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Environmental Risk Communication: Waste, Incineration and Dioxins

Joanne Rourke

A thesis submitted to the Department of Geography, Trinity College, Dublin, in fulfilment of the requirements for the degree of Doctor of Philosophy

22 October 2010

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Thesis Summary

Industrialisation and modern technologies have contributed to economic and social progress, but the benefits are being eroded by the environmental and health risks associated with these technologies. Against this backdrop, risk has periodically moved to the fore of political debate, and publics have become more questioning of science and technology making it difficult for decision-making about technology to remain outside democracy. Research suggests that psychological and broader socio-cultural factors influence publics' risk perceptions more than calculable risk probabilities. The gap between technical risk assessments and 'lay' perceptions of risks means that risk communication is crucial to decisions about technologies perceived as hazardous. The receipt of risk information is shaped by factors such as trust and transparency. Thus the role of institutional politics and issues of procedural justice have become important facets of the development of controversial facilities. Consequently, analysts are calling for more research attention to why publics lack trust in risk assessment and risk regulatory systems.

While regulators and waste industry experts generally contend that municipal solid waste (MSW) incineration poses no significant health or environmental risk, publics continue to remain concerned and debates about incineration risks continue. The aim of this project is to investigate how risks associated with MSW incineration have been communicated to publics in Ireland. This project uses a single case study research strategy to examine the conflict about Ireland's first MSW incinerator, which is currently being developed in the Poolbeg peninsula in Dublin Bay. Although similar controversies have been a feature of the Irish waste policy landscape over the past decade, this case is unique in that the local authority have undertaken an active communication programme for local residents.

This research uses a two-phase, mixed-method approach combining quantitive content analysis of newspaper reportage and official informational material and qualitative semi-structured interviews with key stakeholders in the Poolbeg

incinerator debate. Newspaper articles published over a 6 year period (2001 to 2006, inclusive) from three different news publications, *The Irish Times*, *Evening Herald* and *News4*, were analysed to examine the media treatment of the conflict. This phase of the research served to identify key stakeholders in the incinerator debate and the main arguments and counter-arguments reported. In all, 40 stakeholders were interviewed to ascertain the values and motivations behind the various standpoints in the debate. A semi-structured interview schedule was used to allow for probing and clarification of interviewees' responses and to give interviewees space to express additional concerns or thoughts. The interviews were recorded and transcripted by the researcher prior to being coded using N-Vivo, computer-assisted coding package, and finally analysed.

The findings of this research suggest that the motivations behind the decision to use incineration for the disposal of residual MSW in Ireland were framed in discourses of sustainability and ecological modernisation in the Poolbeg incinerator debate. The principal concerns of those opposed to the Poolbeg incinerator included potential health effects, increased traffic volumes and issues of equity, democracy and trust. The interview data show the stances taken by stakeholders in the debate to be richly nuanced and diverse. The newspaper content analysis indicates that stakeholders were not passive sources but were active players in the mediation of the debate by either seeking publicity or, as in the case of the incinerator proposers, eschewing media coverage in an attempt to suppress and control the public debate. The evaluation of the information programme concludes that it was tokenistic and while it was well resourced and competently run it fell short of creating a viable model of public participation for controversial planning projects in Ireland. Institutional mistrust was a significant issue which pervaded the Poolbeg incinerator debate and impacted considerably on how risk information was received by publics. Publics' confidence in expert sources used in the information programme was tainted by the mistrust they felt towards the local authority. This study provides some evidence of an awakening of a justice discourse in incinerator debates in Ireland.

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I dedicate this thesis to my daughter, Eleanor, who provided delightful distraction and fun while I worked. She was its first reader and it was one of the first things she ever read.

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List of Equations

Z-test Healy (1990)

List of abbreviations and acronyms

CO	-	Carbon Monoxide
CO2	-	Carbon Dioxide
CRAI	-	Combined Residents against Incineration
CV	-	Contingent Valuation
DoEHLG	-	Department of Environment, Heritage and Local Government
DoT	-	Department of the Taoiseach
DNA	-	Deoxyribonucleic acid
DWE	-	Dublin Waste to Energy
EC	-	European Community
EEA	-	European Environment Agency
EEC	-	European Economic Community
EIA	-	Environmental Impact Assessment
EPA	-	Environmental Protection Agency (Ireland)
ESRI	-	Economic Social Research Institute
EU	-	European Union
FoEE	-	Friends of the Earth Europe
HCL	-	Hydrochloric acid
HF	-	Hydrofluoric acid
HRB	-	Health Research Board
Km	-	Kilometers
MBT	-	Mechanical Biological Treatment
MCCK	-	MCCK Consultancy Group
MCOS	-	M. C. O' Sullivan
MSW	-	Municipal Solid Waste
NIMBY	-	Not in my back yard
NGO	-	Non governmental organisation
NO_2	-	Nitrogen Dioxide
O_3	-	Ozone
OECD	-	Organisation for Economic Co-operation and Development

PCBs	-	Polychlorinated biphenyls
PCDDs	-	Polychlorinated dibenzodioxins (dioxins)
PCDFs	-	Polychlorinated dibenzofurans (furans)
$PM_{2.5}$	-	Particulate matter $\geq$ 2.5µm
PM_{10}	-	Particulate matter $\geq$ 10µm
PPP	-	Public private partnership
RA	-	Risk Assessment
RPS	-	RPS Group
SO_2	-	Sulphur Dioxide
SSK	-	Sociology of Scientific Knowledge
TCDD	-	2,3,7,8 tetrachloro-dibenzo-dioxide
UK	-	United Kingdom
UN	-	United Nations
USA	-	United States of America
WHO	-	World Health Organisation
WMA	-	Waste Management Act

Chapter 1: Introduction

1.1 Background to the Research

In Ireland, the issue of managing growing volumes of waste has become one of the most contested areas of environmental politics (Boyle, 2003; Davies, 2005; Taylor 2005). The significant reorganisation of municipal waste management has seen waste governance become conflict-ridden. Matters such as waste collection charges and the siting of waste facilities have resulted in overt discord between publics and government (Davies, 2005; Leonard, 2005). To date, incineration, or waste-to-energy technology, has not been used in the Republic of Ireland for the disposal of Municipal Solid Waste (MSW). However increases in waste generation, coupled with more stringent waste regulation emerging from the EU, has prompted the sanctioning of waste incinerators in a number of areas throughout Ireland in what Davies (2005: 375) describes as a 'sea change in Irish waste-management practice'. However, deciding to use incineration as a method of waste disposal is one thing, trying to actually locate facilities for incineration is quite another and attempts to site incinerators in various locations within Ireland have met with strong local resistance (Davies, 2005; Leonard, 2005; Davies, 2008), as has been the case elsewhere around the globe (Walsh *et al.*, 1997; Snary, 2002; Dodds and Hopwood, 2006; Shevory, 2007; Fan, 2008).

Environmental conflicts, such as those about MSW incineration, generally involve a myriad of different stakeholders with diverse and frequently contending beliefs, interests and agendas (Sidaway, 2005). Risk fears about health, environment, economic issues or general quality of life issues tend to take centre stage in such controversies (Boholm and Löfstedt, 2004). The range of stakeholders involved in risk debates typically creates a multi-sided discussion (Sidaway, 2005) where stakeholders vie to have their interests and concerns heard. Proponents of proposed facilities, such as incinerators, usually base their arguments around technical assessments of risk and technical criteria set down in planning procedures. In contrast, affected publics tend to display a broader set of risk understandings

incorporating intuitive and qualitative factors when making risk decisions (Slovic *et al.*, 2004). Thus the ways in which publics perceive risk can be thought of as constituting a social rationality as opposed to the technical rationality of risk assessment (Garvin, 2001; Leiss, 2004). However, creating such a rigid dichotomy between the risk understandings of those proposing and those opposing a particular technology may be an over-simplification since some have argued that risk assessment methods (O'Brien, 2000) and indeed scientific knowledge itself (Latour, 2004) are also constructed. In any case, the risk conversations, between institutions proposing waste facilities (or other possibly risky technologies) and the potentially affected publics, often contain 'fissures and gaps' in terms of the issues that concern publics (Beck, 1992: 30). Addressing these gaps and fissures between public perception of risk and technical risk assessments involves communication and exchange between the various parties involved about possible health and environmental risks (Covello *et al.*, 1986; Petts, 1992; Löfstedt and Frewer, 1998; Bickerstaff and Walker, 2001; Bickerstaff *et al.*, 2006).

This chapter provides both a rationale for this research project and a contextual backdrop against which to view the research. The chapter has two main sections and will begin by setting out the aims of the research and detailing the research questions. The second section of the chapter will detail the structure of the thesis.

1.2 The Research Rationale and Aims

It is hardly surprising that waste management, with all its contentions, has attracted its share of risk communication research (see Beder and Shortland, 1992; Petts, 1992; Petts, 1994; Ishizaka and Tanaka, 2003; Wakefield and Elliot, 2003). However, on the international stage, technical assessments of health (for example Schumacher *et al.*, 2004; Glorennec *et al.*, 2005; Rimmer *et al.*, 2006; Schumacher *et al.*, 2009) and environmental (Stephens *et al.*, 1995; Wu *et al.*, 2001) effects have dominated risk assessments for incineration facilities. Studies of risk perception and risk communication are far fewer (although see Beder and Shortland, 1992; Petts, 1992; Snary, 2002; Ishizaka and Tanaka, 2003; Lima, 2004). In Ireland, the pattern

has been similar with the Health Research Board (HRB, 2003) collating a review of scientific and medical health and environment literature around incineration risk. Although risk discourses have been identified as being at the core of incinerator debates (Davies, 2005, 2006) there has been no in-depth analysis of the risk messages conveyed, the channels or mechanisms used to convey these messages or the response of those receiving the messages.

There has been meaningful and important work conducted on the role of civil society protest in incinerator controversies in Ireland. Such work includes an examination of community based environmentalism (Leonard, 2005), the scalar strategies involved in the opposition to incineration in Ireland (Davies, 2005), the marginalisation of civil society activism in relation to incineration in Ireland (Davies, 2008) and the inhibition of the articulation of environmental justice terminology in incineration debates in Ireland (Davies, 2006). Despite health, environmental and regulatory concerns being central to incinerator controversies in Ireland (Leonard, 2005; Davies, 2006), the discourses around risk in Irish incinerator conflicts have not, to date, been studied from a risk communication perspective. Furthermore, while earlier studies of risk communication in relation to incineration in other countries are both interesting and informative, they tend to be rather restrictive either in relation to the range of stakeholders examined, the range of risk communication documents analyzed, the depth of data collected or the breadth of concerns considered. For example, in their study of risk communication in relation to a MSW incinerator in Japan, Ishizaka and Tanaka (2003) conduct interviews with just two groups of stakeholders, while Beder and Shortland (1992) limit their study of a hazardous waste incinerator controversy in south-eastern Australia to an examination of documents produced by two groups of stakeholders. Other studies of risk communication around incineration have been similarly finely focused and, although generally they have been designed in this way for very sound reasons, the resultant vistas of the risk discourses studied tend to be fragmentary. Of course, completeness is elusive in case study research, dependent as it is on the constructions of researcher and stakeholders (Geertz, 1993). Notwithstanding this, the research related in this

thesis attempts to present a comprehensive, deep and rich analysis of the risk discourse around incineration in Ireland by drawing on the views and recollections of a wide range of stakeholders, the media narratives of the conflict and the documental records of the risk communication efforts of those proposing incineration in Ireland.

This PhD thesis aims to critically examine how incineration risks have been communicated to publics in Ireland. With the emergence of incineration as an option for municipal waste treatment in Ireland, there currently exists a unique opportunity to examine the risk messages in the debate around the introduction of municipal waste incineration in Ireland and also, the mechanisms used to disseminate those risk messages. The debate around the proposed incinerator for the Poolbeg area of Dublin is being used as a case study in this research as there was a formal information programme set up by the local authority involved, Dublin City Council, to communicate with publics in the area about possible incineration risks. This approach contrasts with other MSW incinerators proposals in Ireland where formal communication or information programmes, outside of statutory public consultation processes, have not been provided.

The overall aim of the research is to provide a critical examination of current risk communication strategies around incineration in Ireland. This is approached by exploring the following four research questions:

1. What messages concerning risks and benefits associated with incineration were communicated through national and local print media by the various stakeholders involved in the debate around the Poolbeg?

This research question was addressed using content analysis methods to identify the principal stakeholders in the media debate around the Poolbeg incinerator and to elicit the main risk messages or arguments articulated by those stakeholders. Questions raised about how the news around the incineration debate was constructed and produced were examined through the semi-structured interviews with journalists and sources.

2. a) What strategies, in terms of messages and mechanisms, were used by the Dublin Waste-to-Energy Project information programme to communicate with the local population about the risks and benefits of incineration?

b) How were the various strategies received by different stakeholders?

This research question was addressed by evaluating the information programme commissioned by Dublin City Council for the residents of the areas surrounding the proposed incinerator site. Content analysis methods, again, are used to identify the main messages, mechanisms and stakeholders involved in the events conducted and materials used in the DWE information programme. Data from the semi-structured interviews were used to examine how the messages were regarded and received by publics and to ascertain the impacts of the various communication mechanisms used.

3. What were the underpinning rationales behind the risk messages or arguments used in the Poolbeg incinerator debate?

This research question was approached by using data generated by semi-structured interviews to ascertain the interests and values of the various stakeholders in the incineration debate.

4. What are the implications of the risk communication analysis for future

(i) incineration developments?

(ii) other contexts of environmental risk communication, in Ireland and beyond?

A synthesis of the findings of the research is developed and recommendations for new institutional arrangements designed to improve communication effectiveness, in terms of reducing the potential for conflict and increasing the potential defensible and accountable decisions.

1.3 Structure of the Thesis

The remainder of this thesis is set out in a way which traces a pathway through the intricate theoretical, epistemological and empirical work involved in the research. The next chapter, describes firstly, the legislative and policy back-drop to the

incineration controversy in Ireland and secondly, the literature on the scientific, technical and economic aspects of incineration. The third chapter interprets the major research literature pertinent to risk perception and risk communication to provide a theoretical lens through which this research may be viewed. The fourth chapter gives a detailed portrayal of the methods used in this research. It also includes a description of the case study area and an account of the research experience. The results of the research are divided into four chapters, the first two of which focus on the quantitative portion of the research, the content analysis. The first of these, which is the fifth chapter in the thesis, details the content analysis of the newspaper reports of the incineration debate which identifies the risk messages and stakeholders publicised through the media. Meanwhile, the sixth chapter details the content analysis of the materials and notes from the official information provision programme carried out by the incinerator proposers to examine risk messages articulated within this forum. The content analysis is being spilt in this way for two reasons. Firstly, the volume of data and analysis involved in the content analysis would have created an unwieldy chapter. Secondly, the nature of the two textual bodies examined (the news reports and the information provision documents) are too diverse to make a comparison meaningful, so dividing them signals their separateness. Chapters seven and eight delve behind the risk messages identified in chapters four and five by analyzing interview data to determine the articulated motivations behind those messages. Chapter seven reports on the main risk discourses in the incineration debate studied while chapter eight examines the trust and political issues apparent in the risk discourses. The ninth, and concluding, chapter draws together the different threads of the research analysis to provide an evaluation of the way in which risk information was communicated to publics in this particular case study.

1.4 Conclusions

Conflict over waste in general, and incineration in particular, has become a particularly heated aspect of Ireland's political landscape over the last decade. Although some interesting and important work has been conducted on incineration

controversies in Ireland, thus far, this has been restricted to examinations of civil activism aspects of incinerator controversies. Furthermore, a limited amount of examination of the risk discourses at the heart of incinerator controversies has been undertaken to date and there has been little work conducted on how the environmental risks of incineration have been communicated to publics in Ireland. Therefore a genuine gap exists in the research on incineration discourses in Ireland. Internationally, the research around incineration is still dominated by technical assessments and despite an abundance of such studies, controversy about incinerator sitings still abound. While work has been conducted internationally, many of these studies are limited in their approach and as a consequence, give a focused but narrow account of the risk messages disseminated and the motivations and values behind such messages. This thesis aims to give a fuller account of the debate around incineration.

Chapter 2: Waste Legislation, Incineration and Risk; A Review

This chapter constitutes a review of the literature on waste legislation and policy in Ireland and the literature on the toxicological, epidemiological, engineering and technical aspects of incineration technologies. The purpose of this chapter is to explore the legislative background to incineration debates in Ireland and to present the types of technical scientific data about incineration technology and incineration emissions that form the basis of the information disseminated to publics in the case study used for this thesis. This chapter serves to set out the back story to the thesis.

