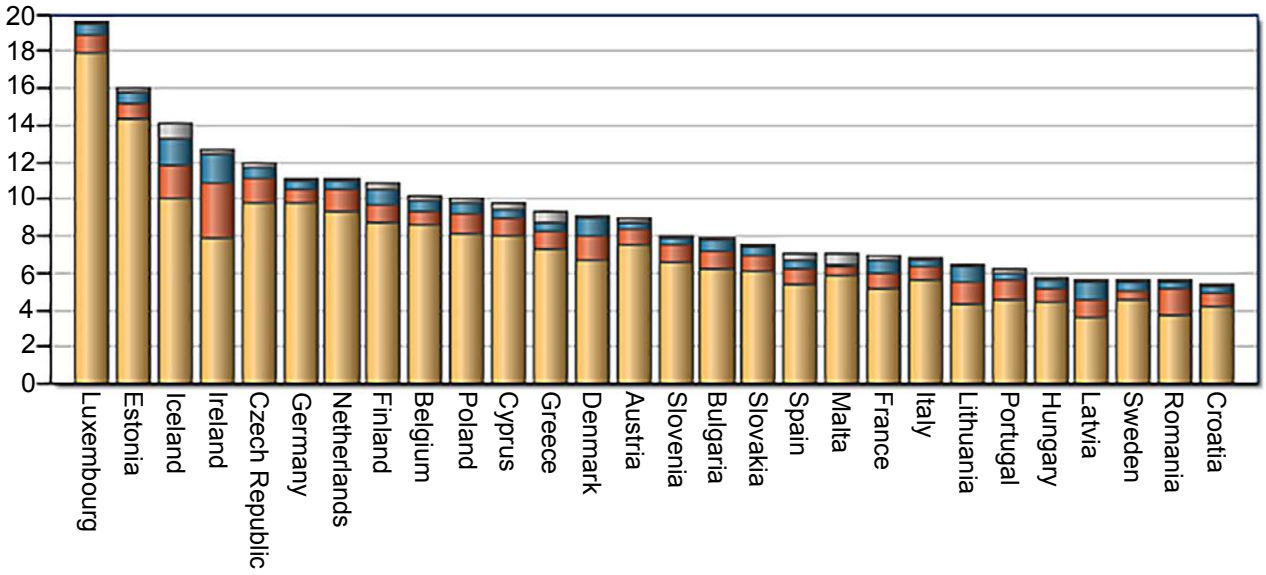

Figure 3.1. Greenhouse gas emissions per capita in 28 European countries in 2014 (EEA, 2016). Emissions per capita in Mg (tonnes): grey bars – fluorinated gases (CO_2 equivalent); blue bars – nitrous oxide (CO_2 equivalent); red bars – methane (CO_2 equivalent); yellow bars – carbon dioxide.

In terms of sustainability, the earlier programme is hubristic, suggesting that, despite an aggressive growth policy, emissions from this sector can be not only managed, but reduced (DAFM, 2010). The programme acknowledges that "a 12% rise in GHG emissions could result from the increased output envisaged in the national dairy herd" (DAFM, 2010: 23). However, according to the programme, this increase can be offset through "research investment", technology transfer and "advice on management interventions to enhance carbon uptake in soils" (DAFM, 2010: 23), to be led by the Teagasc research centre. However, such offsets fall short of available "fixes", and are in the realm of technological "dreamware" and pledges to conduct further research. This reveals the lack of integrated strategic planning that foregrounds sustainability and makes it an integral part of policy. This in turn affects what can be mobilised in terms of sustainability policy from the top down.

In terms of the latter programme (DAFM, 2015), the clear message is to pursue aggressive growth to meet projected international demands for more protein and luxury goods. The "consumer trends" to respond to include "health and wellbeing (vitamin and protein enhancement, healthy aging), nutricueticals, sports nutrition, early years child and infant nutrition, convenience foods and in addition food which can be shown to be natural, sustainably produced and meets a range of 'free from' requirements" (DAFM, 2015: 33). This is in addition to the luxury whiskey and craft beer sector, which the programme suggests are "high value, branded products" (DAFM, 2015: 37).

The key area of sustainability is poorly addressed in this report. While it discusses proposed recommendations and actions, it is striking that no reference is made to the obligations of the state with regard to its international obligations to limit GHG emissions. The programme proposes an increased use of fertilisers to support the growth of the sector, ignoring the additional GHGs that are associated with such proposals. The programme also lacks a robust problematisation of the effects of climate change on the prospects for growth of the agri-food sector. Overall, the programme speaks more to an aggressive growth and intensification strategy than to notions of planning for sustainability.

The overall Irish climate and sustainability policy landscape is also contextualised by the Climate Action and Low Carbon Development Bill 2015. This bill is a long-awaited successor to a prior draft that was widely criticised for its failure to include binding targets for emissions reductions. However, the 2015 bill has changed little from this prior draft and still does not include binding targets. It does, however, include a commitment to "take into account any existing obligation of the State under the law of the European Union or any international agreement" (Oireachtas, 2015: 5). This at least acknowledges that Irish policy will not supposedly flout binding targets from the EU or UNFCCC that may be forthcoming. Obvious though it is at a political level that such a formulation is a display of side-stepping, nonetheless it locks the Irish state into EU-level binding targets.

In line with some regional and international documents, this bill also perceives the issue of climate change solely within a growth-based economic paradigm. It locks in the need to protect growth, in that the minister and government, in addition to respecting international targets, will also need to have regard to "the need to promote sustainable development, [...] the need to take advantage of environmentally sustainable economic opportunities both within and outside the State, and [...] the need to achieve the objectives of a national mitigation plan at the least cost to the national economy and adopt measures that are cost-effective and do not impose an unreasonable burden on the Exchequer" (Oireachtas, 2015: 8). The obvious subtext here is that it was perfectly acceptable for finance to place such an unreasonable burden, but not the ecosystem.

The climate bill has also been criticised by non-governmental organisations, one of which, for example, has noted that the bill "does not include a definition of low carbon, it doesn't guarantee the independence of the Climate Advisory Council, and it doesn't include the principles of climate justice" (McGee, 2015). It is also watered down by a 24-month delay in implementation, effectively delaying action on 2020 targets until 2017. This is quite patently a cynical political decision, as it means that the subsequent government, rather than the one which wrote the bill, is charged with taxing or penalising defaults on emission targets (Gibbons and Price, 2015). Even if it is committed to prioritising climate change, it will be far more difficult for the subsequent government to meet the 2020 targets from 2017 than if the government had instigated some measures immediately, as the next

government will be required to concentrate efforts in a shorter time frame. On a micro-scale, therefore, Irish policy currently disregards the IPCC observations that acting immediately is more cost-effective and requires less dramatic decisions than deferring action. The overt short-termism also runs contrary to ideas of long-term strategic planning towards sustainability. Thus, in a double action, the bill potentially both excludes the planning dimension entirely and defers action in such a way as to show no regard for strategic planning concepts.

3.6 Highlights from Policy Findings

- The “techno-finance fix” is to an extent evident in international policy.
- The IPCC advises against “business as usual”, but other international policy actors are pro-growth and pro-“techno-finance fix”.
- The policies at EU level are somewhat open to transitional or transformative interventions towards sustainability, and could be drawn upon for national best-practice.
- Irish policy is fraught with conflicts and is dominated by adherence to neoliberal principles, seen in its programme for agricultural intensification.
- In the Irish context, there are serious implications for sustainability if an aggressive pro-growth policy is maintained in sectors such as agriculture, where the only mitigation strategies seem vague and inadequate.

4 Case Study: Broadcast Media

4.1 Introduction

Having analysed the theoretical backdrops, and the *Realpolitik* of climate policy and its implications for sustainability, the project analysed a selection of state TV news and current affairs broadcasts in Ireland, at the time of the release of the IPCC AR5. This analysis was carried out to assess the relative potential of media domains to provide new and necessary discourses on issues of climate change and sustainability. A key aspect of this analysis was therefore to assess broadcast journalism in the context of a "bundle" of content, where the "serious" news content is interspersed with advertising breaks. In the case of RTÉ, a typical evening news broadcast of 1 hour contains two advertising breaks. This report therefore stresses that the quantity, quality and scientific rigour of the journalistic content on climate change or sustainability cannot be taken in isolation from the potentially conflicting messages that the viewer also receives through the advertising content. Therefore, the singular TV news broadcast is seen as a "bundle" of both journalistic and advertising content, with implications for dissemination of sustainability-related information in these domains.

At a more granular level, the analysis suggests that we cannot assume that individual news stories themselves form a cohesive discourse on action towards sustainability, but rather that the journalistic content of the news stories has to be taken in the context of the stories forming a discourse with each other. Furthermore, it suggests that, where advertising content is present within news broadcasts, this contributes to the discursive streams in the broadcast. That brings us to the idea that the overall news broadcast can be seen as a bundle of journalistic and advertising content. This places the individual news features on climate change and sustainability within a context of complex and often contradictory messages, revealing that a focus on the climate change stories alone neglects the important political and economic contexts within which the stories are situated. The project findings therefore suggest that messages promoting action towards sustainability can be diluted or, indeed, undermined by contradictory messages around growth and consumption.

4.2 Methodology

The project drew on primary research that was conducted across the four timeframes of the release of the IPCC AR5. We selected the Irish state broadcaster, RTÉ, as a model of broadcasting that bundles advertising content with its journalistic broadcasts.

Performing research on broadcast TV presented challenges, as each programme had to be recorded to include the advertising content. Reviewing the news footage on the RTÉ website would not have captured this content and recordings had to be made. However, as TV news is a dominant medium for audiences, and its coverage of stories correlates with that of other media (Bell and Entman, 2011: 550), it was deemed an important medium to analyse. Indeed, TV news acts as an important leader in forming opinions for other media, in that "studies have shown that television news may be more influential in opinion formation on both candidates and issues than newspapers; are usually consistent with the content of other mainstream mass media, including radio and newspapers; and exert influence on the content of those competing media" (Bell and Entman, 2011: 555).

The analysis was conducted in four 2-week periods across 2013 and 2014, to cover broadcasts for 1 week either side of the release of the four IPCC AR5 reports (IPCC 1, IPCC 2, IPCC 3 and IPCC SYN) (Table 4.1). A total of 773 stories were analysed, revealing 24 stories relating to climate change or sustainability. Sustainability was also included as a subject, as climate change action has a relationship with issues of ecological sustainability. The broadcasts reveal a total of 618 advertisements across this timeframe (Table 4.2).