2.1 The Legislative and Policy Context

The controversial decision to begin using incineration in Ireland for the disposal of municipal waste is rooted in Irish waste policy and legislation (Boyle, 2003), which in turn is influenced strongly by environmental policy at European Union (EU) level (Laffan and O'Mahony, 2008). Prior to examining the debate around incineration in Ireland, therefore, it is useful to consider how and why waste legislation in Ireland evolved as it did. This account will begin by considering how the principles underlying EU environmental law influence Irish waste legislation before moving on to examining how waste policy and legislation developed in Ireland and how Irish waste strategies and governance opened the pathway to the use of thermal treatment or incineration.

2.1.1 Sharing, layering and underlying concepts: The influence of EU policy on Irish waste governance

Environmental law in Ireland is drawn almost completely from EU law (Doyle, 2003). Generally speaking, European Union (EU) law is considered to have supremacy over the national law of member states, such as Ireland (Steiner *et al.*, 2006). However, EU law is generally set out in broad framework pieces of legislation which stipulate the aims and objectives to be achieved but which give national governments a sizable degree of leeway in terms of the mechanisms for implementing the legislation. As Laffan and O'Mahony (2008: 132) remark, 'EU

policies are designed to trigger institutional process and policy change in member states'. The sharing of governance between the EU and national parliaments is not, however, the complete picture; there is another layer. Whereas the responsibility for transposing EU directives and regulations into national law lies with the national governments of member states, the responsibility for implementation often lies with local government and as a result, EU regulations tend to 'hit home at the local level' (Laffan and O'Mahony 2008: 147). This is particularly the case with environmental legislation governing areas such as water protection and waste management. So a multi-level sharing of governance exists between the supranational level (the EU), the national level and the sub-national level (local government).

Multi-level governance in the EU has been a research focus since the 1990s, allowing a wide range of actors, including geographers, to participate in the discourse about EU governance (Steiner *et al.*, 2006). Although multilevel governance is regarded within the EU as a potential aid to political consensus, research by Davies (2005) suggests that in the case of waste management in Ireland, such scalar governance has done little to allay conflict or controversy. Moreover, Davies (2005) warns against underestimating the importance of national governments in the formulation of waste management policy, particularly where local and regional layers of government are weak, as is the case in Ireland. Furthermore, Boyle (2002, 2003) argues that the scalar nature of waste governance has allowed a situation where regional tiers of governance have been artificially constructed in Ireland with the purpose of imposing national government waste agendas on local governments. He further asserts that this has actually opened up the pathway to Municipal Solid Waste (MSW) incineration for Ireland (Boyle, 2003).

There is another aspect of EU environmental governance that has helped shape, and indeed fuel, the debate around the use of incineration in Ireland. This involves the tensions that exist between environmental protection and economic growth within EU policy and politics. To understand the origin of this division it is necessary to examine a particularly important EU founding principle on which most of Ireland's

environmental policy is based. Article 2 of the 1957 Treaty of Rome or the Treaty Establishing the European Community (EC) states:

> *"The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing the common policies or activities referred to in Articles 3 and 3a, to promote throughout the Community a harmonious and balanced development of economic activities,* ***sustainable and non-inflationary growth respecting the environment****, a high degree of convergence of economic performance, a high level of employment and of social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States."* (EC, 1957) [emphasis added]

The EC was established as an economic alliance and the protection of the environment was regarded as being necessary but also as being likely to have a negative effect on economic performance rather than the other way around (Doyle, 2003). Thus the tensions between the economy and the environment, which invariably emerge in many of Ireland's waste controversies, have long since been set up within the Treaty of Rome. Doyle (2003) though, fails to take into account that this principle evolved somewhat over time. Although economic development remains central in subsequent consolidated versions of the foundation treaty, social and environmental considerations are given higher priority than they had been, for example in the 1997 Treaty of Amsterdam, Article 2 of the treaty principles states:

> *"The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing common policies or activities referred to in Articles 3 and 4, to promote throughout the Community a harmonious, balanced and sustainable development of economic activities, a high level of employment and of social protection, equality between men and women, sustainable and non-inflationary growth, a high degree of competitiveness and convergence of economic performance,* ***a high level of protection and improvement of the quality of the environment,*** *the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States."* (EC, 1997: 181) [emphasis added]

Boyle (2003: 482) notes that while the concepts of competitiveness, cohesion and environmental sustainability are the European Commission's keystone tenets, attempts to balance environmental requirements with economic aspirations generally involve national governments 'prioritising national accumulation strategies'. However, Irwin (2001) suggests that the concept of sustainability is slippery and

highly political combining, as it does, discourses from disparate and often discordant quarters including environmentalists, business lobbies, scientists and policy makers. Irwin (2001) further argues that this definitional vagueness implies that flexibility exists in the meanings and possible implementations of sustainability. So the sustainability pillar of the EU contains within it a consideration of economic interests as well as environmental ones. The question then arises as to whether EU environmental law is something of a loaded dice that facilitates member states in favouring economic achievement over safeguarding the environment. Answering that question is outside the remit of this thesis; however it is a useful query to keep in mind while examining EU and Irish policy and legislation pertaining to municipal waste management.

EU waste management strategy has four guiding principles, which permeate through its waste policy and legislative instruments. These are the proximity principle, the waste management hierarchy, the precautionary principle and the polluter-pays principle (Boyle, 2003), and they are set out in Table 2.1 below.

Table 2.1: Key principles of EU approach to waste management (Boyle, 2003)

Principle	Meaning
Proximity	Each member state (or region) must take responsibility for the disposal of its waste within its own region and desist from exporting it elsewhere
Waste management hierarchy	Member states (or regions) must draw up waste management plans which favour prevention, minimisation and recycle waste management options
Precautionary	When scientific evidence about environmental risk associated with the transportation, processing or disposal of waste is contested, the member state must err on the side of caution
Polluter-pays	The producer of the waste must bear the brunt of the cost of treatment and disposal

EU policy and legislative instruments that have made significant impact on municipal waste management in Ireland to date include the EU Waste Framework Directive (75/442/EEC) and its amendments and the Council Directive 1999/31 on the Landfill of Waste. The Sixth Environment Action Programme of the EC, which covers the period 2002 – 2012, is also key to current and emerging waste policy in Ireland. The Waste Framework Directive 75/442/EEC (which has been consolidated

and refined by later Waste Framework Directives 91/156/EEC, 2006/12/EC and most recently repealed by Waste Framework Directive 2008/98/EC) provides the foundation to Irish waste legislation. The Waste Framework Directive obliges member states to deal with waste in a way which is not injurious to the environment and to draw up waste management plans. At its core is the waste management hierarchy which favours minimisation and recycling waste management methods over more environmentally-harmful ones such as disposal (thermal treatment and landfill) (Fahy, 2003).

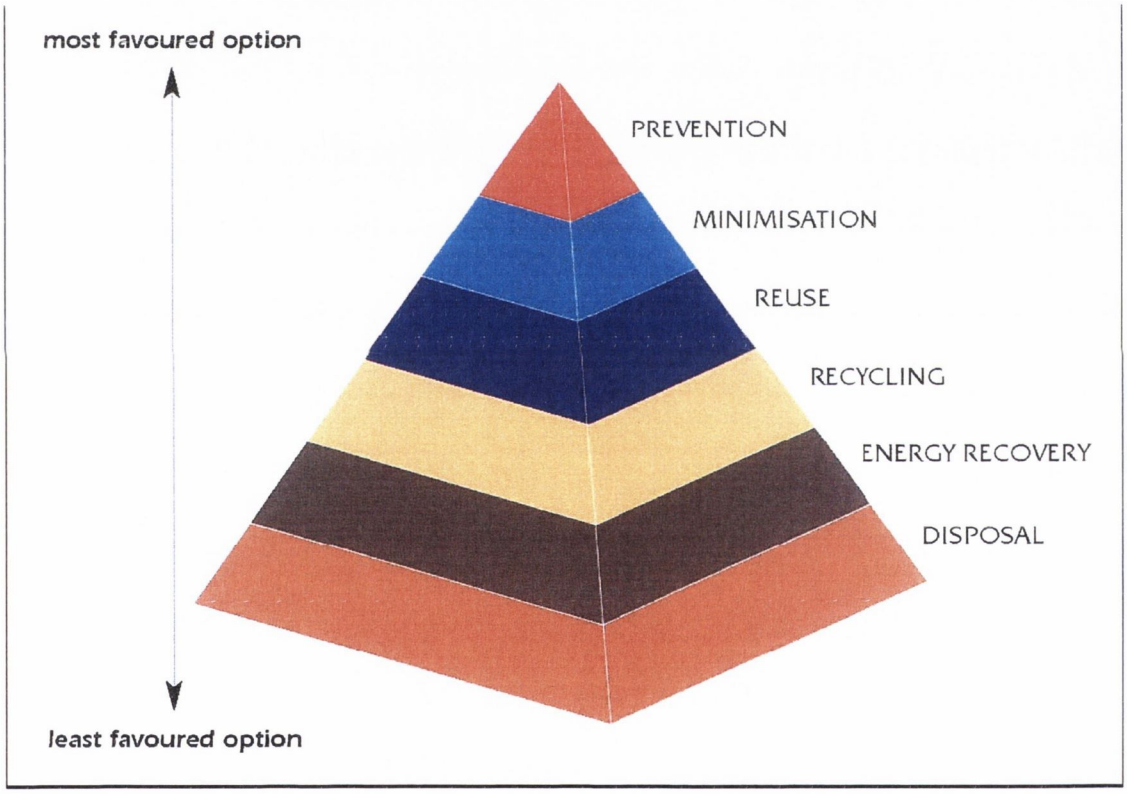
The waste hierarchy stipulates that priority must be given first to preventing waste, then to reuse and recycling (see Fig. 2.1 below). Only when it is impossible to reintroduce material resources back into economic or production systems can disposal be considered. In addition, and crucially for this research, waste-to-energy options, which are considered to have a recovery aspect, are preferred over landfill (Boyle, 2003). Fahy (2003: 9) notes however, that the 'Actual Waste Management Hierarchy', is the inverse to the ideal hierarchy set out in EU policy and that realistically, those options at the lower end of the hierarchy are still the options utilised most in EU member states. More recently, Mazzanti and Zoboli's (2008) study of waste policy in the EU concludes that while waste minimisation at source may occupy the pinnacle of the waste management hierarchy, most EU waste policies contain a bias towards recycling and disposal methods.

EU Directive 1999/31 set outs reduction targets over time for the landfilling of biodegradable waste obligating member states to draw up strategies for achieving these targets. Given Ireland's high dependency on landfill disposal of waste and its rapidly diminishing landfill capacity (Davies, 2003), the landfill directive exerts significant pressure on policy makers in Ireland. The stipulation that by 2010 no more than 75% of 1995 levels of biodegradable waste should landfilled, was considered a particularly challenging and urgent aspect of the 1999 Landfill Directive for Ireland (EPA, 2008).

The Sixth Environmental Action Programme (EU, 2002) outlines the agenda for environmental policy making in Europe from 2002 – 2012 and sets out the actions needed to realise the goals set. It reiterates the EU's commitment to sustainability and has as one of its aims an intention to decouple waste production and economic development.

> *Article 2.2 "The programme aims at .... better resource efficiency and resource and waste management to bring about more sustainable production and consumption patterns, thereby decoupling the use of resources and the generation of waste from the rate of economic growth and aiming to ensure that the consumption of renewable and non-renewable resources does not exceed the carrying capacity of the environment".* Sixth Environmental Action Programme (EU, 2002)

Fig 2.1: European Waste Hierarchy



Source: EPA (2007: 43)

The aim to break the link between resource use and waste generation, on the one hand and economic growth on the other has become a key objective of Irish waste management (EPA, 2008). However, despite the commitment to decoupling waste

generation and economic growth at EU level, the realisation of this objective Europe-wide still seems to be remote, and the need to drive decoupling 'beyond rhetoric' has been noted by the European Commission (2007: 17). Furthermore, Mazzanti and Zoboli (2008) attest that inadequate waste minimisation in EU member states is inhibiting decoupling and that complete decoupling is a long way from being achieved.

From this reading then, it would seem that, in the first instance at least, EU waste management policy and regulation is rooted in a precept which aspires to protect economic growth (Doyle, 2003). Despite moving towards a more environmentally protective stance over the decades since the Treaty of Rome, it has been claimed that EU environmental legislation still functions to conserve economic development (Taylor, 2005). In addition, implementation of EU environmental regulation is achieved through a system of multi-level governance (Laffan and O'Mahoney, 2008), which is intended to induce consensus between stakeholders but has, in the context of Irish waste management at least, resulted in much conflict (Davies, 2005). This then is the policy landscape within which Ireland must formulate and implement national waste management policy and legislation.

2.1.2 Waste policy and legislation in Ireland

The patterns of rising consumption and population growth accompanying the 'Celtic Tiger', as Ireland's economic expansion was christened, resulted in a significant increase in the generation of municipal waste over the past two decades (Davies, 2005; EPA, 2008). However, this trend has begun to reverse over the past three years. For instance, the volume of municipal waste generated in Ireland rose from approximately 1.8 million tones in 1995 (EPA, 1996) to approximately 3.4 million tones in 2007, but fell to 3.2 million in 2008 (EPA, 2009a; EPA, 2009b). Fagan (2004: 86) suggests that the economic boom was a key element in the explosion of waste volumes as 'economic dynamism [was] not matched by effective regulation'.

Before proceeding to the examination of waste policy and legislation, it is apposite to indicate what is meant by *waste* as it is defined in Irish and EU policy and legislation. In article 3.1 of the EU Waste Framework Directive 2008, *waste* is defined as 'any substance or object which the holder discards or intends or is required to discard' (EU, 2008: L312/9). The National Waste Report 2007 (EPA, 2009a: v) defines *municipal waste* as 'household waste as well as commercial, industrial and street cleansing waste which because of its nature and composition is similar to household waste'. *Household waste* is 'waste produced within the curtilage of a building or self-contained part of a building used for the purposes of living accommodation' and *commercial waste* is 'the waste that is produced from a number of diverse sources, including shops, offices and commercial premises, such as paper and cardboard, plastics, organics and glass etc.' (EPA, 2009a: v).

Prior to the 1990s, Ireland's waste management legislation was confined to the 1982 Litter Act, a few public health statues and some ministerial regulations (Meehan, 1996; DoEHLG, 2010). In an attempt to deal with the country's burgeoning waste problem (Davies, 2003; Fahy, 2003) and in response to increasing policy-making on waste at EU level (Taylor, 2005), the Irish government began to modernise waste management legislation and policy during the latter part of the 1990s. Fahy (2003) credits the Waste Management Act 1996, its 2001 amendment and the 1998 policy document, *Changing Our Ways*, with having had a considerable influence on waste management in Ireland. Since Fahy's (2003) analysis of Ireland's waste policy and legislation, the Waste Management Act 1996, has been subject to further important amendments in The Protection of the Environment Act, 2003.

The 1998 waste policy document, *Changing Our Ways* set targets for the reduction of various waste streams to landfill and emphasises the role of local authorities in achieving this (Fahy, 2003). Other notable provisions of the policy document are the reiteration of the commitment to the EU waste hierarchy (Fahy, 2003) and the endorsement of integrated waste management (DoEHLG, 1998). Of interest in the context of this thesis is that *Changing Our Ways* acknowledges that waste facilities

are generally unwelcome developments as far as communities are concerned and it suggests that public education and public participation are desirable when such facilities are being developed (DoEHLG, 1998). The tenet that publics require education with regard to risky technologies is often associated with early and relatively unsophisticated models of risk communication (Mythen *et al.*, 2000). This will be discussed in greater detail in Chapter 3, but it is worth noting here. Following *Changing Our Ways*, two further waste management policy documents, *Delivering Change – Preventing and Recycling Waste* (2002) and *Taking Stock and Moving Forward* (2004) were released. Both of these followed on from and refined the waste management direction set out in *Changing Our Ways. Delivering Change* again repeats the commitment to reduce, reuse, recycling methods emphasising that reduction or minimisation of waste is the most desirable option. It also sets out a range of measures aimed at achieving the various targets specified in *Changing our Ways*. In addition, it focuses on producer responsibility, or the responsibility of business for the waste materials (packaging, end-of-life products) that it has placed into the economic system (DoEHLG, 2002). Two years later, in 2004, *Taking Stock and Moving Forward* was published. As the title suggests, this document included a short stock-taking report on waste volumes produced and it summerised the level to which the targets and aims of earlier policies had been achieved. It also set out 21 key points covering many aspects of waste management including reiterating a commitment to thermal treatment '<u>as one element</u> in the integrated approach to waste management' (DoEHLG, 2004: 53, emphasis in original).

Although no further government waste policy documents have been published since 2004, there has been an important political development in Ireland since then which impacts on current waste policy. On entering government following the 2007 general election, Green Party leader John Gormley[1] was appointed as Minister for the Environment, Heritage and Local Government. The new Minister signalled that he intended to effect change in Ireland's waste policy and de-emphasise the role of

[1] John Gormley is a public representative for Dublin South East, and a resident of Ringsend, where the siting of incinerator for Dublin City is planned. Mr. Gormley has been a long term activist against the incinerator for many years.

MSW incineration in the national waste strategy[2]. In addition, mechanical biological technology (MBT) would be considered as a possible alternative to incineration. In order to prevent recyclable material being drawn into the incineration waste stream and to restrict the use of incineration, a commitment to place a cap on Ireland's incineration capacity was included in the Programme for Government[3] (Department of the Taoiseach[4], 2007, 2009). Further to this commitment, the Minister for the Environment, Heritage and Local Government commissioned an international review of waste management policy which concluded that a levy should be imposed on waste destined for incineration, a suggestion which would make incineration less economically viable (Hogg *et al.*, 2009). In response, the Economic and Social Research Institute (ESRI), an independent economic and social policy research organisation, published a report claiming that the proposed incineration levy amount was too high and criticising the plans to cap incineration capacity and the suggestion that large scale MBT may be utilised (Gorecki *et al.*, 2010). The issue of what constitutes current government policy on waste and specifically on incineration is presently contentious. While Minister Gormley asserts that government policy has now changed, those implementing waste policy, such as Dublin City Council officials, argue that without an official policy document or new legislation or regulations, they have no recourse but to be guided by the existing policy documents. A recent exchange in the parliament between Ciarán Cuffe, a Green Party government member of parliament and John Tierney, Dublin City Manager, illustrates the quarrel:

> Mr. John Tierney: (Dublin City Manager) "*Government policy is enunciated in policy determinations such as Changing Our Ways and Taking Stock and Moving Forward and legislation such as the Waste Management Acts.*" .....
> Deputy Ciarán Cuffe: "*A clear change of policy was made in the 2007 programme for Government and last October's transformed programme. Cognisance has to be taken of these formal, published documents of Government.*"
> Mr. John Tierney: "*As we have said, we have carried this out in accordance with Government policy and there is a difference between the intention to change the policy and actual change.*"Partial transcript of Dáil Environment Committee meeting Feb 3, 2010

[2] Irish Times (2007) Minister intends to change waste policy, *Irish Times*, 11th Nov
[3] The agreed agenda for the government term
[4] Irish Prime Minister

Policy, of course, states the commitment while legislation cements it. The keystone of Ireland's waste legislation which commits into law intentions and aspirations made in the above waste policy documents is the 1996 Waste Management Act.

2.1.3 The Waste Management Act

The 1996 Waste Management Act was a landmark piece of legislation being decidedly more comprehensive than the piecemeal and patchy public health legislation governing waste that preceded it (Boyle, 2003). It gave effect to a number of European Community legal instruments including the Council Directive on Waste (75/442/EEC). The principal focus of the Waste Management Act 1996 was directed at improving the efficiency of the local authorities in relation to their various waste management functions and to improving recovery and recycling achievement (Fahy, 2003). The Waste Management Act is a piece of framework legislation providing as it does a range of legal and policy options for controlling waste (Meehan, 1996). Therefore, while local authorities must meet the objectives of the legislation, there is some latitude afforded to them in the choice of methods they may use to do so. The provisions under the Act which are most relevant to the treatment of municipal waste are the making of waste management plans, the obligation to utilise integrated waste solutions, the adherence to the EU waste management hierarchy (Taylor, 2003) and the responsibility it confers on the Environmental Protection Agency (EPA) to license waste treatment and disposal facilities (Taylor, 2005).

Section 22 of the Act requires local authorities to draw up waste management plans to deal with the municipal waste produced in their area. Such plans must adopt integrated waste management strategies or an 'integrated and adequate network of disposal' options (Doyle, 2003: 60). This means that a range of appropriate waste disposal options, with regard to the waste hierarchy, should be used, including prevention, minimisation, reuse, recycling, energy recovery and finally, disposal (European Commission, 2003). There are a total of 34 local authorities in the Irish Republic consisting of County and City Councils and there were concerns that these existing administrative divisions would prove too small to formulate or implement

waste management plans that would meet the objectives of the Waste Management Act 1996 (Boyle, 2003). Consequently, various combinations of geographically close County and City Councils were bundled together to form regional groups which would then produce waste management plans. One such region is comprised of the four local authorities in the Dublin area; Dublin City Council, Fingal County Council, South Dublin County and Dun Laoghaire/Rathdown County Council (Davies, 2003).

In the broader sense, regionalisation within Ireland in reaction to various EU spurs has come under some criticism. For example, Laffan and O'Mahony (2008: 149) describe the creation of regions such as the Border, Midlands and West (BMW) region and the Southern and Eastern (SE) region in Ireland as being a 'highly instrumental response' to allow Ireland to remain a net beneficiary in the Europe Union. They also claim that regional scale governance is of little importance compared to local scale governance. Such a claim resonates with Boyle's (2002: 185) contention that the waste regions were in essence 'weak, fabricated regional groups'. Davies (2005: 382) argues that despite the decentralisation of decision-making that constructed regionalisation may bring about, it is likely to be problematic for the development of recycling strategies and infrastructures due to 'a lack in economies of scale'. While the waste regionalisation may have made the economies of scale too limited for proper deployment of options at the top of the waste hierarchy, Boyle (2003) contends that it created just the right economies of scale for the use of incineration. More recently, a review of international waste commissioned by the current Minister for the Environment, Heritage and Local Government notes that there have been calls by waste governance stakeholders to create a national waste plan and to make the entire country one waste region (see Hogg *et al.*, 2009).

2.1.4 Waste management plans and the road to incineration

While the regionalisation strategy adopted in relation to waste management has received its share of criticism, equally the waste management plans produced for

those regions have raised a number of issues and questions with commentators. Such issues include the use of private consultants to write the waste management plans, the impact of regionalisation on the range of waste management options open to decision-makers and the extent to which the EU waste hierarchy is adopted. According to Boyle (2003) a lack of experience in waste management in the newly formed waste regions meant that the waste management plans were drawn up by private consultants. One particular company, MC O'Sullivan (MCOS, later acquired by RPS) wrote all but one of the regional waste management plans (Davies, 2005). The pivotal role of private consultants in Irish waste management strategies has attracted comment and disquiet from waste policy researchers. Davies (2005) notes that the private consultants acted as leading influences of policy decisions in Irish waste management. Boyle (2003: 491) questions the wisdom of entrusting this task to (mainly) one firm, MCOS/RPS, who he describes as having 'links with the Irish State, key factions of capital, and the waste disposal industry more specifically'. Most of the waste management plans produced contained similar waste strategies and all but one provided an option for thermal treatment, or incineration (Fahy, 2003). Boyle (2002) attests that the option of thermal treatment was key to most of the waste management plans. Boyle (2003) argues further that although the waste management plans produced by MCOS purported to promote options from the higher rungs of the EU waste management hierarchy such as minimisation and recycling, the plans implied that these strategies alone would be insufficient as waste solutions and that incineration was therefore needed. Hence, incineration, which had never before been used for the treatment or disposal of municipal waste before in Ireland (Davies, 2005), was now firmly on the waste management agenda. However, it has been suggested that there may also have been economic reasons for the conclusion that thermal treatment was necessary. Boyle (2003) advances a line of argument that a concentration on the options at the top of the waste hierarchy would constitute a threat to the 'Celtic Tiger' economy.

Despite the influential role played by private consultants in the decision making around regional and local waste strategies, the adoption of the waste management

plans produced under the auspicious of the Waste Management Act 1996, was still a reserved function of the council. This meant that the elected councillors in each county or city had to vote in favour of adopting the waste management plans before such plans could be implemented (Davies, 2005). However, the precise locations of waste facilities, such as incinerators or landfills, were not specified in the waste management plans. The spectre of their particular county or area having to shoulder the brunt of such a facility for the whole region caused elected representatives in most areas to reject the waste management plans (Boyle, 2003). Dublin City Council, however, voted to adopt the Dublin regional waste management plan in December 1998, despite some anxieties among councillors that 'the provision of thermal treatment with energy recovery, for a capacity in the region of 500,000 – 700,000 tonnes per annum' (MCCK, 1998: 8), would result in the siting of an incinerator in the Dublin City Council area (McDonald, 1998). By the beginning of 2001, just two of the regional waste management plans had been adopted: the Dublin regional waste management plan and the plan for Limerick, Kerry and Clare, the others having been voted down by some of their county councils (Irish Times, 2001).

In response to the failure of county councils to adopt regional waste management plans, the government introduced the Waste Management (Amendment) Act 2001 (Fagan, 2004). Under this new legislation the task of approving waste management plans was no longer a reserved function of the elected members, but was made an executive function of each county or city manager, the highest ranking council official (Fahy, 2003). This removed the power to adopt, or indeed to block the adoption of, waste management plans out of the hands of the elected representatives. The Act was extremely controversial and accusations that it was an erosion of democracy emanated from many quarters, including from opposition politicians during Dáil Éireann (Irish Parliament) debates on the 2001 Act[5]. During the Report and Final Stages of the Dáil debate on the Waste Management (Amendment) Bill 2001, one member of the Irish parliament (TD) stated:

[5] Full transcripts of all Dáil debates can be accessed at http://www.oireactas.ie

> *"... the principle behind the Bill [is] to take powers which elected representatives of local authorities have to make and implement a waste management plan and give it to managers, who are unelected and unaccountable. It is an undemocratic provision ... Power is being taken from the representatives of the people and given to faceless individuals who are under no obligation to consult local people."* Deirdre Clune, Fine Gael, July 2001

The introduction of the Waste Management Act 2001 was an example of the nation state clawing back power from local politicians and therefore, from the local communities who elect local politicians. Thus, it removed the 'locality from the decision-making process' (Fagan, 2004: 95). However the political crisis for the waste management plans did not end with the introduction of the Waste Management Act 2001. Under the Act, the responsibility for reviewing waste management plans remained a function reserved for the elected councillors (Fahy, 2003) and some County and City Councils attempted to alter the waste management plans for their regions. Again, central government responded by simply changing the legislation with the Protection of the Environment Act 2003, again amending section 22 of the Waste Management Act 1996 and making the 'review, variation or replacement' of a waste management plan an executive rather than a reserved function (DoEHLG, 2003: 68). During the parliamentary debate on the Act, Martin Cullen, the then Minister for the Environment was clear that the intention of the amendment was to prevent local councillors from interfering with the waste management plans:

> *"....it appears that some councils are already seeking to review and amend plans, essentially to un-pick their provisions for an integrated waste management infrastructure.... I remain strongly of the view that there is no merit in revisiting the foundations on which the plans are based. They have already been fully debated and decided upon. In order to safeguard and build on the progress to date, I propose to provide that the review, variation and replacement of a waste management plan shall also be an executive function for local authority management"* Minister Martin Cullen, Dáil Éireann, 29 May 2003

Although provisions for public consultation with regard to the waste management plans remained, local politicians no longer had any decision-making responsibility with respect to the plans. Thus, the Minister safeguarded the waste management plans, as formulated by private consultants.

It is important to note that apart from the pragmatic, beneficial or ethical rationales for using risk communication and public participation in decision-making about environmental risk, there are also legal and policy obligations on the Irish government to do so. Since the enactment of the EU Seveso Directive, a requirement for environmental information to be available to the public has been a feature of EU law (Walker *et al.*, 1999). The EPA Act 1992, in accordance with the 1990 EU Directive on the freedom of access to information on the environment, includes a provision which allows public access to environmental information on request (DoEHLG, 1992). In addition, in accordance with the 1998 Aarhaus Convention[6] and its associated EU Directives, the public is entitled to environmental information, public participation in decision making and justice in environmental matters. Also, Principle 10 of the Rio Declaration on Environment and Development, 1992, of which Ireland is a signatory, sets down provisions in relation to access to environmental information, the facilitation of public awareness and public participation in environmental decision making (UN, 1992). The Planning and Development Act, 2000 is the principle legislation governing planning procedures in Ireland consolidating a number of earlier pieces of planning legislation including EU Directives on Environmental Impact Assessments (EIA). Under the 2000 Act, a planning application, which may include an Environmental Impact Statement if necessary, must be available to publics to view and makes submissions on during a period of at least 10 weeks. Submissions can be made either in writing or orally in the context of an official public hearing. Legislation governing Environmental Impact Assessments (EIA) both at EU and national level also contain provisions for statutory public participation and consultation processes. The 2003 EU Directive (2003/35/EC) governing EIA procedures amends the original 1985 Directive (85/337/EEC) on EIAs to expand and strengthen public participation and consultation requirements for developments requiring EIAs. The 2003 Directive stipulates that concerned publics must have early and effective opportunities to

[6] Although Ireland is a signatory of the Aarhaus Convention, it has yet to be ratified into Irish law, however, the current Minister for the Environment, Heritage and Local Government has stated his intention to do so during Priority Questions in the Dáil 18th Dec 2007. http://historical-debates.oireachtas.ie/D/0644/D.0644.200712180006.html

participate in the EIA procedure and that ample time must be given to allow for communication with publics, examination of Environmental Impact Statements (EIS) by publics and time for publics to make submissions in respect of a planning application. The 2003 Directive also aims to bring EU law in relation to EIA into line with the Aarhus Convention on access to justice in environmental decision making. This directive has been transposed into Irish law by means of the 2006 EIA regulations (S.I. No. 659 of 2006) which amend the 2000 Planning and Development Act to include provision for public participation in planning procedures and access to justice in environmental matters.

2.2 Incineration: Technical Review

Prior to examining the discussion in Ireland around the risks associated with incineration, it is apposite by way of context to explore the technical literature in relation to incineration. This section begins with a detailed description of the incineration process and then moves on to examine technical research literature on those aspects of incineration that concern publics. Controversy over incineration is by no means unique to Ireland and incinerator conflicts world-wide have received a degree of research attention (Petts, 1992; Beder and Shortland, 1992; Walsh *et al.*, 1997; Tanaka, 1998; Ishizata and Tanaka, 2003; Dodds and Hopwood 2006; Shevory, 2007). From these studies of incineration debates it is clear that conflict arises over a number of specific areas. Possible impacts of incineration emissions on human health are often highly contentious elements of incineration debates (Petts, 1992; Ishizata and Tanaka, 2003; Leonard, 2005; Shevory, 2007), as are concerns about sustainability (Walsh *et al.*, 1997; Dodds and Hopwood, 2006; Davies, 2008).

In examining the toxicological, epidemiological and engineering literature in relation to incineration, the possible effects of incinerator emissions and the efficacy of incineration as part of a sustainable waste management solution, a number of notable trends emerge. Firstly, much of the scientific research is inconclusive, contradictory and consequently beset with uncertainty. Secondly, the data gleaned and conclusions reached are often reliant on particular conditions of the respective studies. Thirdly,

studies of more recently commissioned incinerators, that is those built circa 2000 onwards, tend to indicate improved energy recovery potential and decreased polluting potential than older models.

Incineration is the controlled burning of materials at temperatures of greater than 850°C, in the presence of oxygen (Williams, 1998). Burning takes place within a single chamber. The most widely used method is mass burning, which usually involves a system of grates to move the waste through a single combustion chamber. The waste receives very little, if any, pre-treatment (HRB, 2003). The types and concentrations of incineration emissions greatly depend on the composition of the waste (Zhang *et al.*, 2001) and the temperatures at which it is burned (Williams, 1998). It is important that high temperatures are reached so that the maximum amount of toxins can be broken down (Williams, 1998). This necessitates good operation of the system as well as the use of consistent volumes and quality of waste. In some instances, supplementary fuel is required to ensure adequate combustion (McKay, 2002). Two types of residual ash material are produced during the incineration process: fly ash and bottom ash. Fly ash, or particulate matter produced by incomplete combustion, contains toxins, is unsuitable for recycling or materials recovery and must be disposed of in a specialised toxic landfill. Bottom ash is less toxic and is either recovered and used as a filling material in activities such as road building or simply deposited in a sanitary municipal waste landfill (Williams, 1998). Therefore, incineration cannot totally replace landfill. The high temperatures reached during the incineration process mean that heat and energy can be recovered (Williams, 1998). Heat recovery is normally based on a boiler system which uses water to create steam followed by a heat exchange system.