4.3 Findings

The data from the analysis were analysed to ascertain the proportion of coverage related to climate change

Table 4.1. Total number of news stories across reporting times, and those related to climate change and sustainability

Report release date	Dates of analysis	Total stories	CC/SUS
IPCC 1 27 Sep 2013	20 Sep 2013 to 4 Oct 2013	207	12
IPCC 2 31 Mar 2014	24 Mar 2014 to 7 Apr 2014	199	5
IPCC 3 13 Apr 2014	6 Apr 2014 to 20 Apr 2014	182	5
IPCC SYN 2 Nov 2014	26 Oct 2014 to 9 Nov 2014	185	2
Total		773	24

CC, climate change; IPCC SYN, synthesis report; SUS, sustainability.

Table 4.2. Total number of advertisements across reporting times

Report release date	Dates of analysis	Total advertisements
IPCC 1 27 Sep 2013	20 Sep 2013 to 4 Oct 2013	168
IPCC 2 31 Mar 2014	24 Mar 2014 to 7 April 2014	174
IPCC 3 13 Apr 2014	6 April 2014 to 20 April 2014	127
IPCC SYN 2 Nov 2014	26 Oct 2014 to 9 Nov 2014	149
Total		618

IPCC SYN, synthesis report.

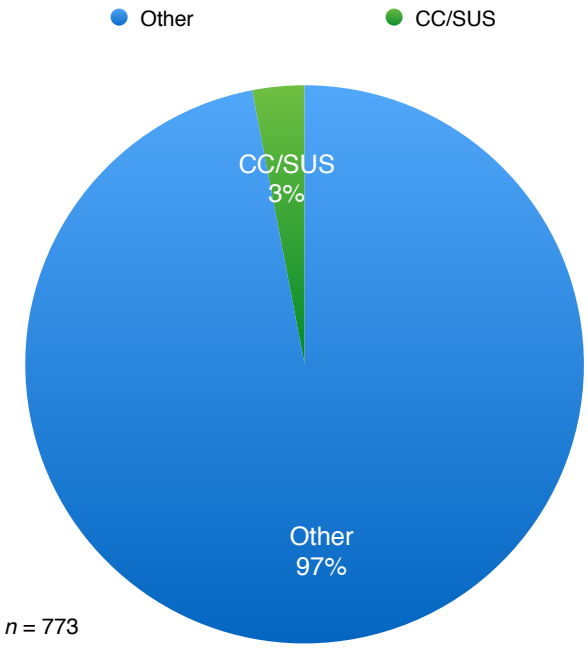

Figure 4.1. Percentage of total stories (773) devoted to climate change/sustainability.

or sustainability. It was expected that coverage levels would be high at this peak time for climate change news. The data revealed an average of 3% of stories devoted to climate change or sustainability overall (Figure 4.1).

4.3.1 News coverage

The data were broken down more granularly across the four periods of analysis, and a PESTLE (political, economic, social, technological, legal and

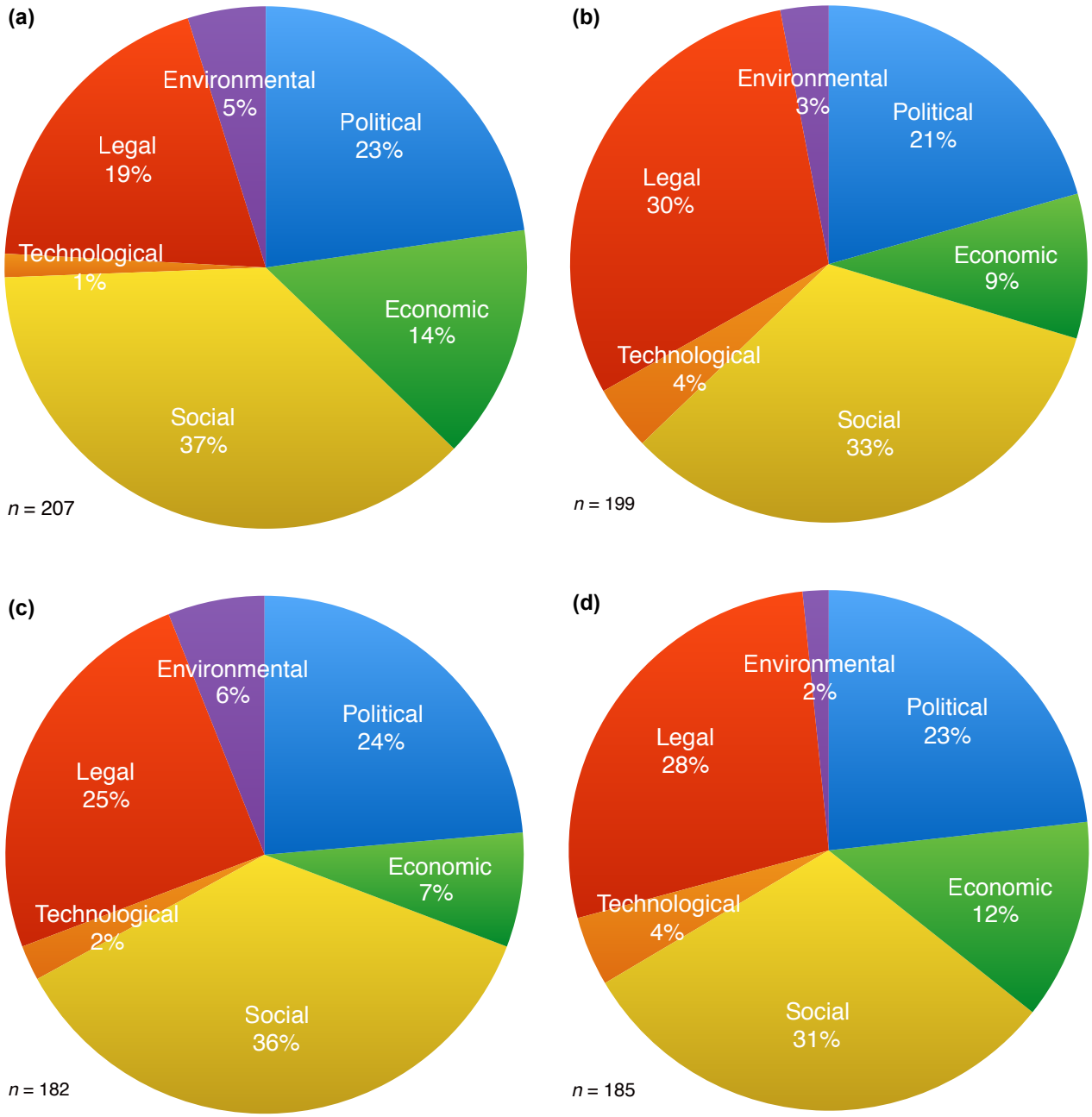

Figure 4.2. Breakdown of news stories across subject areas. (a) IPCC 1, 207 stories; (b) IPCC 2, 199 stories; (c) IPCC 3, 182 stories; (d) IPCC SYN, 185 stories.

environmental) analysis was conducted, in which all news stories were categorised according to political, economic, social, technological, legal or environmental relevance (Figure 4.2).

When the data are aggregated, the results reveal a slight increase in the percentage of stories falling into the environmental category, which rises to 4%. This is due to coverage of stories such as the arrest of a number of Greenpeace workers or the theft of radioactive material, both categorised as related to the environment, but not to climate change or sustainability.

The aggregate data thus shows a prioritisation of social (34%), legal (25%) and political stories (23%) throughout, with economic stories representing 11% of coverage overall, and environmental and technological stories 4% and 3%, respectively (Figure 4.3).

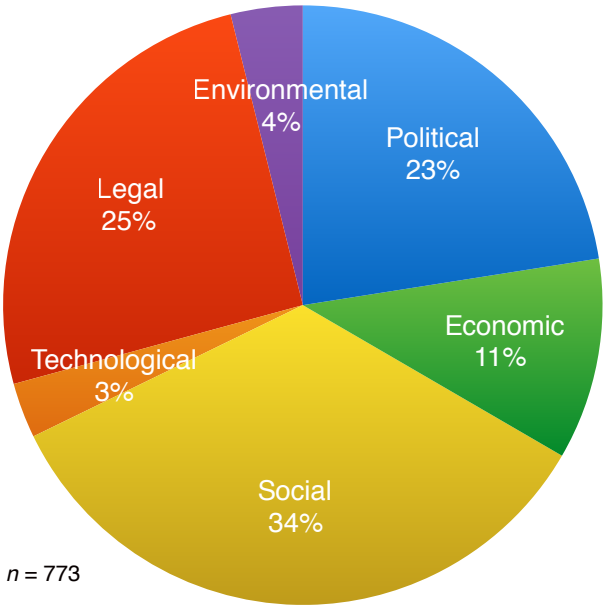

Figure 4.3. Total aggregated news stories across four reporting periods, broken down by subject area.

4.3.2 Advertising

The advertising content was quantified and analysed according to subject across the four time periods. The categories of subject were decided once every advertisement had been quantified and its subject matter noted. The categories adopted were ICT (information and communications technology), food, transport, energy, FIRE (finance, insurance and real estate), body maintenance and fashion, home/household, and other (Figure 4.4).

There was significant variation in the number of advertisements devoted to particular subject areas over time. This is discussed below. However, the aggregate advertising data reveals a pattern whereby food is the most prominent advertising subject, averaging 39% when aggregated across all four reporting periods (Figure 4.5).

4.4 Analysis: Patterns of Coverage

4.4.1 News and current affairs

The data above can be used in quantitative ways to ascertain the number of stories devoted to climate change or sustainability. They might be used to appeal to a broadcaster to increase the absolute number of stories devoted to these matters. However, the data also reveal information about the patterns of coverage of news stories, and the ways in which the particular stories are treated.

News stories can be either episodic or thematic (Iyengar, 1991). Episodic coverage is where a news story breaks on a particular day, and is covered on that day, but is not reprised on subsequent days. Thematic coverage may span more than one day and is conducted from a number of perspectives. For the public communication of the issues pertaining to climate change, and the requirement to engage in behaviour change towards a more sustainable society, it is important that the complex issues be treated thematically. This is so that the audience may grasp the various facets not only of threats, but of positive actions needed to move towards more sustainable behaviour.