One advantage of incineration over other waste treatment methods is that it reduce the volume of waste, and it does so immediately rather than being reliant on long biological decomposition times (Williams, 1998). Other advantages include that incineration emissions to air can be controlled and brought into line with air quality standards and that incinerators can be built close to the waste production and

collection point, in accordance with the proximity principle, which also keeps waste transport costs low (McKay, 2002). In addition, incineration is arguably effective in eliminating pathogens from waste, methane is not produced by the incineration process (Williams, 1998) and an incinerator requires significantly less land than a landfill does (Psomopoulos *et al.*, 2009).

Technical risk assessments of the incineration process normally focus on particular emissions to air which are of concern in relation to environmental and health impacts and which are covered by legislation. These pollutants include dioxins, furans (and other organics), particulate matter (dust), acidic or corrosive gases (such as SO_2, HCl and HF), heavy metals (including lead, cadmium, mercury and chromium), CO and CO_2 (Williams, 1998; Glorennec *et al.*, 2005). Some researchers have given the process of risk assessment some consideration. Demidova and Cherp (2005) purport that the process of Environmental Impact Assessment (EIA) could be strengthened through the inclusion of health risk assessments and that this would aid communication about health risks to publics. More recently, Lonati *et al.* (2007) contend that assumptions used to account for uncertainty generally result in an overestimation of risk and propose that a probabilistic approach be integrated into risk assessment to overcome this issue.

2.3 Environmental and Health Risks Associated with Incineration: An Incomplete Picture.

While incinerators emit dozens of chemicals and combinations of chemicals, for this thesis the literature on those substances which have received most research attention has been reviewed. These are dioxins and dioxin-like chemicals, particulate matter, heavy metals, and hazardous gases.

2.3.1 Dioxins, furans and PCBs

Studies examining public perception of incineration risks by Petts (1992) in the UK and by Ishizata and Tanaka (2003) in Japan, show that dioxins tend to be a very

specific concern that publics have in relation to both industrial and municipal waste incinerators.

The term *dioxins* is used generally to denote both dioxins and furans[7], extremely toxic compounds. Dioxins and furans are not manufactured as commercial products (having no real use) but are produced as by-products of incomplete combustion during a number of industrial and technological processes such as incineration, power production, metals refining and domestic fires. Municipal waste incineration is the second most important source of dioxin emission in the EU; however it is estimated that the volume of dioxins emitted by incinerators in the EU fell by over 90% between 1985 and 2005 (Quass *et al.*, 2004). Compliance with European Directive 2000/76/CE and other EU directives governing incineration has more than likely facilitated this. The most significant route of exposure to dioxins for humans is through ingestion[8] (Brouwer, 1998; Lonati *et al.*, 2007) and they tend to bioaccumulate in human fatty tissue (Lorber and Philips, 2002; Reis *et al.*, 2007a).

One of the most toxic and most studied dioxins, TCDD[9] has been linked to health effects including liver, skin and breast cancer, endocrine disorders, immune system abnormalities, lipid and carbohydrate metabolism disorders, sensory impairment and psychological syndromes (Mukerjee and Cleverly 1987; Rowat, 1999). It has been established, largely through toxicological testing on animal subjects, that dioxins are toxic, carcinogenic and tetratogenic in tiny amounts[10] (Mukerjee and Cleverly, 1987). However extrapolation to humans is contentious since some effects of dioxins and furans appear to be species specific (Williams, 1998) while other are not (see Guo *et al.*, 2000).

Much data about health effects of dioxins in humans have come about as a result of accidents or from occupational exposure. The only agreed proven health risk is a rare

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[7] The research literature refers to these substances as polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) (McKay, 2002)

[8] Other less significant routes are inhalation and absorption through skin (Brouwer, 1998; Lonati *et al.*, 2007)

[9] 2,3,7,8 tetrachloro –dibenzo-dioxide

[10] parts per billion or trillion

type of severe acne called chloroacne, which affected (mainly) children in Seveso, Italy in 1976 following an accident at a pesticide factory (Baird and Cann, 2005).[11] Studies of occupational exposure to dioxins suggests that they have a role in promoting some human cancers (Yoshida, 2005), while attempts to link dioxins with DNA damage was inconclusive (Yoshida, 2006). To date, this tenuous cancer link appears to be the only empirical toxicological evidence of dioxin carcinogenic activity in humans. There are epidemiological studies, though, that would tend to draw a link between incineration emissions and certain cancers such as non Hodgkin's lymphoma (Viel and Floret, 2007) and liver cancer (Elliot *et al.*, 2000), but similar research on soft tissue sarcomas and breast-cancer (Viel *et al.*, 2008) show no such links. However, epidemiological results are often confounded by factors such as deprivation and poverty and untangling the effects of old incinerators and new, more controlled facilities in the same area appears to be problematic (see WHO, 2007).

The effect that dioxins and furans may have on children and developing foetuses has been the subject of much research, since children tend to be more susceptible to possible toxic effects (Wigle, 2003). In a World Health Organisation (WHO) report on health risks to human infants, Brouwer *et al.* (1998) conclude that although there were some negative effects on various developmental indicators shown by babies exposed to dioxins, furans and other organic compounds both through breast milk and through exposure in the womb, they were all within normal developmental ranges. However the authors concede that factors such as maternal smoking, alcohol consumption, age, socio-economic status and diet pattern may play a part in developmental issues. More recent work by Vinceti *et al.* (2008), finds that the rates of miscarriages, spontaneous abortions and birth defects among populations living or working close to incinerators were slightly higher than the figures for the general population and concludes that while this was not significantly enough to prove a link, it could not be ruled out either.

[11] Although no serious health effects were noted at the time of the Seveso accident, years later several types of cancers became more prevalent among those exposed (Baird and Cann, 2005).

There is evidence that new incinerators with more advanced pollution control, in conjunction with compliance with legislative standards, have greatly reduced the exposure of local populations to dioxins and other incineration pollutants (for example, Schumacher *et al.*, 2004, 2007, 2009). Other researchers have shown that compliance with EU emission standards presents a hugely reduced probability of health effects (Glorennec *et al.*, 2005; Reis *et al.*, 2007a) but that newly built incinerators were generally better in this respect than those which had been upgraded to comply with the new legislation (Reis *et al.*, 2007a).

From the studies reviewed, there does not appear to be an agreed area of exposure to dioxins in the studies reviewed. For example, Reis *et al.* (2007a) sample populations within a 5 km radius of the incinerator being studied, Glorennec *et al.* (2005) samples use a radius of 3 km and Cordier *et al.* (2004) use a distance of 10 km or less. Yet, work on deposition models of dioxins and furans by Lohman and Seigneur (2001) concludes that dioxins and furans discharged from an incinerator are most likely to be deposited at distances of greater than 100 km away, although some is deposited locally. This suggests that those living in the locale of an incinerator may not be the only population exposed to incinerator emissions and indeed may not bear greatest exposure.

In Ireland, some limited work has been done by the Environmental Protection Agency (EPA) to construct a baseline survey of dioxins, furans and dioxin-like PCBs in the environment by measuring concentrations of these substances in samples of cow's milk taken from nationwide locations (Concannon, 2005). Surveys of cow's milk were conducted in 1995, 2000 and 2004 and the levels of dioxins, furans and PCBs were found to be consistently low. The EPA has also produced a dioxin inventory for Ireland which identifies uncontrolled burning, or backyard and illegal burning as the most significant source of dioxins for Ireland, predicting that by 2010 such sources were likely to account for 84% of Ireland's dioxin emissions. In contrast, the 2010 projection of dioxins emitted to air by incineration is expected to be less than 2% (Hayes and Marnane, 2002).

2.3.2 Particulate matter, heavy metals and hazardous gases

Fly ash consists mainly of particulate matter which is now considered to be of the utmost importance in public health (Staines and Crowley, 2007). The particles of most concern are those that are less than 10μm (PM_{10}) since this size can penetrate deep into the lung when inhaled (HRB, 2003), and a subset of this category, those particles that are below 2.5μm ($PM_{2.5}$) are particularly hazardous as they can carry adsorbed toxins into the lung tissue (Nicasinovic *et al.*, 2006). Particulates have been linked to both acute and chronic respiratory inflammation causing symptoms such as chronic coughing, wheezing and sinus problems; however many studies on the effects of particulates are beset by problems such as attempting to compare incomparable populations and various compounding factors (HRB, 2003). Nicasinovic *et al.* (2006), however, having adjusted for a wide range of possible confounding factors, conclude that $PM_{2.5}$ are responsible for increasing inflammation of the respiratory systems of asthma sufferers at levels considered to be safe by the WHO. More recently, the organic fraction of particulates has been linked to genotoxic and mutagenic behaviour in human DNA, an effect which is stronger for $PM_{2.5}$ than for PM_{10} (Abou Chakra *et al.*, 2007). While limits for PM_{10} particles have been set down for some time now[12], limits for $PM_{2.5}$ particles were introduced more recently in the 2008 EU Air Quality Directive (2008/50/EC).

Concern about the emission of heavy metals is one often expressed by publics living in the vicinity of a MSW incinerator (Glorennec *et al.*, 2005; Rimmer *et al.*, 2006), and metals that have been of most interest to researchers in relation to incineration are mercury, lead and cadmium, while arsenic, copper, chromium, nickel and zinc have also been studied. Heavy metals are emitted in incineration gases as either vapours or adsorbed onto the surface of particulate matter (Rowat, 1999). Inhaled and ingested lead and inhaled mercury have been implicated in neurological and behavioral abnormalities in humans while cadmium inhaled is a cause of lung cancer and ingested can result in renal difficulties (Glorennec *et al.*, 2005). Where high

[12] EU1999/30/EC, Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air

levels of metal contamination exist, they are usually attributed to historical pollution, such as from an older incinerator or industry, or from a time before current regulatory standards were in force. Researchers focusing on the environmental impacts of earlier incinerators express concern about the levels of metals such as cadmium and lead emitted within plumes from incinerator stacks and their resulting contamination of soils and plants (Lisk, 1988). However studies of incinerators built since 2000 have failed to show a correlation between elevated metal concentrations in soil or human blood and incinerator emissions. For example, in their study of human exposure to mercury, cadmium and lead from incineration sources, Reis *et al.* (2007b) conclude that the replacement of old pre-2000 incinerators with new ones or the upgrading of pre-2000 incinerators resulted in a reduction of all three metals to levels that were not significant to health. In their study of heavy metals emitted to air from a new incinerator in the Byker area of Newcastle-on-Tyne, Rimmer *et al.* (2006) conclude that even low level heavy metal contamination from incineration may be problematic in areas that have existing high background levels.

Concern also exists about the possible transference of heavy metals from soil to vegetables, since ingestion is an important exposure route. Earlier research showed vegetables grown in the vicinity of an incinerator could have metal concentrations 100 times or greater than control vegetables (Lisk, 1988). Glorennec *et al.* (2005), however, demonstrate that since the upgrading of the incinerator in Angers, France heavy metal levels in vegetables grown in the area have fallen significantly.

Municipal waste includes materials which contain chlorine, fluorine, sulphur, nitrogen and other elements which can be converted to acidic, toxic or corrosive gases (Williams, 1998). The resulting gases include hydrochloric acid (HCl), hydrofluoric acid (HF), sulphur dioxide (SO_2) and oxides of nitrogen (NO_x) (Curtis *et al.*, 2007). Ozone (O_3) is not emitted directly from incinerators, but it tends to form quickly by the action of sunlight on oxides of nitrogen (Rowat, 1999). The main environmental effects of acidic gases are the formation of acid deposition often called acid rain and acid mists, while the main health concerns are the initiation of

and exacerbation of a range of respiratory problems (Williams, 1998). Acid rain has been implicated in the acidification of water bodies and soils causing loss of both flora and fauna biota including forests, agricultural crops, fish, amphibians and insects (Nagase and Silva, 2007). The acidification of both water and soils tends to be subject to quite complex chemical factors and therefore there are considerable difficulties involved in linking acidification to acidic gases in the atmosphere and identifying the pollution source (Menz and Seip, 2004). While incineration is a less significant source of such gases than coal burning, smelting and similar industrial processes, reductions of gases such as SO_2 and HCl in incinerator emissions have been shown to improve air quality with regard to these gases (for example, Glorennec *et al.*, 2005).

In terms of health effects, SO_2 and NO_2 have been shown to be hazardous to the human respiratory system and have synergistic effects when combined with smoke to create smog (Rowat, 1999). In his literature review of incineration health effects, Rowat (1999) mentions that both SO_2 and NO_2, along with ozone (O_3), may have a negative effect on the immune system's capacity for fighting lung infections. Acid rain has also been shown to aid the release of other toxic substances, such as aluminum or copper which may subsequently find their way into drinking water sources, causing secondary health effects (Nagase and Silva, 2007).

Although a great deal of scientific and medical research has been conducted on a range of pollutants from MSW incineration, these represent only a few of the various substances emitted from incinerators and only a fraction of the possible synergistic effects that could be studied in relation to incinerator emissions (Glorennec *et al.*, 2005). Hence a great deal of uncertainty still exists in relation to the health effects of MSW incineration. Apart from health, the other major area of contention in relation to incineration is whether or not it is congruent with recycling and minimisation. The following section examines the technical basis of waste management and sustainability debates about the Poolbeg incinerator.

2.4 Waste Management Issues

Much of the research around incineration as a waste management solution tends to involve comparisons of different combinations of waste treatments such as incineration, landfill and materials recovery or recycling. In relation to this thesis, the most salient aspects of incineration from a technical and sustainability point of view are how environmentally sound it is compared with other disposal methods, its energy-producing potential and whether or not it is compatible with recycling. For the most part, such studies generally conclude that waste-to-energy methods are more efficient, cost-effective and environmentally friendly than landfill or incineration without energy recovery.

Using a life cycle analysis method of waste options employed in São Paulo, Brazil, Mendes *et al.* (2004) conclude that incineration with energy recovery had a lesser environmental impact than landfill with energy recovery. In their extensive study of different waste treatment systems in Stockholm including options such as recycling, composting as well as landfilling and waste-to-energy, Eriksson *et al.* (2005) examine the energy efficiency, cost efficiency and environmental impact of each option. The study concludes that landfill is the least desirable option, both environmentally and economically, and that incineration is more competitive than composting. Most interestingly, the study contends that there is little difference between recycling and waste-to-energy in terms of the criteria studied (including energy efficiency), but that incineration is more economical than recycling. Conversely, other studies indicate that the energy savings achieved from recycling materials as opposed to the extraction of virgin resources are greater than the energy produced by incinerating a mixed-waste stream (Morris, 1996). However, Morris's (1996) study was conducted over a decade ago, so it is difficult to surmise how applicable these findings are to today's incinerators.

The energy-recovery potential of incineration has received a moderate amount of engineering research attention. The ability to offset energy consumption and operating costs by producing heat and electricity is, according to some researchers,

one of the major advantages of waste-to-energy incineration technology (McKay, 2002; Psomopoulos *et al.*, 2009). In their study of French waste-to-energy facilities, Autret *et al.* (2007) conclude that significant energy recovery is achieved by modern incinerators with a marked improvement in energy recovery efficiencies for incineration since 2001. The potential for cheap district heating for local communities or cheap electricity which may re-ignite the economy of an area have been utilised as a selling point by incinerator proponents during siting controversies (Dodds and Hopwood, 2006; Shevory, 2006). Interestingly, studies in Sweden, where incineration technology is a major supplier of energy, indicate that combined heat and power is environmentally preferable to district heating only (Eriksson *et al.*, 2007). It is worth noting though that although the promise of heat/energy at a low cost is often used as a tactic to encourage local publics to accept an incineration facility (see Dodds and Hopwood, 2006), it is more efficient for such systems to contribute to the national grid since energy and heat is produced at a constant rate from waste incineration but is not normally required at a constant rate all year round (Williams, 1998).

Some researchers contend that significant volumes of fossil fuel can potentially be replaced as an energy source by utilising waste-to-energy (Autret *et al.*, 2007) and that, as a consequence, MSW incineration with energy recovery is a form of renewable energy which represents a significant reduction in carbon dioxide emissions (Psomopoulos *et al.*, 2009). While bio-gases from landfill can be captured and converted to energy, researchers such as Cerubini *et al.* (2009) contend that incineration provides many times more energy per tonne of waste.

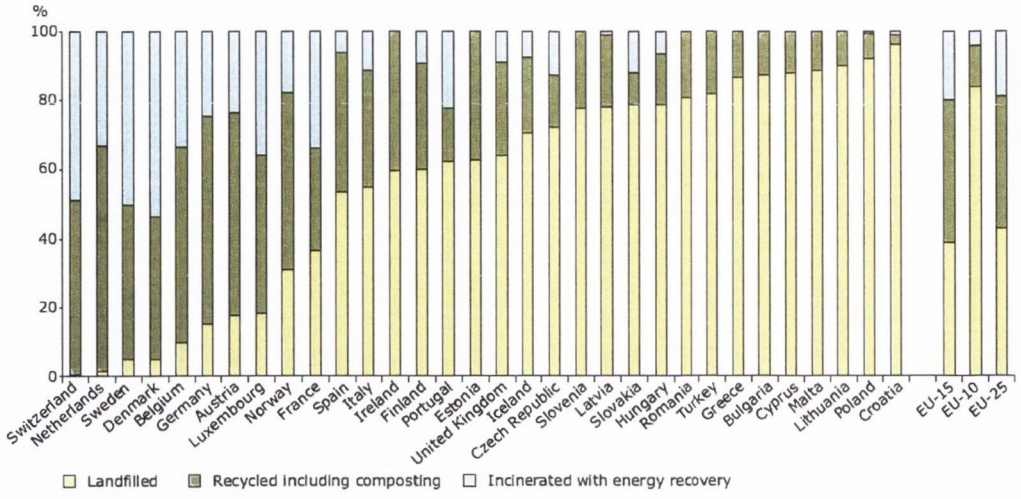
However, the efficiency of incineration as an energy recovery method is dependent on the types of materials present in the waste stream. For instance Cherubini *et al.* (2009) claim that for optimal efficiency, incinerator-bound waste should be pre-sorted to remove and recover inert or non-combustible material, such as glass and aluminum, from the waste stream. Notwithstanding this, materials recovered by pre-sorting waste streams are not always limited to non-combustibles and when

recyclable combustible materials, such as paper, cardboard and plastics, are removed there is likely to be a reduction in energy production as the calorific value of the waste has been decreased (Miranda and Hale 1997; Wenisch *et al.*, 2004). Findings such as these are used to bolster claims of a fundamental incompatibility between incineration and recycling. Furthermore, it is argued that waste-to-energy and recycling methods of waste treatment compete for the same waste and so incineration does little to incentivise the reduction of waste (Miranda and Hale, 1997; Ciplet, 2009). Miranda and Hale (1997) however, concede that some materials, such as paper, can be recycled only a limited number of times and so are eventually destined for disposal while others, such as some types of plastic, are uneconomical to recycle and that incineration with energy recovery may be the most suitable waste treatment method.

For those who believe that incineration is compatible with recycling, substantiation comes in the form of studies that show regions or countries that use incineration recycling a higher proportion of municipal waste than those that do not use incineration. For example, in the European Union, countries that have the least amount of municipal waste going to landfill (25% or lower) tend to also have the greatest levels incineration and recycling (EEA 2007). While Fig. 2.2 below shows that some EU member states with high levels of recycling also have high levels of incineration, this does not necessarily amount to evidence that incineration does not detract from minimisation, reuse and recycling.

For instance, France has a relatively high level of incineration but it has a lower level of recycling than Ireland, which does not (currently) use MSW incineration. Those who oppose incineration on sustainability grounds argue that figures such as those in Fig. 2.2 do not indicate that incineration and recycling are compatible. Rather, figures such as these show that countries that limited or abandoned landfill earlier have more incineration and recycling than those who did not (FoEE, 2007).

Fig. 2.2 The rate of recycling versus incineration with energy recovery in the EU, 2005



Source: EEA (2007)

2.5 Economic Effects of Incineration

From this review, it is clear that economic issues underlie waste management and sustainability concerns to a certain extent; however, economists have pointed to more direct economic effects that the siting of an unwanted facility in an area may have, such as temporary negative effects on property values (Kiel and McClain, 1995; Farber, 1998).

By examining changes in house prices over time during various planning and operation phases of a municipal waste-to-energy incinerator in Boston, Kiel and McClain (1995) conclude that unwanted facilities, or disamenities, negatively affect property prices within a radius of 3.5 km from the incinerator. Kiel and McClain (1995) found that the effects on property prices in the research area manifested as soon as rumours about the incinerator site began to circulate. The effects proved to be temporary though, with price stabilisation occurring about seven years after the incinerator began operations. Meanwhile Faber (1998) presents a more conservative measurement of the affected radius at between 2 and 2.5 km. According to Gawande and Jenkins-Smith (2001) different levels of risk perception, trust and familiarity can influence effects on property prices. For example, their study of areas located along transport routes for nuclear waste show that in areas where there is confidence in the

management of the risk, effects on property prices are negligible, while in other areas property prices tend to decrease significantly.

2.6 Conclusions

The legislative and policy back-drop to the incineration controversy in Ireland and the technical basis for the debates about incineration in Ireland have been detailed in this chapter. In the reading of waste policy and legislation presented here, it has been suggested that strategies used in the formulation and implementation of waste policy were integral to placing incineration on the Irish waste agenda.

This chapter also reviews the toxicological, epidemiological, engineering and economic literature examining the various aspects of incineration that exercise publics. The purpose of reviewing this research is to highlight the uncertainties that arise due to the qualified and equivocal nature of much of this research. In addition this chapter underlines how the use of different methods and the different approaches taken by researchers often makes the task of comparing the results of such studies difficult. The literature on dioxins, in particular, is examined in some detail in this review as firstly, lay publics' concern about incineration is often linked to the association between incineration and dioxins (Petts, 2004) and secondly, dioxins tend to evoke particular worry amoung publics (Powell and Leiss, 1997).

From the review of the literature on the scientific, technical and economic studies of the impacts of incineration, it is clear that the collective conclusions can be ambiguous. Yet, it is from this equivocal assortment of findings that various emissions standards and threshold levels must be distilled, legislation and regulations must be fashioned and ultimately risk decisions must be made (O'Brien, 2000). Lay publics, or non-expert stakeholders, too must make decisions about risk and risky technologies for themselves and their families (Giddens, 1998a). So then, it is clear that both making decisions about risk and communications around those decisions are highly political activities shot through with different and often conflicting agendas, values and needs. During risk debates, communication about the findings of

research, such as that presented in this chapter, becomes immersed in and interpreted through those agendas, values and needs. The following chapter reviews how scientists, governments, industry and publics negotiate and communicate about technological risk decisions.

Chapter 3: Risk, Risk Decisions and Risk Communication

Risk is not a monolithic concept (Renn, 2005); rather it encompasses a myriad of meanings, definitions and understandings. Therefore, a review of the literature pertinent to risk communication must include consideration of the different meanings of risk and also of the ways in which decisions about risk are made by individuals, societies and institutions. In addition, risk is a highly political notion (Douglas, 1992) and issues of trust, power and democracy often underlie risk discourses (Giddens, 1990) making the exploration of such issues important in the examination of public debates about environmental risk (Taylor-Gooby, 1996; Pidgeon *et al.*, 2003; Petts, 2008).

As a result, this chapter is set out in three sections. The first section examines technical and social understandings of risk and highlights psychometric and socio-cultural approaches to risk perception. In section two the evolution of risk communication as a research focus is considered and this is followed by an examination of how risk communication is facilitated and disseminated in public fora, such as the media and public engagement processes. Finally, the third section explores the ways in which political and social contexts impact on the process of risk communication.

3.1 Making Risk Decisions: Assessments and Perceptions

Researchers and academic authors tend to separate definitions of risk into two broad streams; risk probabilities and statistics as calculated by scientists, engineers and economists (Adams, 1995; Aven *et al.*, 2007) and risk perceived as danger or hazard by lay publics (Lupton, 1999; Douglas, 1992; Slovic *et al.*, 2004).

3.1.1 Technical risk decisions

Technical definitions of risk are generally based on the calculus of risk and are found in a range of areas including government, law, science, business (Mythen, 2004) statistics, finance, safety (Adams, 1995) and engineering (Aven *et al.*, 2007). Such

calculations typically combine the probability of a particular event happening in the future with the magnitude (or seriousness) of that event (Adams, 1995). Probability is the statistical chance of a particular event or outcome occurring and requires the gathering of adequate and robust data in order to be valid (Hinchliffe *et al.* 2003). There are problems though with this numerically-based definition of risk. According to Giddens (1998b), it is not always possible to calculate the probability of a specific event happening, for example this is particularly true of risks from new technologies where there is an inadequate track-record of past events. Further, as Adams (1995) points out, there is no agreed scale for measuring the magnitude of an outcome and besides magnitude is often subjective[13].

Where there is inadequate information about either the outcome or the probability of a risk an exact risk value cannot be determined and unknowns, uncertainties and indeterminacies enter the risk assessment process (Hinchliffe *et al.*, 2003). An unknown factor is a probability that cannot be calculated or an outcome that cannot be specified. The generally accepted definitions of uncertainty come from economic theory. A key definition of uncertainty from Knight (1921) states that when the outcome is known but the probability is not calculable, then the risk is said to be uncertain. However, Keynesian economic theory gives us a broader definition of uncertainty which encompasses any of the following being unknown; probability of an outcome, value of an outcome, the outcomes themselves, or the full quota of available choices (Lavoie, 1992). The meaning of indeterminacy is somewhat contested. Some researchers describe indeterminacy as radical uncertainty arising from gaps between experimental conditions and real-world conditions where synergistic and other effects are, for the moment at least, impossible to predict (for example, Hinchliffe *et al.*, 2003). However, Wynne (1992) argues that rather than being simply larger-scale uncertainty, indeterminacy underlies the construction of knowledge. He claims that indeterminacies are created in the decisions made and criteria laid down in conducting scientific research and also in the production

[13] For example, a broken nose would be an occupational hazard to a jockey while it might end the career of a fashion model.

processes and waste management systems of activities that may pose risks to the environment. In other words, the numerical calculation of risk may be affected by the social behaviours of actors involved in the production of risk and the production of knowledge about a risk.

The contingencies of unknowns, uncertainties and indeterminacies would appear to complicate both the technical assessment of risk and the subsequent communication of such assessments to lay publics. The implementation of risk decisions based on technical risk assessment suffers from two main limitations (i) the existence of significant uncertainties (ii) the social context in which the decisions must be implemented often characterised by conflicting values, interests and knowledges (Fischoff *et al.*, 1981; O'Brien, 2000; Amendola, 2001; Cox, 2006).

The twin problems of uncertainty and conflicting interests are not unconnected, however. As Adams (1995) points out, it would seem that once uncertainties enter into the frame, the values or worldview of the decision-maker are brought to bear on the issue. Therefore, risk conflict often becomes less of an argument about the facts and figures and more of a multi-faceted clash of values and interests between regulators, scientists, business and publics (Douglas, 1992; Bier, 2001a; Bier, 2001b). In light of this, it has been argued that there is not a solid dichotomy between objective and subjective perceptions of risk (Pidgeon *et al.*, 1992) and technical risk assessment alone is a deficient basis for decision making by regulators and societies about risk (Hood *et al.*, 1992; Pidgeon, 1998; Leiss, 2004; Renn, 2004; Downton *et al.*, 2005). Rather the management of risk in society requires an adequate understanding of how the various stakeholders involved in risk debates perceive and negotiate risk (Pidgeon, 1998).

3.1.2 How publics perceive risk

Much risk communication research suggests that understanding how publics perceive risk is a prerequisite for improving risk communication and decision-making about risks (Powell and Leiss, 1997; Löfstedt and Frewer, 1998; Bickerstaff and Walker,

2001; Renn, 2005). Pidgeon (1998) asserts that in addition to facilitating dialogue about risk and risk management, the use of risk perception research in policy helps to provide a wider framework of perspectives in relation to risk decisions. According to Douglas (1992), numerical risk evaluations, such as those produced by technical risk assessments, are virtually meaningless to publics. Furthermore, a number of authors researching risk perception and risk communication claim that numerical statements of risk do not resonate with the range of complex factors and processes used by people to assess and make decisions about risk (Fischoff, 1998; Frewer, 2004; Leiss, 2004).

There are two principle approaches involved in risk perception research; the psychometric approach and the socio-cultural approach. Psychometric research examines the ways in which psychological factors and cognitive mechanisms influence how individuals identify and gauge risks (Kahneman, 1982; Beecher *et al.*, 2005) as well as governing the acceptance of risks (Starr, 1969; Slovic, 1987; Slovic *et al.*, 2004; Renn, 2005). However, some sociological and anthropological researchers assert that psychometric factors provide a partial explanation for risk perception and social and cultural theories are used to give a wider perspective on risk perception (Douglas, 1992; Adams, 1995). It is argued that cultural biases and social norms influence risk beliefs and have a role to play in risk acceptability (Renn, 2005).

3.1.3 Risk Perception: The psychometric approach

The psychometric approach is based on the premise that humans have always lived with risk and, as part of evolutionary cognitive development, have cultivated intuitive strategies to answer the questions about what constitutes a threat, how likely is it, how bad the risk is and whether the risk is acceptable (Fischoff *et al.*, 1981). According to psychometric researchers, a system of heuristics, or cognitive shortcuts, has evolved in humans to deal with risk situations (Kahneman, 1981). For example, events that can be easily imagined are deemed more likely than those that cannot (availability heuristic) and known information is used as a starting point from which

to gauge unknown information (anchoring heuristic) (Kahneman, 1981). In addition, Slovic *et al.* (2004) conclude that events evoking feelings of dread (affect heuristic) will cause individuals to overrate a risk.

Slovic's (1978) psychometric study of risk perception concludes that factors determining the acceptability and tolerability of risk to individuals include control over the risk, level of knowledge, level of certainty and equity of risk distribution. He also concludes that people are generally willing to tolerate higher risks from activities they see as being beneficial. Studies about the roles that emotion and intuition play in decision making about risk have shown that good or bad 'gut feelings' are a common way for individuals to identify and gauge risks (Slovic *et al.*, 2004; Renn, 2005). Psychological factors which influence the identification and assessment of risk include voluntariness (smoking versus exposure to air pollution), feelings of dread (the thoughts of a nuclear accident), controllability (the more control an individual has over a risk the less likely they are to see it as a problem) and familiarly (the more familiar the risk the better prepared individuals feel to deal with the consequences of that risk) (Starr, 1969; Slovic, 1987). Psychometric research has also addressed how different publics and sections of publics identify and gauge risks in different ways. Some researchers contend that demographic factors such as gender, personality type, education level and age can have an affect on risk perception (Tanaka, 1998; Slovic, 1999; Finucane *et al.*, 2000). Institutional trust has been emphasised as another key factor in risk acceptability with public confidence in both policy makers and in the business or company operating a particular technology coming into play (Slovic 1987, 1999, 2000). Table 3.1 below details a list of factors, which researchers claim influence risk perception and risk acceptability.

Psychometric accounts of risk perception have been criticised for both methodological and epistemological reasons. One significant criticism from Pidgeon *et al.*'s (1992) contribution to the seminal Royal Society Study Group's 1992 report on risk and risk management, is that despite having generated a great deal of useful

empirical data, the psychometric approach to risk has produced a list of hazard characteristics rather than a theoretical explanation of the psychological basis of risk perception. The studies of the Oregon group have been criticised for using small numbers of respondents and restricted hazard sets that do not allow respondents to modify or qualify answers about particular concerns. On this basis Pidgeon *et al.* (1992) suggest that the psychometric paradigm is presenting just part of the picture in respect of how publics perceive risk.

Table 3.1: Factors influencing the perception of risk and the acceptance of risk, adapted from Otway and von Winterfeldt (1982) and Bennett (1999).