In terms of the analysis of the patterns of coverage therefore, it is important to assess the coverage over the timeframes involved, in order to assess whether the coverage is episodic or thematic. Figures 4.6, 4.7, 4.8 and 4.9 show the breakdown of stories by day for each of the four time periods of analysis, with the release date of the report falling on day 8.

When we aggregate this data, the pattern shows that episodic coverage is dominant, with unrelated climate change stories appearing before the release date of each report, but the report date showing a small spike in coverage. Yet for none of the four time

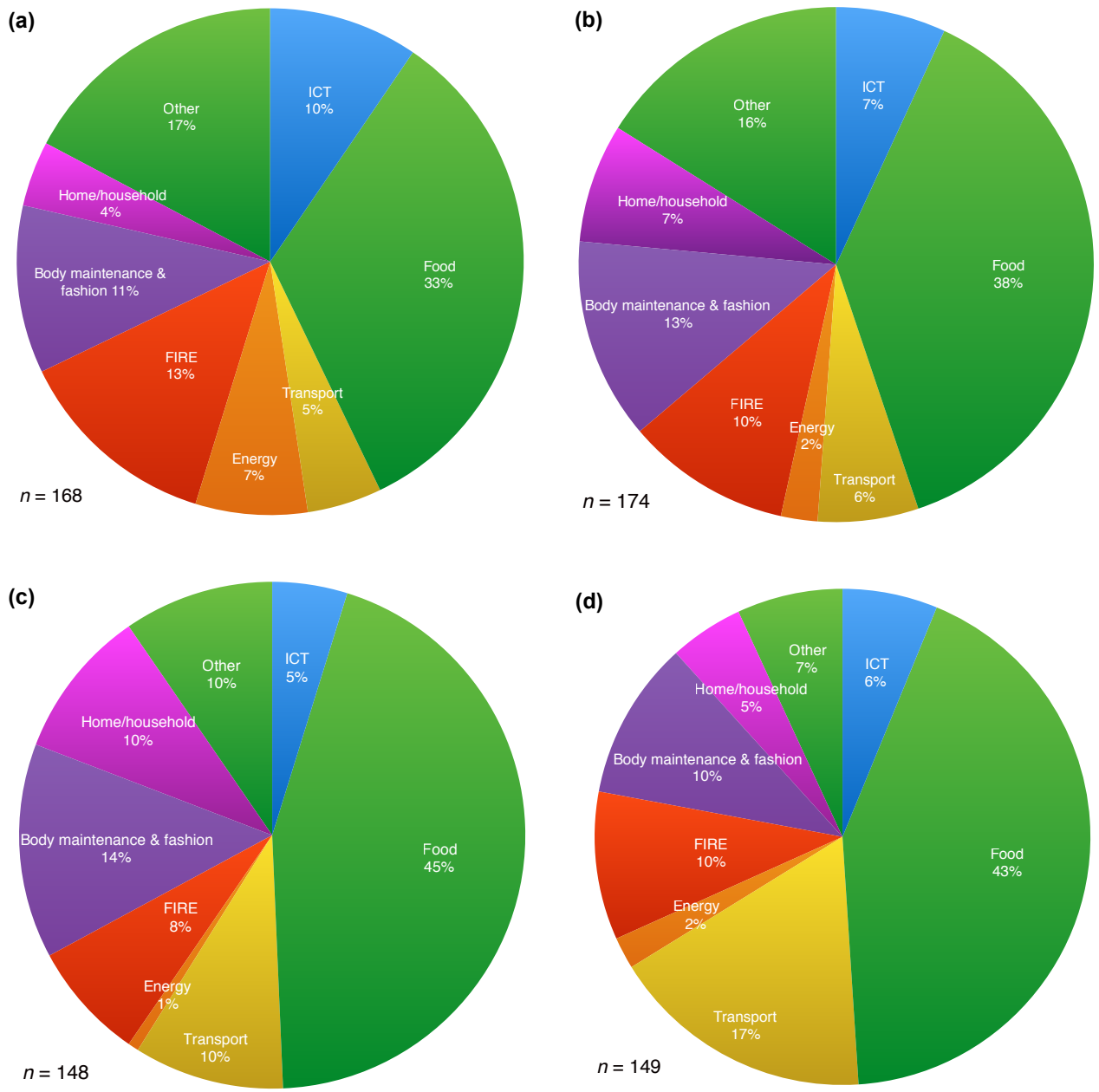

Figure 4.4. Breakdown of advertisements across subject areas. (a) IPCC 1, 168 advertisements; (b) IPCC 2, 174 advertisements; (c) IPCC 3, 148 advertisements; (d) IPCC SYN, 149 advertisements.

periods did coverage occur on the days following the release date of the report. From Figure 4.10, we can see that on day 8 of the reporting period, across all four periods analysed, there is a spike in coverage. Day 8 corresponds with the release date of the IPCC reports, as this analysis was investigating coverage for one week either side of the report release date. However, the aggregate data show that on no occasion over the four report release dates was the coverage treated thematically. Figure 4.10 reveals that there is no coverage of any climate change- or sustainability-related stories on day 9, the day after the report release date, for any of the four time periods analysed.

Current affairs broadcasting was also investigated during this time. The *Prime Time* RTÉ current affairs programme is broadcast three times a week after the main evening news at 9 p.m. It frequently carries over stories from the news broadcast for more in-depth coverage. However, there was no *Prime Time* coverage of the IPCC AR5 during the four periods of analysis. Hence, nothing in the chosen current affairs

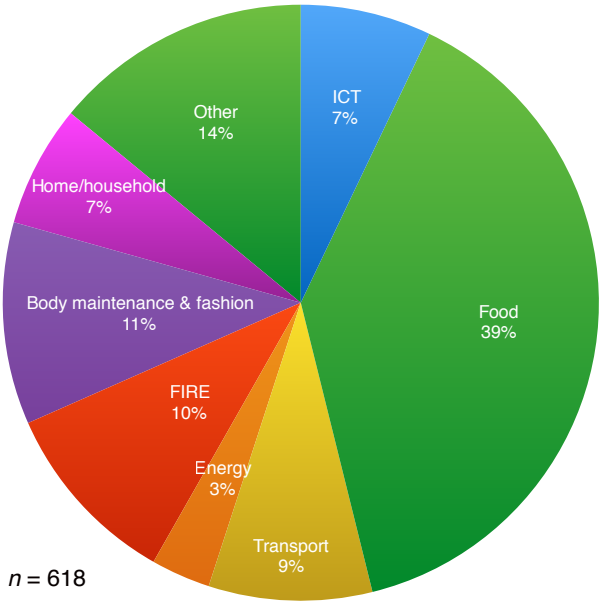

Figure 4.5. Total aggregated advertising across four reporting periods, broken down by subject area (618 advertisements).

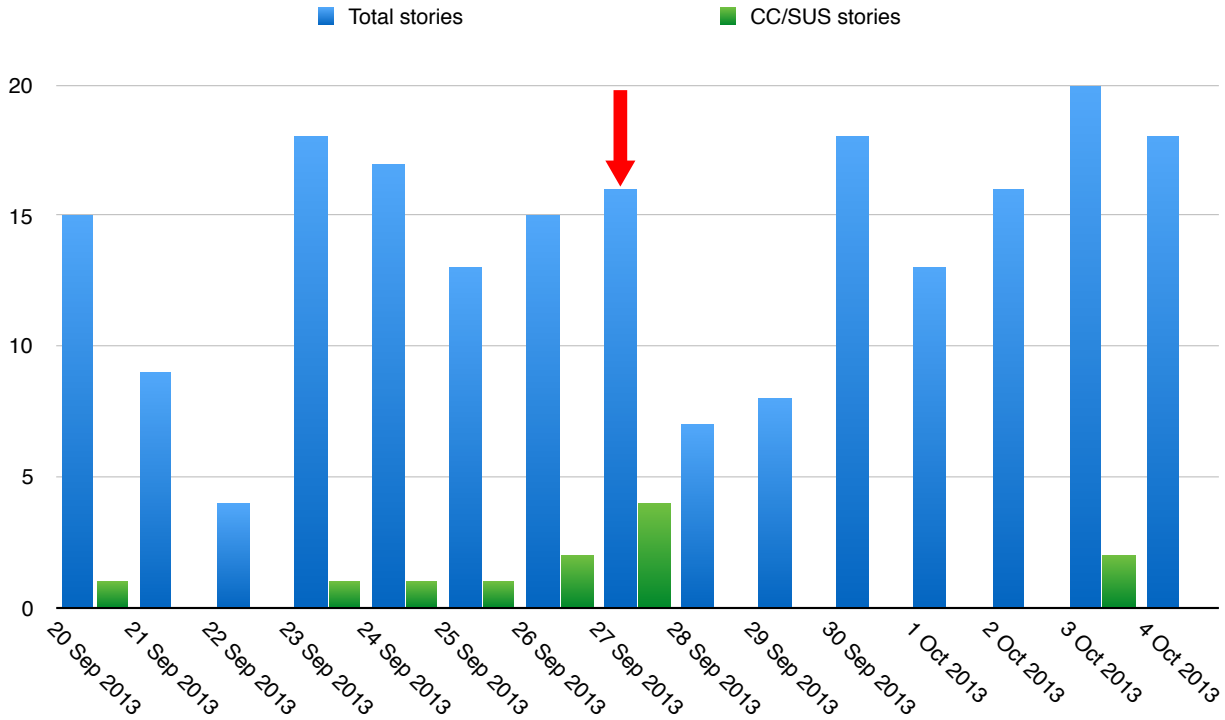

Figure 4.6. Coverage pattern for time period of release of IPCC 1. Total stories in blue, climate change- or sustainability-related stories in green. Report release date indicated by red arrow.

programme during this period is of direct relevance – itself a key finding that can be termed a "significant silence".

However, there were environmental stories covered in *Prime Time* broadcasts during this time. For example, on 23 September 2013, 4 days before the release of IPCC 1, there was a piece on concern in rural areas over plans for wind farms. On 15 April 2014, 2 days after the release of IPCC 2, there was a segment in two parts about thousands protesting against the

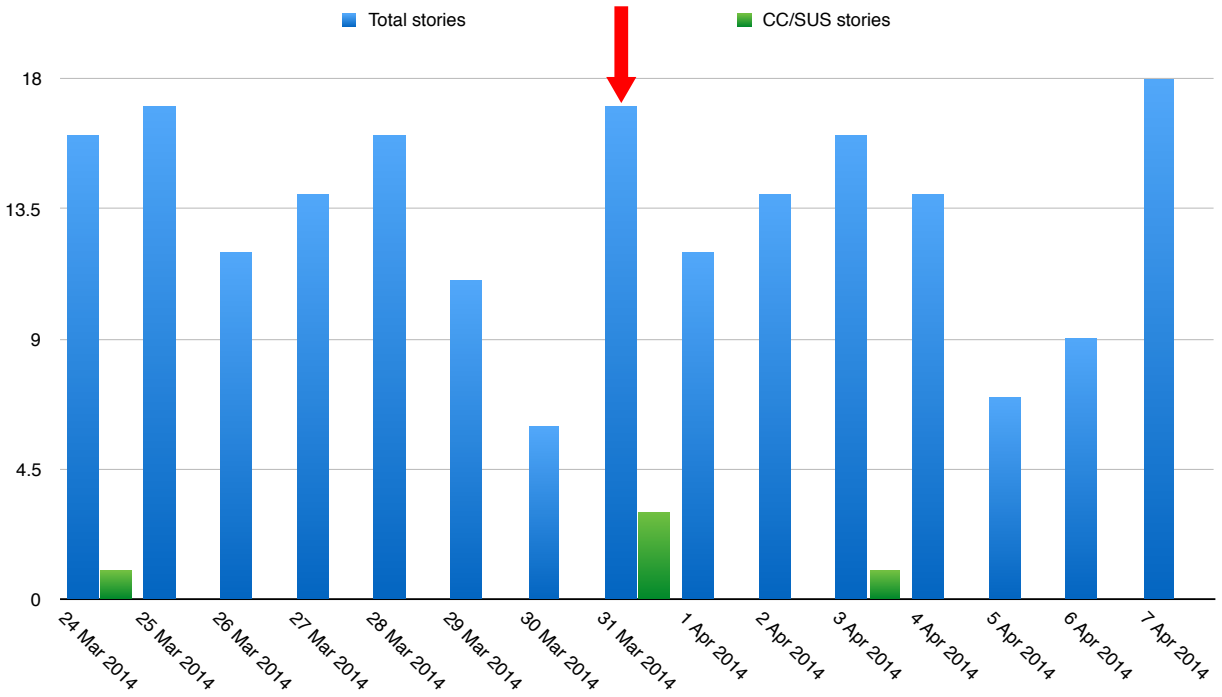

Figure 4.7. Coverage pattern for time period of release of IPCC 2. Total stories in blue, climate change- or sustainability-related stories in green. Report release date indicated by red arrow.

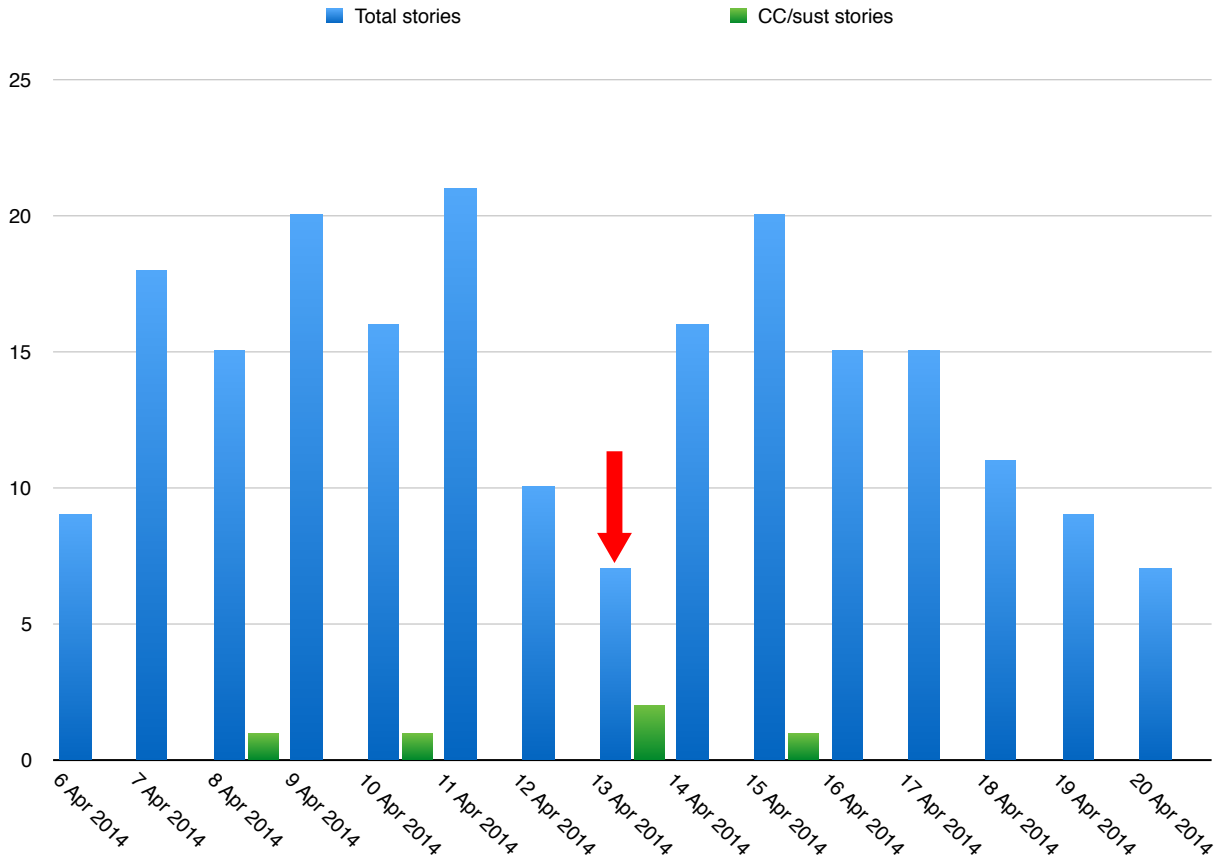

Figure 4.8. Coverage pattern for time period of release of IPCC 3. Total stories in blue, climate change- or sustainability-related stories in green. Report release date indicated by red arrow.

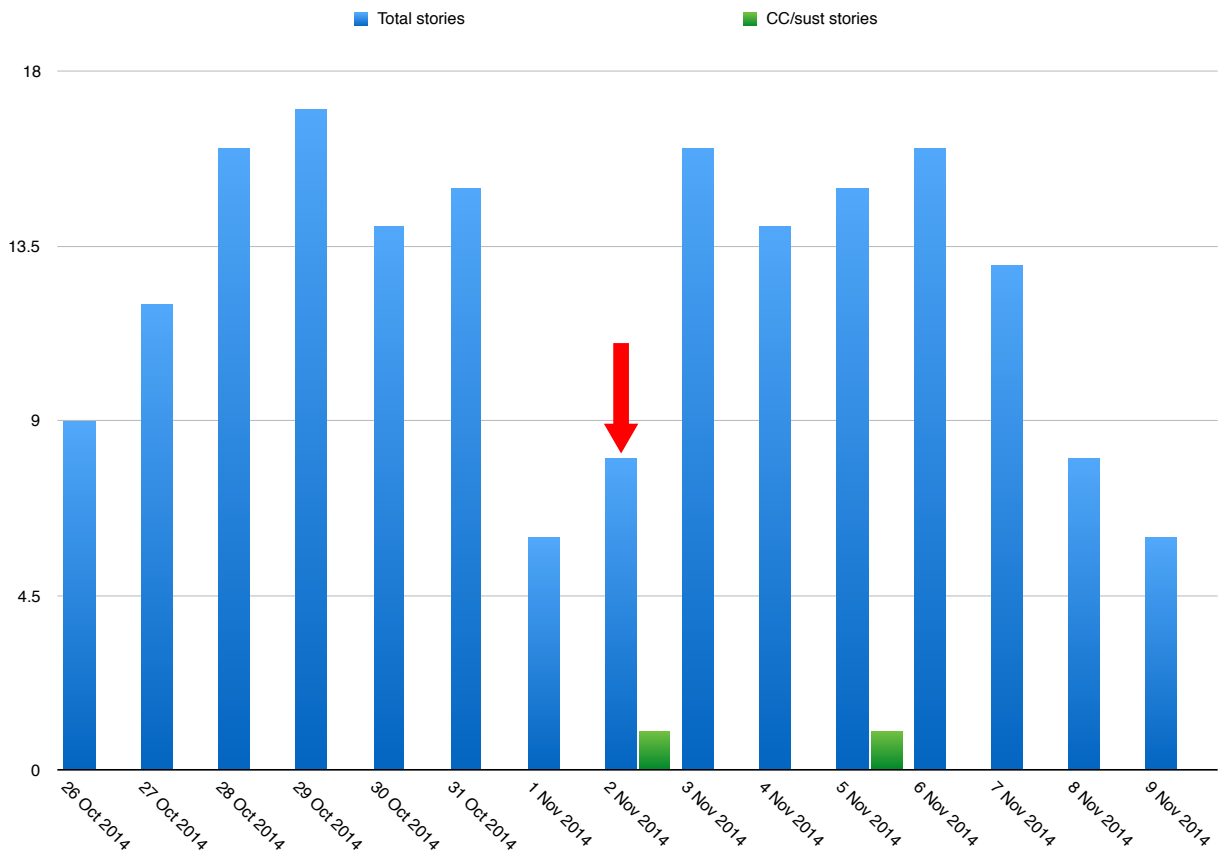

Figure 4.9. Coverage pattern for time period of release of IPCC synthesis report. Total stories in blue, climate change- or sustainability-related stories in green. Report release date indicated by red arrow.