Risks tend to be less acceptable and more concerning to publics if they are perceived as:

Involuntary rather than voluntary; for example exposure to pollution versus a decision to smoke
Inequitable distribution; some benefit while others endure consequences
Inescapable; personal precautions are ineffective
Novel or unfamiliar source
Man-made; as opposed to natural disasters
Irreversible and hidden health damage; effects may not be apparent for years
Threatening to future generations; a danger to small children, pregnant women or developing foetuses
Dreaded threats; such as a possible cause of particular illnesses, like, for instance, cancers
Affecting **identifiable** victims; as opposed to anonymous victims
Poorly understood by science; in terms of exposure pathways and so on
Subject to **contradictory statements**; from different sources or even the same sources
Subject to **uncertainty**; in respect of probabilities, magnitude or consequences of exposure
Having **benefits that are not highly visible**; or having little or no benefits for the potentially affected
Unimaginable; publics have difficultly in imagining the risk exposure
A large **kill size**; Infrequent but catastrophic incidents, a rare event such as a nuclear explosion
Institutional trust, in those responsible for identifying, assessing and regulating risk

Sjöberg (2000a, 2002) argues that the generalisations of risk perception made by the Oregon group and others in the psychometric tradition are largely unsupported since they are based on wrong headed statistical analysis[14]. Sjöberg (2000b, 2002), in his own psychological work, claims that values and ideological beliefs shape publics' risk perception to a significantly greater extent than emotional factors such as dread or novelty. The possibility that broader social factors such as values underlie publics' perception of risk had earlier been broached by Otway and von Winterfeldt (1982) who concluded that factors such as the possible benefits of technology or the level of public participation in risk decisions affected risk acceptability amoung individuals in accordance with the value systems of those individuals. Andersson (2008) opines that if it is indeed the case that risk perceptions owe more to values than to emotion and ignorance, then this strengthens the arguments in favour of the inclusion of public opinion in risk decisions since elected representatives are expected to advocate citizens' value systems.

The psychometric tradition of risk perception research encompasses cognitive factors influencing individuals' and groups' attitudes to risk, psychological reactions to characteristics of the risk involved and individuals' value-laden decision-making processes. Such individuals however, are constituents of communities and societies and according to sociologists and anthropologists such as Douglas (1992) and Adams (1995), values and beliefs are partially shaped by the communities and societies in which they live. Consequently, a further criticism of the psychometric paradigm comes from socio-cultural theorists and researchers who claim that it provides too narrow a basis to give an adequate understanding of risk perception as it fails to consider cultural, social and socio-historical influences, (Douglas, 1992; Adams, 1995). Douglas (1992) criticises psychometric accounts of risk perception for being devoid of value and for emphasising individual decision making without paying due attention to the role played in decision making by social networks.

[14] Sjöberg (2000a) attests that where data on individuals is averaged on an accumulative or aggregated basis an ecological fallacy (in sociological terms), or misleading result, in respect of the study of groups occurs.

3.1.4 Risk perception: The socio-cultural approach

While psychological approaches to risk perception are useful, up to a point, in analysing the attitudes of individuals to risk, a more nuanced and detailed understanding of risk perception would appear to require a consideration of broader societal relationships and processes (Langford *et al.*, 1999). This section focuses on those aspects of the socio-cultural approach that are of most relevance to this thesis; the social construction of risk and cultural theory, particularly the theories of anthropologists, Mary Douglas and Aaron Wildavsky.

The concept that risk is socially constructed is a prominent feature of cultural and social theories of risk perception. Researchers argue that culture, place and life circumstances of individuals can all have a role in amplifying or attenuating particular risks. For example, communities or individuals who are dependent on an industry for employment may attenuate risks associated with that industry (Wynne, 1996; Masunda and Garvin, 2006).[15]

Cultural theory begins from the premise that risk has become a political and cultural concept in contemporary Western society and that understanding the dichotomy between scientific risk analysis and lay risk perception is key to how modern risks, particularly risks with a high level of uncertainty, can be managed (Lupton, 1999). The work of anthropologist Mary Douglas and political sociologist Aaron Wildavsky has been particularly influential in this respect. The pivotal tenet of cultural theory in relation to risk perception is that reactions to risk are not constant between societies and individuals but vary according to cultural factors (Douglas and Wildavsky, 1982; Dake, 1992; Douglas, 1992; Adams, 1995). According to Douglas and Wildavsky (1982), the ways in which people, governments and societies construct knowledge

[15] Masuda and Garvin (2006) found that in one study concerning discourses surrounding the industrialization of a particularly rural area in Canada, those opposing the industrialization amplified potential risks, while those who were dependent on industry for employment tended to attenuate the risks.
Wynne (1996) found that farmers in Cumbria who did not have any connection to the local Thorp BNF plant rated the threat from the plant to be higher than did farmers who worked part-time at the plant.

and therefore identify risks are determined by cultural bias, that is, by shared attitudes and beliefs. Much risk perception research would seem to back this assertion. For instance, GM foods are viewed very differently in the US than they are in Europe, with US consumers and farmers embracing GMOs while European consumers are concerned about the technology and the level of information available (Finucane and Holup, 2005).

An influential typology of cultural biases related to publics' attitudes to risk was developed by Douglas and Wildavsky (1982). This describes four 'patterns of social solidarities' which determine how people assess issues such as trust, blame, fairness and accountability; all of which are pivotal in publics' judgements about risk (Langford *et al.*, 1999: 41). This in turn affects each group's opinions on how risk should be managed (Douglas and Wildavsky, 1982). Cultural theory suggests that cultural biases, and the chosen lifestyles that accompany them, are shaped firstly by the degree to which individuals are influenced by the social relations in defined groups (group) and secondly by the degree to which they are bound by social norms or rules within their particular groups (grid) (Douglas and Wildavsky 1982, Douglas 1992). By linking these two group/grid variables, four cultural categories are characterised. Schwartz and Thompson (1990) further refine the theory by combining these categories with the myths of nature representing the underlying values of each group in terms of how environmental risk should be managed. The resultant typology is set out in Table 3.2 below.

According to Douglas and Wildavsky (1982), pre-modern people selected risks and socially constructed pollution in order to protect their cultures, communities, traditions and ways of life and hence, taboo and blame became strongly linked with risk. Drawing from this, Douglas's (1992) claims that the four cultural rationalities tend to reinforce the divisions between them in order to protect their respective lifestyles. While individualists and hierarchists rate economic growth highly in their decisions about risk, egalitarians tend to lean more towards environmental and social values (Thompson *et al.*, 1990; Marris *et al.*, 1996). Therefore, debates about the

siting of facilities are likely to exacerbate the tensions between cultural categories. As Boholm and Löfstedt (2004: xiv) note:

> *"A projected facility often embodies global, modern and large scale values, which construe growth and change as inherently good. However, the facility can also be understood as a threat to local identity, tradition, social and cultural continuity".*

Table 3.2: The four principal cultural biases or rationalities, adapted from Douglas (1992) and Schwartz and Thompson (1990)

Group/grid rationality	Attitude to risk	Myth of Nature
Individualist – low grid/ low group	Believe that risk and opportunity go hand-in-hand, require an evidentiary approach to risk	Nature benign – nature is for the benefit of human kind and environmental protection should not impede economic development
Hierarchists – high grid/ high group	Accept risk once decisions are made by experts, generally the approach of legislative systems and business	Nature perverse/tolerant – with regulation and control, nature will be able to withstand some level of pollution
Egalitarians – low grid/ high group	Emphasise the risks of technological development, tend to mistrust experts, aim for the precautionary principal at the very least	Nature ephemeral – nature is delicate and must be protected, the stance of the environmentalist
Fatalists – high grid/ low group	Accept what is in store, would not knowingly take a risk but generally uninterested in politics of risk or environmental issues	Nature capricious – nature is uncontrollable and so there is no point in trying to mitigate the effects of pollution

This suggests that environmental risk conflicts are also cultural rivalries. Such conflict takes shape in taboo and blame (Douglas, 1992; Douglas, 2002) and in pre-modern cultures events such as death and illness gave particular reason for blame and taboo. Douglas (2002) claims that taboo and risk may both operate to create an aspiration of an ideal community, so that 'taboo turns out not to be incomprehensible, but an intelligible concern to protect society from behaviour that will wreak it' (Douglas, 1992: 4). Blame grows from taboo and Douglas (1992) attests that while science is ostensibly what sets modern cultures apart from primitive cultures that utilise taboos, science has allowed moderns to refocus and refine blame by evidencing it. Key in this relationship between knowledge and blame is the

influence of the cultural rationalities on the receipt of risk information. Douglas (1992) argues that a cultural rationality accepts knowledge or information about risks according to how closely that knowledge or the bearer of that knowledge matches their own world views. Blame, she argues, is used to discern which risk information is accepted and which is rejected. This suggests that not only are risks socially selected, but risk information and risk communication are also heard and interpreted in a selective manner by those potentially affected. The power to select risks however, is not distributed equally throughout society. It is argued that those in positions of power within a society, government, scientists, big business, NGOs, media, opinion leaders or the village elders of Douglas's (1992) primitive cultures, have significant influence over what is termed a risk in that particular society or culture.

Despite its usefulness in considering risk perception and the subsequent reaction of publics to risk, the simplistic and reductionist nature of Douglas's cultural bias typology presents some difficulties. There is disagreement within the socio-cultural field about the stability of the four cultural rationalities. Douglas (1992) contends that individuals tend to adhere to similar groups or institutions in all aspects of their lives, such as work, home and social circles, and so their cultural world views remain constant over time and in all life situations. However other studies of risk perception have pointed to difficulties in creating such definitive categories of people. As Garvin (2001) notes, creating classifications of groups of people can be complicated since different life roles or circumstances may result in different outlooks in relation to different risks. Thompson *et al.* (1990) assert that the context of the groups or institutions is influential and, as a consequence, individuals may be liable to move from one cultural bias to another over time or with different aspects of their lives. Bennett (1999) suggests that while this may undermine the predictive capability of cultural theory, it may simultaneously make it richer. A second source of criticism originates from various attempts to empirically integrate the psychometric and socio-cultural approaches to risk perception. For instance, in his quantitative empirical evaluation of cultural theory, Sjöberg (1998) concluded that cultural factors played

only a marginal role in risk perception and that cultural theory converged with psychometric factors to such a minor degree that it could be dismissed. Marris *et al.* (1996) attempted to class individuals into the four cultural theory typologies depending on their responses to psychometric risk perception factors. Although the study shows definite correlations between the individual responses and cultural categories, these are quite low. Notwithstanding this finding, Marris *et al.* (1996) conclude that the psychometric analysis proffered robust quantitative data about risk perception but it could not provide an explanation as to why relationships and correlations exist between particular psychological risk factors. However, cultural theory does provide an explanation for risk perceptions as 'they fit coherently into world views held by the respondents' (Marris *et al.*, 1996: 35). Hence, cultural theory can be useful to risk communication practitioners for its capacity to calibrate a range of possible reactions to risk information (Langford *et al.*, 1999).

3.1.5 The Risk Society

Beck's (1992) seminal theory of the Risk Society confronts the politics of identifying, managing and debating risk. In Risk Society, the technological and scientific advances of modernity have begun to present society with unwanted side effects or risks in the form of ecological degradation and pollution (Beck, 1992; Beck and Willms, 2004). In this view of risk, science has lost the confidence of publics and risk has moved into the political sphere (Beck, 1992; Giddens, 1998b). Beck (1992) argues that humankind is in transition between two stages of modernity; simple modernity, where society is concerned with the logic of wealth production and distribution and the struggle for material subsistence is giving way to late modernity where the avoidance of risk or the logic of risk distribution is a principal focus.

While, Beck's (1992, 1995) risk society thesis made an influential initial impression (Zinn, 2004), it has subsequently become subject to much epistemological and conceptual critique. Irwin (2001: 65) considers the risk society thesis as 'sweeping and generalised' and criticises Beck's lack of empirical evidence while Adams

(1995) contends that Beck's distinction between modern and traditional risks is an exaggeration. However, Goldblatt (1996) defends Beck's work describing it as being deliberately provocative rather than analytical so that Beck has (deliberately) neglected moderating many of his arguments with available empirical knowledge.

On one hand Beck (1992: 37) asserts that a 'boomerang effect' applies to risk, whereby those whose businesses and industrial activities are the source of environmental risks eventually succumb to the effects of the hazards of modernity and social differences become relative. In other words, 'poverty is hierarchic, smog is democratic' (Beck 1992: 36). On the other hand, Beck (1992) acknowledges that risk positions, whereby some people are more affected by the risks of modernity than others, tend to reinforce and broadly overlap with class positions and that safety can ultimately be bought. The Risk Society thesis argues that risks of modernity differ from earlier risks (Beck, 1992; Giddens, 1998b) in that they tend to be imperceptible, unpredictable, do not occur within a given timeframe and those who are potentially affected are unaware and have no track record from which to calculate probabilities. In the face of such uncharted risk territory, Beck (1992: 23, original emphasis) claims that 'the calculation of risks, as it has been established by science and legal institutions, *collapses*'. Beck's (1992) characteristics of modern risk resonate somewhat with Otway and von Winterfeldt's (1982) and Bennett's (1999) risk perception factors (see Table 3.1), which suggests that they are particularly concerning for publics.

Pidgeon (1998) comments that the concepts of risk have moved from narrow ideas about risk probabilities to a wider framework of notions about how risks are perceived, communicated and socially framed. Therefore the communication and exchange of knowledge and information between stakeholders for pragmatic reasons such as risk conflict resolution as well as legal and democratic reasons, has been recognised as an essential element of societal risk management (Hood *et al.*, 1992).

3.2 Risk Communication

3.2.1 What is risk communication?

Risk communication emerged as a research area in response to public concerns about various environmental and health risks and aimed to develop better ways of communicating risk information to publics (Covello *et al.*, 1989). In addition, it is also a pragmatic measure in light of increasing legal (and moral) requirements on governments to inform publics of health and environmental risk (Pidgeon *et al.*, 1992). The need for effective risk communication to address the gap between technical risk assessment and publics' perception of risk has been articulated by researchers for a number of years (for example, Covello *et al.*, 1986; Covello *et al.*, 1989; Petts, 1992; Löfstedt and Frewer, 1998; Bickerstaff *et al.*, 2006). Some researchers claim that effective risk communication leads to a reduction in the likelihood of protracted controversies or public anxiety and outrage over risks, better understanding of publics' concerns and possible reactions to risks and ultimately, publics who are better informed about risk (Covello *et al.*, 1989). Other authors suggest that effective risk management and, in governmental terms, successful policy is dependent on effective risk communication (Taig, 1999; Renn, 2004). Prior to examining the factors that influence the efficacy or otherwise of risk communication efforts, at this point it is constructive to establish what is meant by risk communication and how it is deemed effective.

A commonly used definition of risk communication comes from Covello *et al.* (1986: 171) who state that risk communication is 'Any purposeful exchange of information and health or environmental risks between interested parties'. Interested parties can include government, business, experts, publics, NGOs, media, unions and individuals (Petts 1992). Covello *et al.*'s (1986) definition is rather narrow, though, as it is restricted to health and environmental risks. Alternatively, Plough and Krimsky (1987: 6) define risk communication as being '[a]ny public or private communication that informs individuals about the existence, nature, form, severity, or acceptability of risks'. Plough and Krimsky (1987) contend that definitions of risk

communication can be narrow or broad depending on how the five components of the definition namely, intentionality, content; audience directed; source; and flow, are interpreted. However, the definition is focused on informing individuals and does not allow for a two-way exchange of information. For the purposes of this thesis, risk communication is interpreted as in Corvello *et al.*'s (1986) definition, however Plough and Krimsky's (1987) flexible approach is adopted here by broadening the content or risk component of the definition to include economic and social risks in addition to health and environmental risk. Economic and social risks are also considered in this thesis since, as pointed out earlier, studies of incineration and other facility sitings suggest that publics are concerned about these impacts in addition to health and environmental risks (see Gwanda and Jenkins-Smith, 2001).

Although many authors (see for example Covello *et al.*, 1989; Renn, 2004) stress the importance of effective risk communication, few are explicit about what is meant by effective. Evaluating effectiveness, though, is a difficult task since different individuals or organisations may have different concepts of success in risk communication depending on the aims of the information programme (see Beder and Shortland, 1992). For instance, some organisations may view risk communication as a success if the target audiences are convinced by the advice or opinions of the communicators (National Research Council[16], 1989) while for others informed publics capable of participating in decision-making may characterise success (Sidaway, 2005). Defining effective risk communication in terms of its characteristics, Petts (1994: 218) states, 'risk communication is effective to the degree that all actions and communications (verbal and non-verbal) convey caring and empathy, competence and expertise, honesty and openness and dedication and commitment'. While it cannot be assumed that other authors and researchers adhere to Petts' (1994) meaning of effective communication, it serves as one useful definition in respect of this thesis. Another useful definition comes from the United States National Research Council (1989: 2) in its report on risk perception and communication, which defines risk communication as successful 'to the extent that it

[16] US National Research Council

raises the level of understanding of relevant issues or actions for those involved and satisfies them that they are adequately informed within the limits of available knowledge'.