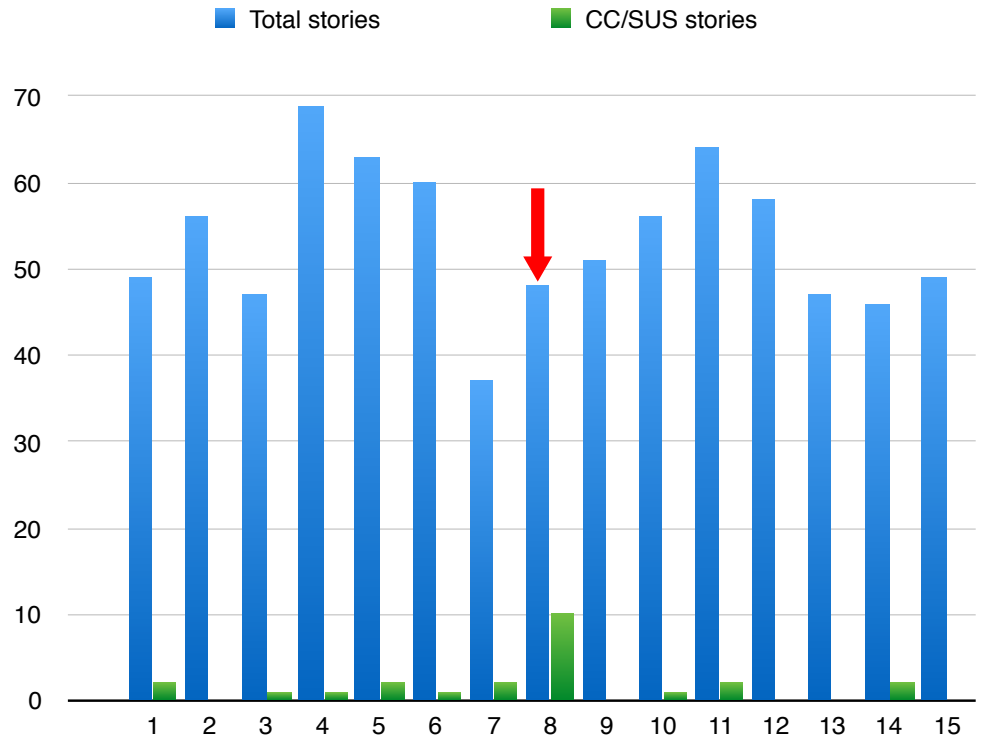

Figure 4.10. Aggregate coverage pattern across all time periods analysed. Total stories in blue, climate change- or sustainability-related stories in green. Report release date indicated by red arrow.

government's energy policy. This again stemmed from objections to wind farms. This in itself reveals how RTÉ chose to frame the issue of renewables. At a time when renewables are foregrounded as replacements for fossil fuels, the national opposition to them was highlighted, rather than the broader environmental contexts of why they are important.

It should be mentioned, however, that *Prime Time* did have a segment on climate change, outside but near the periods of analysis, on 18 March 2014. This was shortly before the release date of IPCC 2, and is therefore included for mention here. The key question was centred on how serious the problem of climate change is, and controversially featured Dr Benny Peizer, the director of the Global Warming Policy Foundation, a UK think tank which has been accused of climate change denial. The segment also featured Professor Ray Bates of University College Dublin, who suggested that Ireland is relatively well placed to continue agricultural output under conditions of climate distress, with an ensuing discussion about the opportunities for "smart" agricultural practices. The content was therefore in the realm of "business as usual" in that it did not identify the threats to agricultural production posed by climate change. However, it also presented an example of "false balance" in the media (Ashe, 2013: 17), whereby the "settled science" of the negative impacts of climate change are diluted or challenged. It could be argued that, in doing so, the broadcast promotes a consensus gap, whereby the issue appears less settled than the scientific evidence has suggested. In this case, IPCC 1 had already been released, revealing a categorical evidence base for anthropogenic climate change.

In short, the findings from news and current affairs broadcasting show that RTÉ did not treat the release of the IPCC reports as stories suitable for thematic coverage. Rather, the stories were broadcast – with prominence on all occasions – on the release date of the report, and not followed up in the ensuing days. Neither did the stories become a feature item on *Prime Time* during this time, despite other evidence to suggest that news stories carry over to *Prime Time* on a regular basis. Therefore, RTÉ news and *Prime Time* are both capable of thematic coverage, yet do not deem issues to do with climate change or sustainability appropriate for thematic treatment. This is significant for this project, in that the multi-faceted dimensions of sustainability and behaviour change require a certain level of unpacking over time. By treating the news coverage as episodic, alternative, new or transformative voices towards a sustainable society do not get aired.

4.4.2 Advertising

When we analyse the data from Figure 4.4, we see for example that coverage in the food category varies as a proportion of advertising subject matter across the four reporting periods (33%, 38%, 45% and 43%). Likewise, Figure 4.4 reveals variations in the amount of advertising devoted to transport, with the percentages across the four reporting periods standing at 5%, 6%, 10% and 17%. When we combine the advertising data from Figure 4.4 with those in Table 4.2, we begin to see a seasonality to these advertising areas. The periods characterised by higher levels of food advertising coincided with Easter, when luxury goods and chocolates were advertised, and with Halloween, when treats and bulk sweets were advertised. Likewise, the peak for transport advertising occurred around October and November, when car manufacturers were encouraging the audience to purchase a car with the next year's registration.

4.5 Discussion

This study of broadcast media has revealed that quantitative and qualitative methods can elicit a wealth of information regarding the potential of media to disseminate a range of views around sustainability. This is important for assessing the media as a platform for behaviour change around sustainability. The findings from news and current affairs reveal that climate change-related stories are treated episodically. This means that they are not afforded the rounded discussion facilitated by thematic coverage across several days. Given the complexity of the area of behaviour change towards sustainability, the adherence to episodic coverage precludes a discussion of a range of topics connected to climate change, including the need for behaviour change.

This has major implications for enacting policy on behaviour change, as prior research has revealed that "people are more likely to recognize and act in their own self-interest when their particular stakes in the policy are clear and substantial and when they have been primed (via media exposure, for example)

to think about the personal costs and benefits of that policy" (Bell and Entman, 2011: 552). Media therefore acts as a "primer" for behaviour change. Media can also frame issues according to how best to gain audience attention and audience share. Fear is seen as a powerful way to dramatically engage an audience: "it certainly appears that fear is employed as a communications tool that will break through the routine of everyday life and catch the viewer's attention" (O'Neill *et al*., 2009: 359). However, such attention-grabbing "tricks" and more increasingly "clickbait" tactics can bring with them issues of desensitisation, unintended reactions and the undermining of trust, which can undermine messages towards behaviour change (O'Neill *et al*., 2009). Therefore, while the media may be a "primer", it cannot be expected to act in a positive capacity if coverage of behaviour change is neglected in merely episodic programming of related content, or if the framing of content is bound by pressures to increase audience share through dramatic but inappropriate means.

In relation to advertising, the data reveal a seasonality of coverage, with food and transport showing wide seasonal variability. This reveals that the audience, even if given an account in the news broadcast of the need for change towards more sustainable behaviour, is targeted in seasonally specific ways by advertisers. This potentially undermines messages related to behaviour change towards sustainability and gives the overall impression that "business as usual" consumption can continue.

This report therefore suggests that the concept of treating the news broadcast as a "bundle" of highly conflicting content provides a more robust analysis of media than treating each individual story on its isolated merits or demerits. It reveals that, even if individual stories on climate change or sustainability are well covered, they are overshadowed in news contexts by social, political and legal stories. This "bundling" gives the overall impression of a cohesive whole – a unit of broadcasting. Yet the content of the bundle contains conflicting messages, potentially "drowning out" individual news stories.

A striking example of this occurred on 31 March 2014, the release date of IPCC 2. The IPCC report featured as the top headline story. It was also reprised before the first advertising break, when one anchor announced that the broadcast would return to this subject after the intermission. The segment closed, however, with the second anchor describing "a boost for the west – nine new routes for Shannon Airport", with a corresponding video reel showing advertisements for low-cost air travel (Figure 4.11). This section of the broadcast then ended with the news that there was also "a long-awaited return of daily services to the United States", with the accompanying graphic of an Aer Lingus Airbus A330 on takeoff, providing a visual exemplar of GHG emissions (Figure 4.12).

While the project did not concentrate on a visual analysis of the broadcast, this example reveals the potential of using such a method to complement the other methods employed. Such an analysis reveals the conflicting messages that can occur within one news broadcast. In this case, the subject of the effects of climate change was discussed and prioritised. However, the broadcast cut to an advertising break with a "good news" story implying that air travel for leisure is a positive matter to be celebrated. The disjunction between the stories is not noted or problematised. The audience is then given further messages through advertising content that is attuned in a highly sophisticated way to seasonal requirements and demands. This leads to a plethora of mixed messages on sustainability, behaviour change and "business as usual" consumption, making it difficult to isolate messages of sustainability from the conflicting content throughout the "bundle".

A further key issue in the context of RTÉ was that the broadcaster was without an environment correspondent for much of the timeframe of the release of the IPCC AR5. This was significant, as, at a time when climate change needed salient explanation and discussion, there was no role allocated specifically to this task. Paul Cunningham had left the post of environment correspondent in 2010, and George Lee, who had been an economics correspondent, succeeded to the role in 2013 as environment and agriculture correspondent, only in time to cover the last report. As a study by Boykoff and Mansfield (2008) revealed, coverage of climate change issues can be affected by the lack of a specialist correspondent.

4.6 Highlights from the Case Study

- The media are significant platforms for potential action on behaviour change towards sustainability.

Figure 4.11. Video still accompanying the voiceover "a boost for the west – nine new routes for Shannon Airport". Reproduced courtesy of RTÉ Archives (www.rte.ie/news/player/six-one-news/2014/0331/).

Figure 4.12. Video still accompanying the voiceover "a long-awaited return of daily services to the United States". Reproduced courtesy of RTÉ Archives (www.rte.ie/news/player/six-one-news/2014/0331/).

- In Irish broadcasting, journalistic content is bundled with advertising content, giving the audience mixed messages on consumerism.
- The journalistic content on climate change and sustainability is treated episodically, and not given the in-depth treatment of thematic coverage.
- Even within an individual broadcast, the content can send out mixed messages on consumption.
- Sophisticated, seasonally targeted advertising can counter messages on sustainability.

5 Dissemination

5.1 Introduction

The project had a number of targeted outputs, including traditional academic channels, but also a remit for public engagement. This section briefly outlines the outputs, including works in progress.