3.2.2 Risk Communication Evolution, Models and Guides

What Covello and Sandman (2001: 164) term the 'current version of risk communication', evolved as a way of addressing the gap between publics' perception of risk and official responses to risk. There is some contention in the literature as to the social and political factors initiating the emergence of this discipline. While Covello and Sandman (2001: 164) suggest that publics were content to allow those in authority to make decisions on risk until the 1980s when publics 'reasserted [their] claim over policy making' and became engaged in discussions about risk, they do not suggest why such a fundamental change may have occurred. Beck (1992) and Giddens (1998a) attribute such individualist attitudes towards risk to a loss of tradition in society. Alternatively, Taylor (2001) asserts that such arguments do not afford sufficient consideration to the impact of conservative governmental ideologies, for example Thatcherism, on the role of risk in politics over the past three decades. According to Taylor (2009), less interventionist government policies in Europe, Britain and the United States in order to reduce regulatory burdens on business means that public safety issues have been plucked from the arena of governmental responsibility and individualised. Taylor (2009) claims that as a consequence, publics are given risk information and expected to make their own risk decisions; hence the demand for risk communication. Yet a third view is that the desire for increased participation by publics in risk decision making is occurring because publics have the knowledge and capacity (due to internet technologies, for instance) to take part in such processes and besides this, that they also have the right to be engaged in decisions that affect them (Roberts, 2004).

According to Hilgartner (1990), traditional strategies for dealing with the gap between scientific assessments of risk and public perception of risk have been based

on the deficit model. This refers to the dominant view in institutional science that scientific knowledge cannot be understood by lay publics who therefore must be educated using 'appropriate simplification' as deemed by those communicating the information (Hilgartner, 1990: 529). Risk communication strategies based on the deficit model range from ignoring protest, to attempts to explain technical risk assessments and reassure publics who 'misunderstood' the pros and cons of a particular technology (Fischhoff, 1998). Such efforts fail to take account of public fears (Petts, 1992) and so publics remain deeply suspicious of the motives of government, business and scientists (Frewer, 2004). According to Covello and Sandman (2001), explaining risk assessments and, in particular, numerical data are important in situations where the risk is high and the antagonism is minimal. However, emotionally charged discussions on risk are problematic in that publics may not fully understand the figures, but they are outraged or upset. In Covello and Sandman's (2001) line of reasoning, such situations necessitate a change in the dynamics and direction of risk communication processes and publics have to be heard as well as being informed (Sandman, 1994).

The literature describes three broad approaches to current trends in communicating environmental risk. These approaches are based on the nature of the risks involved and on the aim of the risk communication efforts. Risk information may be required to, firstly, advise about what actions should be taken during crises, secondly, to increase awareness or change behaviour (Smith, 2006) or thirdly, to conduct risk discourses around decisions about risky technologies or industries (OECD, 2002). The provision of education or information reflects the aims of early risk communication models mentioned above. However, Mythen *et al.* (2000) suggest that this can be combined with more recent ideas of discourse to create a mutual learning experience between experts and publics. Persuasion techniques are often used in efforts to change behaviours, such as campaigns about drink-driving. Likewise, efforts to inform publics about the siting of utilities deemed by planning authorities to be necessary for the common good, such as incinerators, may also use persuasion techniques (Mythen *et al.*, 2000). Discourse, or two-way, risk

communication models aim to include stakeholders in the decision making process and so produce a wider context to risk decisions (Ishizaka and Tanaka, 2003; Beecher *et al.*, 2005, Willis and Wilsdon, 2003).

The range of risk communication research literature available reflects the different types of risk situations that may require communication strategies. Risk communication in relation to incineration risks has received some attention with regard to both toxic incineration (for instance Petts, 1992) and MSW incineration (Beder and Shortland, 1992; Ishizaka and Tanaka, 2003; Hopwood and Dodds, 2006). Other useful literature includes studies of how patients use internet health information (Edwards *et al.*, 2006; Sillence *et al.*, 2007), immunisation risks (Yarwood, 2006, Casiday *et al.*, 2006), food safety (Renn, 2005) and bio-waste risks (Beecher *et al.*, 2005). Researchers have also focused on communities living close to high-risk industries, such as nuclear power plants (for example, Wynne, 1996) or in areas prone to flooding (for example, McEwen *et al.*, 2002; Downton *et al.*, 2005). In addition there is an emerging body of work around risk communication situated in public relations research (for instance, Palenchar and Heath 2007).

A number of models and guides to risk communication have been formulated. The OECD (2002) Guidance Document on Risk Communication for Chemical Risk Management, for instance, addresses issues such as choosing risk communication strategies, tailoring content for different audiences and channels, advice about crises situation communication and dealing with media outlets (OECD, 2002). Morgan *et al.*'s (2002) Mental Models method of risk communication uses both technical risk information and lay risk perception to build salient risk communication content on a case by case basis[17]. In addition, some researchers have developed risk communication guidelines tailored to their own research areas. These include, for example Renn's (2004) strategy for communicating about food safety, Petts's (1992) suggestions for risk communication in relation to toxic incinerators, Ishizaka and

[17] Morgan *et al.*'s (2002) communication method uses qualitative and quantitative interviewing and surveying techniques to ascertain publics' attitudes to a particular risk and, using this information, risk messages that are meaningful to that particular audience on that particular risk are developed.

Tanaka's (2003) proposed framework for risk communication in relation to a MSW incinerator in Japan, and Beder and Shortland's (1992) analysis of persuasion communication techniques used in an incinerator controversy. Generally speaking, the same key recommendations appear in most of these models and guides governing content creation and communication strategies and practices.

With regard to content creation, the literature emphasises a number of key issues for those communicating with publics about risk. Most models and guides suggest that the technical and scientific information should be the starting point of any risk communication and that a clear statement of the technical risk and a list of all the possible hazards and risks associated with the activity in question should be prepared (Morgan *et al.*, 2002; OECD, 2002; Ishizaka and Tanaka, 2003; Renn, 2004,). Addressing uncertainties and indeterminacies in an open and honest manner, as well as being frank about the quality of the data available, is stressed by a number of researchers and institutions (Covello and Sandman, 2001[18]; OECD, 2002; Leiss, 2004; Palenchar and Heath, 2007). In addition, Frewer (2004) recommends portraying honestly any disagreements between experts about the risk. Some researchers argue that the types of information requested by publics in the course of a risk debate should inform the risk messages disseminated just as much as technical information (Renn, 2003) while others go further by suggesting that empathy and compassion often carry more weight than technical facts and figures (Covello and Sandman, 2001). Other actions deemed to be helpful in communications about risk include the framing of information in salient concepts and terms and avoiding risk comparisons that are not relevant or meaningful (Morgan *et al.*, 2002) and the provision of clear reasons why the course of action giving rise to the risk was chosen (OCED, 2002; Leiss, 2004).

A number of caveats in relation to the content of risk communication have been offered by some researchers. Examples of these include recommendations to desist

[18] From Covello and Sandman's (2001) adaptation of the United States EPA Seven Cardinal Rules of Risk Communication

from making statements about high or low risk (Petts 1992), not to depend on denials of and reassurances about risk alone (Lyons and Wright, 1999) and to avoid giving rise to unintended messages where authorities articulate one view while acting in accordance with a different view[19] (Beder and Shortland, 1992).

A review of literature describing various risk debates suggests that, in addition to the content of risk communication efforts, strategies and practices are crucial determinants of communication efficacy (for example Beder and Shortland, 1992; Ishizaka and Tanaka, 2003; Sidaway, 2005; Dodds and Hopwood, 2006; Shevory, 2007). In terms of strategy and practice, the models and research reviewed highlight the use of two-way communication processes where stakeholders views are considered as being of particular value and are sought (Petts, 1992; Sandman, 1994; Lyons and Wright, 1999; Covello and Sandman, 2001; Ishizaka and Tanaka, 2003). Two-way communication models tend to include provisions for citizen participation and aspire to have at their core, values of democracy, although this is not always guaranteed (see Shilling *et al.*, 2009). There is a pragmatic aspect to such models. For instance, a siting process that fails to take lay perceptions of risk into account is less likely to win public support. However, it has been noted that strategies which provide affected publics with adequate information to make informed decisions about risks, are likely to have aspects of both one-way and two-way models of risk communication (Morgan *et al.*, 2002; Cox, 2006). Of course, two-way communication processes will not guarantee acceptance, but will help to increase accountability (Lovan *et al.*, 2004a).

Other authors stress that risk communication should be integrated with risk management processes rather than being 'treated as a bolt-on extra' (Taig, 1999: 127). In respect of public participative processes of risk communication, authors such as Taig (1999) and Willis and Wilsdon (2003) argue that the preferences and

[19] In their study of risk communication about an incinerator in Australia, Beder and Shortland (1992) recount how an unintended risk message was received by publics when authorities stated that an incinerator did not pose a health risk, but then sought to locate it in an area of very low population density, giving communities the impression that it posed a risk to health after all.

viewpoints expressed by publics should be integrated into policy if the process is to have any true meaning. The engagement of publics early in the process of risk assessment and decision making about risk is also a common recommendation as is regular formal dissemination of information and continual discussion with stakeholders (Petts, 1992; O'Brien, 2000; Ishizata and Tanaka, 2003; Frewer, 2004; Renn, 2004). Indeed, Kasperson (2005) suggests that a lack of early and sustained public involvement is a common cause of failure of public participation programmes.

Possible channels suggested for the dissemination of risk information include the press, brochures, public meetings, presentations and web sites (OECD, 2002) and Ishizaka and Tanaka (2003) suggest that communicators may require support in relation to these different channels of communication. Different channels have different challenges in terms of the amount of control that risk communicators have over the mechanism. For example, it is easier to control messages conveyed by information literature than those conveyed through media reports (Reber and Berger, 2005). Also public meetings are two-way and allow for clarification of information in a way that one-way communication channels can not. Equally, the importance of evaluating risk communication programmes at various stages throughout the communication process has been noted by some authors (Morgan *et al.*, 2002; OCED, 2002; Ishizaka and Tanaka, 2003).

A number of additional recommendations about risk communication in respect of potential incineration risks are highlighted in the literature. Ishizaka and Tanaka (2003) suggest that information about waste management in general should be provided as part of risk communication programmes about incineration while Snary (2002) recommends that independent experts who are unconnected to any of the interested parties in the risk dispute should be used as information sources. Other recommendations include taking into account the temporal and spatial nature of risks in siting controversies and the willingness of those on all sides of the debate to change and compromise (Petts, 1992).

At this point, a closer examination of the communication channels and mechanisms available to risk managers is useful. The following sections explore firstly the print media and secondly public participation processes as risk communication tools.

3.2.3 The Media and Risk Communication

The mass media is of particular interest in relation to risk communication research since it is an important source from which lay publics receive information about environmental risk (McCallum, Hammond and Corvello, 1991; Wakefield and Elliot, 2003). In addition, it has been contended that the media can shape publics' risk perceptions and public opinion (Burgess and Gold, 1985; Mythen *et al.*, 2000), as well as influencing public policy (Nelkin, 1995). More recently, Shanahan *et al.* (2008) argue that media reportage can contribute to policy change in addition to reporting on it. Beck (1992) remarks on the importance of media debate about risk issues in terms of allowing exposure of differing opinions on risk. However, it is likely that some sectors of society have easier access to media exposure than others since it is clear that the media has its own operational constraints (Bell, 1991; Anderson, 1997) and biases (Nelkin, 1995), both of which affect the reporting of science and risk. Trust issues in relation to the media as a conduit of information in risk controversies have also been documented by researchers (Nelkin, 1995; Anderson, 1997; Wakefield and Elliott, 2003).

Although much research work has been conducted on the content and messages about science, environment and risk in the media and about the factors that influence such content (see Nelkin, 1995; Anderson, 1997; Cox, 2006), less attention has been given to how the media is used as a risk communication tool during a risk debate (although see Leask and Chapman, 2002; Wakefield and Elliot, 2003). In considering media as a risk communication tool in this thesis, mainstream media research literature is reviewed alongside research concerning the treatment of risk and science in the media. While the main focus of this section is the print media as it is an integral aspect of the research, brief consideration is also given to the use of new media in environmental debate.

News coverage and treatment involves the decisions that editors, journalists and others in news production make in relation to the selection and prioritisation of news stories (Boyd-Barrett, 1995). Galtung and Ruge's (1965) classic study of media coverage suggests that news topics most likely to be given prominence are recent, geographically close to the reader, negative, liable to affect the reader and have a human interest aspect. Events that are part of a continuing story or are deemed newsworthy by other media outlets also tend to be prioritised (Bell, 1991). In addition operational constraints, such as deadlines, availability of relevant sources, ability to accommodate the story (in terms of publication frequency) and budget considerations all affect news production decisions (Galtung and Ruge, 1965; Itule and Anderson, 1994; Harcup, 2004).

In addition to these 'media triggers' (Bennett, 1998: 17), other authors argue that social and political contexts such as ownership, advertising, style of publication and range of sources influence the prioritisation and treatment of news topics (Herman and Chomsky, 1988; Mythen *et al.*, 2000). Furthermore Paletz and Entman (1981) and Cox (2006), suggest that media can reinforce existing power structures and normative societal values. While other authors acknowledge that external influences are certainly evident in news production, they tend to portray news media representations as the outcome of a battle between different groups and sources to define the topic where those outside government and corporate circles can often run effective publicity campaigns by building media skills capacity, regardless of resources (Anderson, 2002; Davis, 2002).

Stories about risk and the environment are subject to similar news criteria and operational pressures as other media topics, for instance, environmental stories which have geographic, social or economic salience have been shown to be prioritised by newsrooms (Bendix and Liebler, 1999). However, further news criteria particular to science and risk stories have been suggested in the literature. It is argued that journalists prefer stories where large amounts of people are exposed to a risk or where the consequences of the risk are severe, for instance, where death or grave

injury feature (Anderson, 1997; Bennett, 1999). Some researchers believe that journalists and editors tend to depict science based stories as epic dramas of good versus evil or risk stories featuring victims and villains as human interest elements (Nelkin, 1995; Bennett, 1998). Risk topics involving conflict, blame or secret cover-ups are more likely to be selected for publication, according to Bennett (1998).

Researchers studying the media reportage of science, environment and risk argue that the media tends to sensationalise or dramatise stories about risk and science (Adams, 1992; Nelkin, 1995; Anderson, 1997). Though, Leask and Chapman (2002) contend that it is not only journalists who may sensationalise risk stories and that scientists interviewed in newspapers sometimes use emotive and sensational language[20]. According to Nelkin (1995), the situation is further complicated by newspaper reporters who are often overly reliant on biased sources, may not have an adequate understanding of the material, or are themselves biased and tend to choose interviewees from similar socio-economic backgrounds as themselves. Where expert sources are used, Nelkin (1995) contends that journalists are generally reluctant to challenge or interpret the information an expert source offers. Wakefield and Elliot's (2003) examination of newspaper reports of a landfill siting in Ontario, Canada found this to be the case. They concluded that this failing was likely to impair the value of newspapers as a communication tool. In some cases the expert and not the journalist becomes the primary definer of the issue (Anderson, 1997; Tanner, 2004). For instance, Tanner's (2004) analysis of health reporting on television concluded that expert sources tend to strongly influence what issues get reported and how those issues are framed.

Powell and Leiss (1997) point out that science as reported in the media, is sharper, simplified and contains less ambiguity than science in academic literature with the result that scientists and scientific knowledge come across as being more authoritive

[20] In their study of the media reports of the debate about the safety of childhood immunisation Leask and Chapman (2002) found that scientists opted for extreme statements such as, for example, equating the failure to immunise with child abuse.

and more confident than they are in reality. Hence, the media usually reinforces the idea of science as the purveyor of truth, the authority of science is rarely questioned and the science is generally presented as being unaffected by politics or external interest (Nelkin, 1995). However, this is not always the case. Anderson (1997) for instance, describes how, during the Brent Spar incident[21], the media gave credence to information disseminated by Greenpeace in preference to that from government and industry scientists.

The use of new media and the internet as a channel of communication in environmental risk disputes has been researched to some extent. In examining how different organisations utilise the internet in political discourses, Castells (2004) concludes that although the internet has significant potential for discourse and public participation in policy decisions, it is most often used by experts as a means of providing information in a one-way model of communication. He further claims that activists or protesters use it to circumvent conventional media and, as a result, a type of fragmented politics is emerging. Pickerill (2003) credits the internet with enhancing the power of grassroots organisations to overcome difficulties associated with a lack of resources and enabling the most marginalised environmental discourses to be heard.