5.2 Academic Journals and Conferences

The project set a target of five journal articles for preparation over the course of the work. This included articles based on material from the three theoretical areas of enquiry, policy research and the case study material. These targets were met, with a total of six articles published, accepted for publication, in review, requiring resubmission or in preparation. Another output was in the form of conference papers. A total of five conference papers were accepted for delivery at international conferences. In addition, a "lexicon"-type workshop that extended the remit of outputs was held to discuss concepts relating to ecological crisis. A lexicon workshop involves discussing conceptual "tools of the trade" in a given area, in this case climate change. It is seen as an alternative to the traditional workshop, which usually focuses on empirical case studies. It facilitates discussing a range of theoretical questions that span different empirical contexts. For this workshop, a paper on consumerism was prepared, with a view to publishing it as a book chapter.

5.3 Digital Media

Over the course of the project, it became clear that broadcast media were unlikely to foreground a sustained and robust treatment of climate change or sustainability. It was therefore decided that a suitable output would be in the realm of digital media. Key features of digital media include the ability of texts to become "de-linked from particular media" (Siapera, 2011: 3). This means that audiences can listen to music online, can store books on hard disks and can mix media texts in ways not formerly possible. The idea of "convergence culture" (Jenkins, 2006) means that digital media can allow cross-media and transmedia storytelling, with the potential for rich and mixed ways of narrating both fictional and factual material (see also Lister *et al.*, 2009). The potential for a more democratic and citizen-influenced media landscape is also raised by digital media, for example in the case of citizen journalism, participatory newsmaking and online reporting (Allan, 2006). This was important in the decision to produce digital media outputs for the project.

Therefore, this project acknowledges that there exist potentials in this domain to articulate views that would otherwise be marginalised in traditional media channels. Specifically, it was decided that three animations would be created, based on the theoretical material and providing to the public an introduction on structural issues pertaining to sustainability.

These animations were intended for production as part of a work package that would include materials suitable for workshops on sustainability. A workshop had been planned for summer 2015, to include stakeholders from the public, policy groups and environmental groups. Because of logistical and calendaring issues, this was postponed. However, by preparing materials and digital media content, they were made available for when an opportunity for dissemination arose. The materials were also suitable for delivery via a website, so that electronic versions of material were easily accessible from remote locations.

The content of the animations was pitched at a general audience and suitable for senior-cycle secondary school. Three animations were created in total. The theme that threads through all these animations was the concept of "one planet", with connotations of planetary limits or boundaries inherent therein. The first animation discusses "the problem" of living on one planet, yet having an economic system that is built on compounding growth (Figure 5.1). This provides an easy-to-understand outline of the theoretical material pertaining to the economic challenges of sustainability. The second animation discusses "ways of thinking" about wellbeing and prosperity, while maintaining the theme of "one planet". It discusses issues pertaining to environmental and social wellbeing, such as the limitations of GDP as a measure of progress. It also introduces the role of the media (Figure 5.2). The third

Figure 5.1. Still from animation 1, illustrating the "one planet" concept.

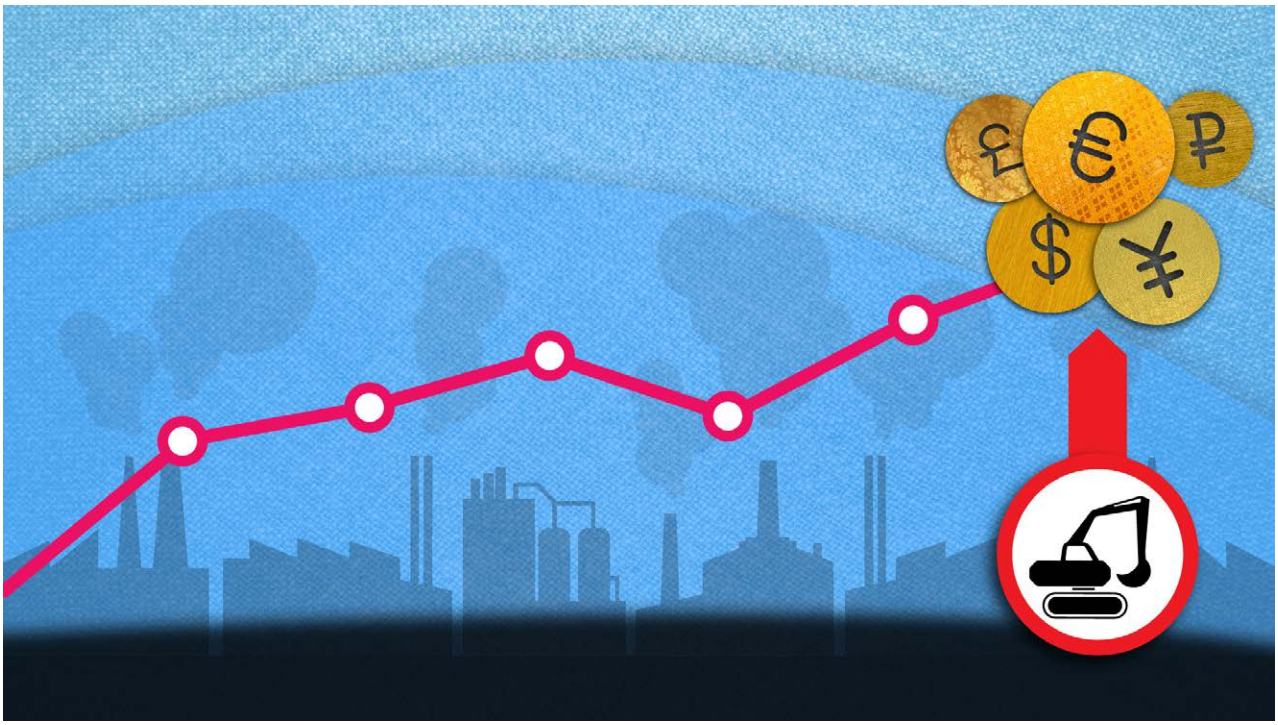

Figure 5.2. Still from animation 2, illustrating concepts of economic development, growth and GDP.

animation, concerned with "taking action" discusses issues such as consumerism and prosperity, and asks the audience to engage in critical thinking around the media and public discourse (Figure 5.3). The three animations therefore draw extensively on the material researched for the theoretical backdrop, while transcending the limits of traditional broadcast media by employing digital media.

The project seeks to disseminate findings and insights to the public via online channels. Specifically, project

Figure 5.3. Still from animation 3, illustrating concepts of public engagement and discussion.

dissemination entails the creation of a public website (www.oneplanet.ie), which hosts thematic synopses, resources to download and links to related information, as well as the series of three animations, intended to encapsulate key themes of the project. Using short web-based animations for the provision of academic information to the public is well established, and studies have shown it to be effective and engaging (e.g. Gaskin *et al.*, 2016). Creating the animations involved thematic analysis of the findings of the study, construction of scripts intended for a general audience and development of a visual aesthetic that could also be carried into the project website.

The project website, which hosts and introduces the animations, is designed to meet contemporary web standards and to be responsive in layout, such that it is accessible to mobile and tablet devices, as well as personal computers. Best practice models for the analysis and tracking of information-seeking and communicative actions from website users centralise the use of tools such as Google Analytics (www.google.com/analytics), which perform real-time collection and aggregation of data on website visits (Hewson, 2015; Petroff, 2016). Such data can inform subsequent changes to the website structure, as a picture of how it is used and accessed emerges. Thus, this project has involved the creation of a dissemination website following best practice for accessibility, which has also been subject to pilot testing for efficacy of its design, and continued monitoring and iterative updates based on tracking in Google Analytics.

6 Identifying Pressures, Informing Policy and Developing Solutions

6.1 Introduction

In this chapter, the report discusses how the project has identified key pressures for society in terms of challenges to behaviour change towards sustainability. It also discusses how the project can inform policy. A key theme across the analysis is that pressures are systemic and require a robust understanding and willingness not only to engage in the pressures of the existing system, but to move beyond assumptions that this system is stable, and that it can continue to thrive under increasing environmental pressures and conditions of low growth (as recently identified by the IMF and OECD).

6.2 Identifying Key Pressures

6.2.1 Economic

Through the analysis of theoretical perspectives on the economy, this project has shown that a key pressure towards sustainability is from the economy itself, which is built fundamentally on compounding growth. As we saw in Chapter 2, this is a "rule" of societies that are based on the capitalist system, currently comprising most of the world. The economy, rather than producing goods to meet demand, has matured to one in which demands are created in order to maintain production. This has led to the development of consumerism, which is a major challenge to behaviour change towards sustainability. A key pressure therefore is not just about educating individuals to minimise consumerist tendencies, but stems from systemic requirements for consumerism.

Therefore, this report suggests that education about systemic factors can more robustly empower the citizen and policymaker alike as to their role and place in the system. It can also more coherently enable the citizen to assess the power relations at play at a systemic level. This has the potential influence on the citizen where more conscious choices relating to their role can influence a positive change in the economy towards both economic and environmental justice areas, environmental ethics and stewardship concerns.

Another, related challenge towards sustainability is the particular iteration of our economic system that has dominated for about 30 years: neoliberalism. This preferred set of "rules" encourages privatisation, deregulation and the removal of barriers to trade and investment. However, in doing so, it has given increased powers to corporations, and indeed encourages the role of corporations in environmental matters. However, not only are these entities subject to the crisis tendencies of the system, but they also possess freedoms to move about in time and space in order to maximise their profits. Therefore, the idea of "fixes", where capital can flow to the most "efficient" place to defer crisis, is a challenge to the long-term, strategic, public and civic requirements of moving towards sustainability.

In short, therefore, the key economic pressure derives from the fundamental "rules" of the system. These are based on compounding growth, they are crisis-prone, and they tend to resolve crisis temporarily by deferring it through "fixes". This challenge is not easily surmountable, and indeed, in a globalised, open economy that has adopted neoliberal policies, Ireland is subject to ongoing systemic crisis tendencies. Most recently this has been manifested in the 2007–2008 economic crash, wherein the private banking sector caused tumult in the overall economy, leading to losses for public investment, a round of privatisation and austerity for the public. Under such conditions, sustainability becomes less of a priority than restoring the economy. Therefore, the limits to acting towards sustainability in such an economic context must be acknowledged at policy and planning levels.

6.2.2 Environmental

A key pressure identified from the research was in how the environment is assessed under our current economic system. It is seen as a resource for extraction, yet it yields "free gifts", which are not

accounted for. It is also used as a site for production, expansion and waste disposal, as, historically, it was possible for the system to "fix" local problems by spatial expansion. However, various ecological "tipping points" and "safe spaces" are increasingly breached by this continual expansion. As the digital media animations have discussed, in language suitable for a general audience, "we have only one planet". Therefore, the ongoing requirements of the system for spatial expansion lead to a conflict between society and the environment. This has implications for sustainability practices and strategic planning.

The report has discussed how the environment is not outside the economic system, even if the system prefers that it be accounted in that way. Rather, the economic system brings in natural resources and uses them for productive and profit-making ends. Even this concept, which moves beyond traditional economic ways of thinking about the environment, is only one side of the coin. A further development of this concept is to say that the economic system is also "in" nature, in that it takes place as a social layer of exchange and value within a biosphere. This leads us to consider the relationship between society (and its economy) and the environment as a metabolism. Therefore, a key pressure in environmental terms lies in supporting the balance of this metabolism in favour of the biosphere in which social and economic processes take place.

The project suggests that this key environmental pressure is first of all conceptual, in that it requires a fundamental rethink of how the environment is considered under the current economic system. Furthermore, if the conceptual shift were to happen, and environmental costs were suddenly factored into economic transactions at a state level, it would potentially cause a flight of capital in an attempt to "fix" ensuing loss of profits. Therefore, a pressure arises from the need for not only a conceptual shift, but also a pragmatic and strategic set of actions to rebalance the metabolism in favour of the environment, without causing capital to relocate in a dramatic and socially detrimental way.

As the research has identified, efforts to mitigate and/or adapt to climate change are in danger of falling into the realm of "fixes", whereby issues are not resolved but temporarily deferred in both space and time. A type of fix identified in particular is the "techno-finance fix", where a belief in the ability of technology to achieve decarbonisation dovetails with the belief that finance and the free market will bring about the funding necessary to develop such technologies. However, a critical analysis has revealed that the market may not be the only solution to decarbonisation, or indeed the best one, given its instability and its potential to support less environmentally sound energy sources on the basis of economic instruments such as futures and hedging. Therefore, policy is potentially limited by current economic scenarios and by a somewhat uncritical faith in the ability of the market to support the most environmentally beneficial technologies.

The spatial and urban context of planning is a key site for pressures in policy. As existing neoliberal policy has seen the state "shrinking" in responsibility for responses to climate change, the responsibility of various actors, including those outside the state, is coming into focus (Bulkeley *et al.*, 2014). Under these conditions, when corporate entities are seen as actors driving responses to climate change, there needs to be a critical appraisal of how these actors are shaping discourse on the range of policies available to respond to climate change, and the corresponding need to transition towards a sustainable economy and society (Bulkeley *et al.*, 2014). For example, the corporate voice is more likely to advocate policies that do not threaten accumulation, and is likely to adhere to a "business as usual" message. Indeed, when industrial and corporate actors influence climate policy, this has implications for democratic participation, where participation cannot be assumed to be "mediated through democratic channels and bound up with notions of accountability and the public good" (Bulkeley *et al.*, 2014: 36). This implies a shift in the responses available as corporate actors foreground solutions that protect their business strategies. Sustainability initiatives at an urban level are likewise potentially hamstrung if corporate actors foreground practices that encourage consumption in order to maintain their profitability. Notwithstanding this, if corporate actors are pressurised or incentivised towards accountability through divestment and "carbon disclosure" (CDP, 2016), their responses can potentially be in line with sustainability practices.

This project therefore has identified existing policy pressures with respect to the "techno-finance fix". Within this, it offers into the body of policy knowledge a rounded contextualisation of Irish sectoral policy (Morgan, 2016). This is particularly pressing following

the Paris Agreement, whereby Ireland is legally bound to meet emissions targets. The policy review therefore identifies pressures and policy conflicts in the form of existing economic arrangements and assumptions. It suggests that the concept of "fixes" is an important one to offer to the policy table, particularly when urban planning constraints and issues are investigated.

6.2.3 Media

A key pressure identified by the case study of broadcast media lies not only in the extent of news coverage devoted to sustainability-related matters, but in how news content conflicts with advertising content, and indeed sometimes its own journalistic content. Therefore, such media channels are not necessarily best suited to disseminating information about sustainability. Increasingly, media are becoming privatised and require profit to be made. Therefore, the media outlet cannot afford to simply remove its advertising content. This is applicable even in the case of state broadcasters such as RTÉ, which require a subsidy from the citizen and revenue from advertising. As the case study revealed, a seasonal logic to advertisements exists, whereby advertisers strategically choose when to advertise, for example, luxury food and new model cars.

If we can acknowledge that this is the current economic landscape, a key pressure emerges at the level of the media. Arguably more sustainability-related stories are required. However, even if pressure was exerted to demand an increase of stories related to climate change or sustainability, that alone would not necessarily send a strong signal that behaviour change needs to occur. As the case study revealed, when we consider media as a "bundle" of content, we quickly begin to ascertain the volume and diversity of conflicting messages that are received through advertising content. Not only this, but conflicting messages can occur within the news broadcast itself, even if advertising were not a factor. A key pressure therefore is twofold: the advertising content is problematic, but the lack of journalistic coherence is also an issue. It is difficult to resolve these tensions, other than to limit the advertising content not only of news broadcasts, but across media channels. A best practice guide for news might be developed with suggestions on how to treat environmental, climate-change and sustainability stories. However, this would require the participation of media stakeholders who might be reluctant to be prescriptive, lest the concern of censorship be raised. Notwithstanding this, a non-prescriptive best practice guide offers scope for awareness building within the media sector.

6.3 Informing Policy

The project conducted an assessment of selected international, regional (EU) and national (Irish) policies. It found that key tensions between economic and environmental matters are not, by and large, resolved through policy. Indeed, as the IPCC itself noted, there has been an increase in the rate of GHG emissions despite a corresponding increase in policy instruments in this area (IPCC, 2013, 2014a,b; Morgan, 2016). This, the project has suggested, is in part due to a lack of consideration of the systemic issues pertaining to the current economic model.

The project aimed to inform policy by way of a review of planning literature, specifically urban planning, where tensions between spatial planning, corporate actors, public remits and societal pressures are concentrated. It observes that among current discourse is that of "spontaneous decarbonization" (Davis, 2010) and "autonomous" or "automatic" adaptation to climate change (Whitehead, 2013: 1358). Such perspectives assume that free-market conditions will naturally and spontaneously support decarbonisation and GHG reductions. However, rather than acknowledge that the free market is inherently crisis prone, these discourses advocate more freedom in the market with respect to climate change. This research is critical of such approaches and observes that "already existing neoliberalism is actually the source of the financial and planning problems confronting adaptation regimes rather than the basis for their resolution" (Whitehead, 2013: 1361).

Notwithstanding the issues with dominant narratives in influential policy arenas, there does exist scope in planning discourse to explore positions beyond "business as usual" solutions to behaviour change. Analysis of solutions from other regional and local areas are helpful in fostering an overall planning and policy landscape that looks beyond market-based, neoliberal, or "techno-finance fixes". Assessing the entire gamut of potentialities is important to transcend the typical top-down or bottom-up approaches. Rather, in articulating potential solutions from across

the entire range of actors and institutional remits, including international best practices as well as regional, national and local examples, this research suggests that a more robust awareness of multi-scalar opportunities can be developed at every level. Indeed, a move beyond the "siloing" of opportunities has the potential to widen the discourse beyond "techno-finance fixes" to work towards robust transition policies that are also socially progressive, foster equality and increase resilience during transition.

Some progressive policy and best practice was found at the EU level, whereby a curtailment of advertising, encouragement of the "circular economy" and measures to foster community cohesion were positive interventions. It also found that local currency initiatives were a small-scale way of loosening the dependence on international finance and its concomitant instabilities. A key area of remunicipalisation was found to be an effective way of moving away from the neoliberal policy of privatisation. These are discussed below as potential solutions.

6.4 Developing Solutions

In the light of the policy and planning issues identified above, the research identified the potential to develop solutions that move beyond the "siloing" of environmental policy. It found some evidence of best practice to positive effect, including the curtailment of advertising, encouragement of the "circular economy" and measures to foster community cohesion that move the citizen away from unsustainable behaviour. The materiality of carbon-based transport, for example, is predicted to bring about a "reverse globalisation", whereby the cheap production of goods in the Global South will no longer be guaranteed as the ecological costs of transport are increasingly accounted for (North, 2010). Thus, planners may, sooner rather than later, be required to deal with the end of the "cheaps" (food, energy, raw materials and labour) that historically facilitated development in the Global North (Moore, 2011). At a more local level, therefore, there exists scope for experimenting with initiatives that support and encourage citizens towards a lower carbon footprint and more sustainable daily practices. Indeed, such initiatives at a local scale can encourage a connection between citizens, publics and politics, and the fostering of collectives that transcend individualised discourses on carbon reduction and behaviour change towards sustainability (McGuirk *et al*., 2015).

Local collective initiatives such as the Grow It Yourself (GIY) movement can therefore have a role to play in planning for sustainability. The GIY movement foregrounds and supports the production of local food instead of long-chain production. At a planning level, such movements can be supported through low-cost allotment provision, where fallow or disused land is repurposed to facilitate citizen GIY practices. There are thus many elements to the "virtuous circle" in which planning can strategically encourage sustainable behaviour.

Likewise, the Transition movement is an emerging approach to adaptation and sustainability (Mason and Whitehead, 2011). The movement offers counters to the neoliberal erosion of freedom through voluntary participation and consensus building (Whitehead, 2013: 1364). Critiques of the Transition movement point to its utopian and radical position and the limits of such an approach to persuade dominant actors away from growth-based economic paradigms (North and Longhurst, 2013: 1424; see also North, 2010). The Transition movement uses markets, which draws criticism of the movement as hamstrung by the overarching economic system. The movement is also thought of as more suitable to rural idyllic ideas of sustainability. However, evidence from UK Transition towns such as Liverpool and Bristol suggest that the approaches of the Transition movement are also applicable to urban centres. Indeed, Brixton has gone from "infamous to famous" aided by its Transition movement, with its own currency encouraging exchange between local actors (North and Longhurst, 2013: 1432). Furthermore, if the concept of the "fix" is considered, a transition initiative is a positive policy intervention that can offset the potential flight of capital under conditions of increasing regulation towards sustainability.

Local currency change experiments have assisted in rethinking how local economies can be transformed from those dependent on surrounding areas, to relative stability and autonomy. By transforming denominations of coins and notes into, for example, hours of labour, alternative currencies can alter discourses of economics, challenging assertions that money is to be controlled by states and banks alone (North, 2007, 2010). There is therefore a wider political-economic

context to the development and spread of alternative currency forms. This context reveals that money itself is a discourse with a set of shared meanings and understandings, usually dominated by capital. A reworking of the discourse is therefore possible when our traditional understandings of money creation, distribution and control are challenged by alternative currency practices (North, 2007).

The research has therefore identified solutions that move beyond the constraints of the current policy and planning prescriptions to investigate how emerging initiatives can help foster bottom-up approaches to sustainability. It has revealed that a significant turn to remunicipalisation has emerged in utility provision globally, particularly with respect to water (Pigeon *et al.*, 2012). From the Global North, in areas such as Paris, France, and Hamilton, Canada, to Malaysia and Tanzania, a significant move to reinstate water into public control has emerged. The case of Paris is particularly surprising given that two major global water companies, Veolia and Suez, are French companies and had long-standing contracts with the city. However, in 2008 their contract was not renewed and a municipally owned utility was created in their stead (Pigeon *et al.*, 2012). The first few years have suggested that the remunicipalisation has succeeded, with a saving to the city of approximately €35 million, and a corresponding reduction in tariffs for end users (Pigeon *et al*., 2012: 25). The previously fragmented private system was made more efficient and sustainable, revealing an atmosphere of "revived water resource protection" and awareness of sustainability (Pigeon *et al*., 2012: 25). Likewise, in Hamilton, Canada, a municipal decision was taken not to renew the water services contract with a private company, having witnessed failures in workforce rationalisation, the reorganisation of a co-operative local partnership into ownership by a multinational entity, water quality issues and poor maintenance of infrastructure (Pigeon *et al.*, 2012: 80). Following remunicipalisation, staff were hired to counter the previous rationalisation, water quality improved and savings to the city accrued (Pigeon *et al.*, 2012: 83).

The research has revealed that there exist significant planning and policy measures that can move society towards greater sustainability, especially at the urban level. In the European context, issues surrounding the financial measurement of ecological goods have been emerging. Given that the EU is seen as the most progressive region for tackling ecological crisis (Jordan and Adelle, 2012), this is perhaps to be expected, as the region experiments with ways to create transitional instruments that avoid economic shocks while implementing fiscal measures to curb emissions. A combination of bottom-up supports in conjunction with top-down measures to transcend the "siloing" of environmental policy, and to stimulate public engagement, is therefore to be strongly encouraged.

Current solutions are in evidence at a local level in Ireland, which in the context of the research is a positive development in fostering the supports to bottom-up approaches. In the "Stop Food Waste" community intervention, businesses and homes are supported by the Environmental Protection Agency (EPA) initiative to reduce their waste through composting, recycling and reduced consumption (www.stopfoodwaste.ie). This is an example of how a state agency can positively intervene to encourage bottom-up approaches to sustainability, with the associated social benefits of a community intervention. Indeed, the EPA acknowledges sustainability, including consideration of the socioeconomic dimensions of environmental impact, as one of its three key "pillars" of research (EPA, 2014). Similarly, the Sustainable Energy Authority of Ireland works with local community groups to transition to more sustainable practices in domestic and commercial settings (www.seai.ie/SEC). These initiatives reveal that state agencies can facilitate positive interventions at a local level, beyond market solutions, and with community and social engagement prioritised.

Any recommendations for planning that draw from this analysis must be acknowledged to be hamstrung by the overall policy landscape from the top down, which is, as demonstrated, based on the premise of continued economic growth. Notwithstanding this, there exists a glaring need for more policy integration between ecological, fiscal, planning and economic policies. The Transition movement in Brixton and energy transitions in Graz and Freiburg, as well as grass-roots initiatives in Ireland such as the GIY movement, "Stop Food Waste" and Sustainable Communities reveal that the narrow economic discourse on the environment is not total. The "Copenhagen Theory of Change" also reveals the potential for a grounded utopianism to develop given the correct configurations of support from planning (Schiller, 2015).

The stark reality is that climate change is "reconfiguring urban politics", leaving the conceptual landscape open to various pathways. It is therefore of critical importance that "neoliberal anticipatory elites are not able to exploit the urban future as a basis for controlling the metropolitan present" (Whitehead, 2013: 1364). Just as there exist various climate pathways, so too do there exist "planning pathways" that can either tread the path of the fixes, including the "techno-finance fix", or take alternative paths to ensure a sustainable, prosperous transition that supports societal wellbeing over profit making. While these pathways are untested and unchartered, their potentials require acknowledgement and consideration.

It is suggested that further research be conducted on future projections and options, and on economic, environmental and societal models towards a sustainable future, given that Ireland is increasingly bound to transition to a low-carbon economy by 2050. It is also suggested that research foreground the need to move from "business as usual" to a transitional state where circular economy principles, extended measures of progress beyond GDP and cradle-to-cradle practices are prioritised. This could include the rescinding of privatisation towards meaningful citizen engagement in remunicipalisation practices. Citizen engagement can also be encouraged by strategically supporting selective state agencies and local authorities as public actors with a remit to engage actively in localised initiatives that develop not only economic resilience at a local level, but also social and environmental resilience.

6.5 Concluding Remarks

As this research has revealed, the issue of fostering behaviour change towards more sustainable practices is more complex and nuanced than assuming that more media coverage or more education alone will be adequate. A key point that threads through this research is that deep systemic issues are, to an extent, dominant actors. The "elephant in the room" of neoliberalism needs to be named as a major obstacle to facilitating individual and societal responses to sustainability. As long as individuals are treated as consumers or commodities, their role in society will reflect this. Likewise, as long as society is treated as a means to an economic end, the behaviours that follow will encourage such arrangements.

Moving beyond existing systemic issues is fraught at a state level. It has been normalised that the "free" market must not be interfered with. However, what is not pointed out is that it is interfered with all the time. Policies are enacted that normalise aggressive growth. The rescinding of prior policies instated to protect workers, temper profits and minimise environmental destruction is encouraged. Austerity practices are deemed legitimate when necessary. This is interference in the market – except that the interference is to take the brakes off the accumulation of profits, and the associated upward transfer of wealth (Piketty, 2014).

An acknowledgement of these systemic issues needs to thread through policy domains. If new, fresh, alternative and progressive strategies towards sustainability are to be encouraged, thinking beyond "business as usual" needs to become more mainstream. The role of heterodox economics is key. This report recommends that further analysis of alternative economic paradigms be conducted, to encompass the circular economy, cradle-to-cradle approaches and alternative means of measuring progress beyond growth. This will not future-proof the economy, nor will it provide an easy solution to moving beyond "business as usual". However, the social learning that derives from naming, and then investigating, fresh, new and alternative economic paradigms that inherently take account of sustainability is timely and necessary.

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Abbreviations

BeCCS	Bioenergy with carbon capture and storage
CDR	Carbon dioxide removal
COP21	2015 Paris Climate Conference
EPA	Environmental Protection Agency
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
GIY	Grow It Yourself
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPCC AR5	Fifth Assessment Report of the Intergovernmental Panel on Climate Change
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WG	Working group of the IPCC
WWF	World Wide Fund for Nature

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

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

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

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

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

Ár bhFreagrachtaí

Ceadúnú
Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola *(m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola)*;
- gníomhaíochtaí tionsclaíocha ar scála mór *(m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta)*;
- an diantalmhaíocht *(m.sh. muca, éanlaith)*;
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe *(OGM)*;
- foinsí radaíochta ianúcháin *(m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha)*;
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

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

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

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

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

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

Measúnacht Straitéiseach Timpeallachta
- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn *(m.sh. mórphleananna forbartha)*.

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

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

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

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil
Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:
- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

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

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Going Green Digitally? Environmental Crisis, Consumption Patterns and the Evolving Role of Media

Author: Trish Morgan

Identifying pressures

The "Going Green Digitally" project identifies key systemic economic pressures that can potentially impede sustainability pathways. These pressures relate to economic growth and its increasingly tenuous relationship with social and environmental progress. It identifies tensions between policies that encourage economic growth, and those that promote sustainability. The findings suggest there is a tendency towards economic 'fixes' that merely defer crisis and move systemic problems around in time and space. A key environmental pressure is that our understanding of the relationship between economy, environment and society is limited by a focus on economic viability. The report advocates the need for a more integrated and holistic approach that acknowledges the inextricable link between economy, environment and society. Along with this is the need for more awareness of the social and environmental implications of solutions applied solely in economic terms. The media are identified as industries that require revenue from advertising, and this emerges as a key pressure for sustainability.

Informing policy

Through a review of policy literature, this project finds that key socio-economic and systemic pressures are not necessarily resolved through policy instruments alone. It introduces the phrase the 'techno-finance fix' to capture how responses to actions towards sustainability frequently prioritise technology, in conjunction with a faith in market-based solutions. In the Irish context, the project reveals tensions between economic development and sustainability. It shows that at the policy level there are discussions around 'spontaneous decarbonisation' that suggest an automatic transition. While some best practice was also found through a survey of regional (EU) policy, the research was critical of the situation in Ireland in light of the systemic issues identified. Best practices in other areas demonstrate that Irish policy can be informed by progressive policies enacted successfully in other areas, particularly if enacted in a combination of top-down and bottom-up initiatives.

Developing solutions

In light of the systemic issues identified, a key solution is in the area of integrating policy between actors. This report suggests that different solutions are possible when we begin to consider the relationship more as a 'metabolism' than separate systems. The need to move beyond the 'siloing' of policy to develop more integrated solutions was reinforced. This includes planning for possible 'reverse globalisation' where a turn to more local production may be required as part of low-carbon transition. The project also found ample scope to explore non-market solutions to behaviour change. Positive interventions towards behaviour change were discovered to include those that foster community and social cohesion, and move beyond economic measures. Solutions such as local currency initiatives, EPA, Stop Food Waste, Initiative, Grow it Yourself (GIY), Transition Towns, and remunicipalisation facilitate in moving communities beyond the instabilities of international finance and privatisation, while addressing issues of 'reverse globalisation' and societal wellbeing and cohesion.

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