3.2.4 The role of public participation in environmental risk debates

While the use of two-way dialogue has been identified as being essential to effective risk communication, particularly in potential conflict situations (Petts, 1992; Lyons and Wright, 1999; Covello and Sandman, 2001; Morgan *et al.*, 2002; Ishizaka and Tanaka, 2003), the practicalities of conducting such a process raise a number of challenges including the participation mechanism used and the method of public representation. In addition, there are rarely equitable power relations within such processes and this raises issues including whose voices are heard, who sets agendas

[21] In 1995, the oil company, Dutch Oil/Shell, sought and gained governmental permission to decommission Brent Spar, a North Sea oil storage platform by deep-sea disposal, or sinking it at sea rather than on-shore dismantling. The environmental NGO, Greenpeace, ran a successful campaign which resulted in a wide- spread boycott of Shell. Eventually, Shell reviewed its decision and brought the platform to shore for dismantling.

and ultimately whose interests are served by the final outcome (Arnstein, 1969; Flyvbjerg, 1998; Owens, 2000; Chilvers and Burgess, 2008). This section examines the arguments for public participation in environmental risk and utility siting debates including issues of democracy and governance, the types of mechanisms used and the distribution of power within deliberative processes. Finally, environmental risk debates are often characterised by clashes of underlying values between various stakeholders (Douglas 1995; Adams, 1995; Renn, 1998; Bier, 2001) and as a result, discourses underpinned by these values emerge in risk debates (Irwin, 2001; Owens, 2002; Dryzek, 2005). As a consequence, the role of such discourses in environmental debates is also considered here.

Earlier studies of incineration siting debates examined public participation methods such as select committees where community members heard evidence presented by experts and others (for example, Dodds and Hopwood, 2006), contact groups which fell short of consensus but where key community members were encouraged to develop informed views (for example, Snary, 2002) and public meetings (for example, Ishizaka and Tanaka, 2003). Petts (2008: 823) describes the use of 'small group deliberation' processes such as community advisory committees and community groups, where a wide range of stakeholders including residents, politicians, officials, experts and, in some cases, industry are involved in collaborative decision making. The value of having experts sit on such committees as active members acting 'to adopt multiple engagement roles – observational, listening, presentational, discussion, debating' as opposed to presenting information as interested, but uninvolved, outsiders, is emphasised by Petts (2008: 828) as being particularly useful for enhancing the trustworthiness of deliberative processes.

There is little value, in terms of this thesis, in embarking on a lengthy discursive evaluation of various models of public participation; this has been done elsewhere (see Aldred and Jacobs, 2000; Roberts, 2004; Edelenbos and Klijn, 2006; Rauschmayer and Wittmer, 2006). However, there are a number of points pertinent to this thesis present in earlier studies of public participation processes. For example,

the success of participation exercises relative to their respective goals has been linked to factors such as good process management, the utilisation of public participation early in the planning and development process and the impact stakeholders have in the final decision (Aldred and Jacobs, 2000; Amendola, 2001; Sidaway, 2005; Edelenbos and Klijn, 2006; Rauschmayer and Wittmer, 2006; Petts, 2008). However, Bier (2001a) warns that it is important that the type of participation being offered and that the extent to which publics' views and comments will be incorporated into the final decision should be made clear from the start.

Some studies of public participation mechanisms include an evaluation of communication and information provision within the mechanism (Edelenbos and Klijn, 2006), while others look at the how contexts such as political norms, power relations and access to resources affect the process (Forsyth, 2005; Dodds and Hopwood, 2006; Chilvers and Burgess, 2008). However, examinations of public participation mechanisms as part of a risk communication programme but also within the wider contexts of a risk debate are rare.

It is argued that public participation in environmental risk debates has advantages for both risk communication and for decisions about planning and risk management. According to Mythen *et al.* (2000), the contributions of publics to risk debates help communicators to formulate risk messages which are relevant and salient and help build mutual understanding between stakeholders. In terms of decision making, there are indications that the participation of publics can contribute to better quality decisions due to the inclusion of a wide range of views, knowledge bases and perspectives. This can help to ensure transparency in decision making (Mythen *et al.*, 2000; Owens, 2000; Pellizzoni and Ungaro, 2000). Transparency, in this context, can be taken as a mechanism which allows for clarity and insight into how and why decisions are taken (Andersson, 2008). In her study of the deeply controversial nature of waste management policy in Ireland, Davies (2003: 90) suggests that the use of deliberative and participatory involvement of publics in Irish waste governance would make waste decisions more 'transparent and defensible' which

may ease the current divisiveness of waste debates in Ireland. Aside from these pragmatic reasons for public participation, principles of democratic ideals of publics being involved in decisions affecting their lives have been discussed in the literature (Hiskes, 1998; Sidaway, 2005).

This concept of a more direct democracy (as opposed to representative democracy[22]) means that the public sector (politicians and public officials) is not only accountable to parliaments on foot of legally binding obligations; it is also directly accountable to publics who require explanations for and participation in public policy decisions (Andersson, 2008). However, the implication that more participation necessarily equates to more democracy is questioned by researchers. For example, Lovan *et al.* (2004a) argue that although consulting with publics increases accountability, it does not necessarily mean that publics have more say in decisions and so does not automatically strengthen democracy.

Conversely, it has been argued that public participation usually means the participation of upper middle class publics rather than disadvantaged publics (Cross, 1998; Okrent, 1998). Thus, this line of argument maintains that it is more democratic to allow elected representatives to make decisions (in accordance with expert advice), since they have already been mandated by the citizens to do so. Taking the argument further, Hiskes (1998: 35), asserts that resistance to public utility siting denies the legitimacy of 'collective authority as a whole'.

Although ideals of democracy partially drive public participation processes (Roberts, 2004; Sidaway, 2005; Edelenbos and Klijn, 2006), a number of researchers address the difficulties of ensuring the democratic nature of such processes in practice since they operate against a background of inequitable power relations (Sidaway, 2005; Fischler, 2000). This affects both the ability of different stakeholders to access participation and the extent to which they can influence the final decision (Forsyth,

[22] Representative democracy is a model whereby citizens elect representatives to make decisions on their behalf, and these representatives remain responsible to the citizens (Andersson, 2008).

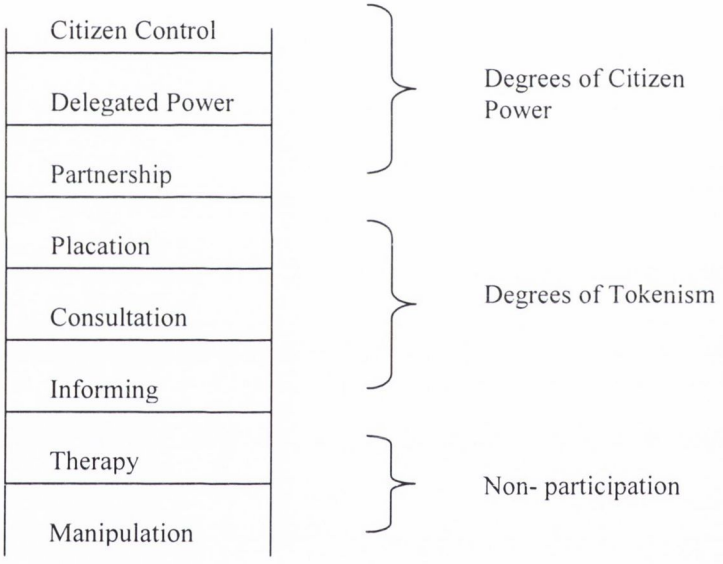
2005). Looking specifically at the procedures of public participation within risk debates, Chilvers and Burgess (2008: 1897) use the term the 'politics of procedure' to describes the tendency of authorities to utilise their power over public participation mechanisms in order to control the framing of public deliberative discourses so that only particular topics, ways of articulations, knowledges, debate interactions and so on are allowed within the process. Hence, a public debate space can become a 'theatre for the rehearsal of fixed positions' (Coote and Franklin, 1999: 190) where certain issues and values that are not in the interests of the more powerful actors can be suppressed (Lukes, 2005). Detractors from the use of risk communication and public participation warn that there is a need to examine what underlies the goals and values of interested publics so that risk communication should avoid crossing the line between 'informed decision making and persuasion without reason' (Bostrom, 2003: 553).

Despite public participation becoming increasingly touted as an integral part of planning and democracy, implementing such participation is often difficult in practice. For example, Bickerstaff *et al.* (2002) suggest that despite UK central government articulation of commitment towards public participation, in practice local authorities tend to settle for tokenistic forms of participation where advice or ideas that do not suit the interests of the local authority are easily disregarded. Furthermore technical parameters in decision making, such as the criteria set out in planning processes, can restrict what can be considered as legitimate arguments within a debate. For example, in her study of a public participation exercise in Luton, UK, Davies (2001) highlights the exclusion of intangible values, such as the connections residents feel for local green recreational areas, from planning processes. She notes that planners had devised ways of circumventing the system by substituting the disallowed concerns and values of local people with grounds that were permitted, in order to justify conserving open spaces. Hence, some values are accepted in planning decisions while others are not. Those that are not permitted are therefore not articulated, but may be swapped for values or arguments that are deemed to be more acceptable by the planning system. Davies (2001) concludes that

this can act as a disincentive to publics to participate in forms of public deliberation. This could be interpreted as a use of latent power by the authorities; that is, a subtle form of power which manages to prevent particular options from being presented as part of the viable choices available (Lukes, 2005). Thus, in an act of *realpolitik* (Flyvbjerg, 1998), a potential conflict in relation to certain values is suppressed. According to Flyvbjerg (1998: 6), however, conflict is essential for the operation of a democracy since the option to partake in conflict is 'part of freedom'. Therefore, the suppression of conflict can be read as an oppressive act.

A useful approach to understanding power within public participation processes is Sherry Arnstein's Ladder of Citizen Participation (see Fig 3.1 below).

Fig: 3.1 Arnstein's Ladder of Citizen Engagement



Source: Arnstein (1969: 216)

For over three decades Arnstein's (1969) typology of citizen participation based on how much power is transferred to citizens in decision-making deliberative processes has been a touchstone for both researchers and policy makers. Arnstein (1969) equates citizen participation with citizen power. Non-participation levels, therefore,

include education and information provision while tokenism includes mechanisms which give a voice to publics but do not take their views on board to any significant extent. According to Arnstein (1969), it is only in the upper reaches of the ladder, from partnership to citizen control that real and meaningful participation occurs.

Although Arnstein's (1969) ladder analogy has proved its longevity in research terms (see Snary, 2002; Bickerstaff *et al.*, 2002), there are also criticisms of its preoccupation with power to the exclusion of other dimensions of planning and risk debates. One aspect of this criticism claims that Arnstein's (1969) ladder was conceptualised from and so coloured by, her position as an environmental activist and she portrays participation more as a demand on authority rather than a communicative process (Bishop and Davis, 2002). Other criticism focuses on Arnstein's (1969) assumptions that publics always desire full control as their goal in participating and that such a high level of participation is always appropriate which some researchers claim are too simplistic (Tritter and MacCallum, 2006). Tritter and MacCallum (2006) further claim that planning debates are generally a composite of different issues each of which often require different levels of participation within the same public participation process. Notwithstanding the criticism, Arnstein's (1969) ladder makes clear distinctions between information, consultation and participation, which make it a useful, if simplistic, tool for assessing risk communication processes, once its limitations are borne in mind.

3.2.5 Sustainability and ecological modernisation: Common discourses in environmental risk debates

Risk communication discussions, such as those carried out within public participation processes, tend to be based around a number of discourses common to environmental discussions. Authors such as Hajer (1995) and Mythen *et al.* (2000) have attested to the importance of these discourses in addressing environmental controversy. Mythen *et al.* (2000: 32, italics in original) contend that risk communication must move beyond two-way models towards discourse so that risk messages are embedded '*in the context of public debate*'.

Dryzek's (2005: 9) definition, 'A discourse is a shared way of apprehending the world. Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts' is used for this thesis. Environmental risk controversies and debates generally have a high level of complexity, encompassing as they do a wide range of values including ecological, social, political and economic values (Dryzek, 2005). Power within environmental debates is exercised in the way in which discourses, which form the basis of much risk discussion, are framed, formed, advanced and suppressed in the course of a debate (Hajer, 1995; Dryzek, 2005). However, discourses about environmental issues are not confined to formal public participation processes or parliamentary politics but are carried out in formal and informal, political and subpolitical[23] arenas, according to Hajer (1995). This is important in terms of risk communication, since subpolitical action allows less powerful actors, such as community stakeholders, to introduce or redefine an environmental issue, through a media campaign for example, which may then feed back into the political process (Hajer, 1995). Beck (1998) describes this as a process of the subpolitical opening up the political to citizens and thus empowering them and 'democratizing' democracy.

Two major environmental discourses which bear relevance for this thesis are the sustainability discourse and the ecological modernisation discourse. As noted earlier in this chapter, in Beck's (1992) risk society, economic development, in the guise of the industrial age, becomes the nemesis of nature and in doing so threatens the very modernity it has created. Sustainable development attempts to reconcile the ecological protection with the conservation of economic development, with regard to inter-generational equity (Irwin, 2001). So, it is a counterpoint to Beck's (1992) pessimistic outlook which implies that economic growth and ecological degradation cannot be decoupled. The most widely used definition of sustainable development comes from the 1987 report from the Brundtland Commission, the World Commission on Environment and Development (WCED), 'Humanity has the ability

[23] Hajer (1995) uses Beck's (1992) notion of sub political here, meaning the transference of political decisions to non-political realms.

to make development sustainable – to ensure that it meets the needs of the present without comprising the ability of future generations to meet their own needs' (Brundtland, 1987: 8). However, understandings of the term are slippery and Barry (2005: 316) considers the concept of sustainability to have 'an essentially ambiguous character'. Irwin (1995) describes the discourse of sustainability as an inspirational discourse rather than an actual practice that can be found in even the environmentally conscious places in the Western world. The discourse is negotiated by a variety of actors at all geographically and political scalar levels (Dryzek, 2005). Rather than being a value-free discussion of the import of the environment, the discourse is described by Hajer (1995: 12) as being ' a struggle between various unconventional political coalitions, each made up of such scientists, politicians, actors... but also having links with specific television channels, journals and newspapers'. Although these various actors use such similar 'sustainability talk' that their pronouncements could come from a government department or a commercial company as easily as from an Environmental NGO (Irwin, 2001: 46), they can interpret the meanings of sustainability in different ways, depending on their own underlying values (Hajer, 1995). In other words, the language of sustainability offers something to everybody. As Irwin (2001) comments, it is difficult for many actors in environmental debates to disagree with sustainable development. This resonates with Beck's (1998: 161) verdict that 'there is probably no political tendency which cold not draw honey from the environmental issue. The environmental issue is a political chameleon which changes its appearance as it is put into service'.

Studies of incinerator resistance in the Galway and Meath regions of Ireland suggest that the anti-incinerator organisations involved in these campaigns framed their protests in terms of the need to develop better waste management policies and infrastructures rather than simply protesting against the siting of incinerators in their areas (Davies, 2005, 2006; Leonard, 2005). Similar strategies were indentified in studies of incinerator protests in the UK (Dodds and Hopwood, 2006) and in the US (Shevory, 2007). Thus, these grassroots campaigns adopted the discourse of

sustainability in conscious attempts to avoid accusations of Not-in-my-back-yard sentiments or NIMBYism.

While sustainable development as a discourse has received much lip service since the 1970s, there has been less in the way of practical or political action. Dryzek (2005) attributes this to the dominance of market liberalism where, he claims, any environmental initiative has to be seen as an obvious promoter of economic growth, rather that merely reconcilable with it. Ecological modernisation provides a more business-oriented environmental discourse than sustainability. The key concept of ecological modernisation is that it is more profitable for business to partake in environmental protection (Dryzek, 2005; Hawken *et al.*, 2005). At the heart of ecological modernism lies the watchword that 'pollution prevention pays' (Hajer, 1995). Within the discourse of ecological modernisation, cost-benefit analysis is extended to include environmental 'goods', and eco-modernists view nature as a public good rather than a sink to be used for disposal purposes (Hajer, 1995). Like sustainable development, ecological modernisation can be interpreted in a number of different ways depending on the values of the interpreter (Hajer, 1995; Yearley, 2002).

Hajer (1995) is broadly optimistic about the potential of ecological modernisation and considers it capable of rendering a more environmentally sound capitalism. An alternative view is advanced by Barry (2005: 316), who contends that ecological modernisation holds a narrow view of the environment, reducing it to 'critical natural capital', that is, it is only concerned with those parts of nature which are considered as obviously useful to humankind and to the growth of economies. In terms of risk communication then, Barry's (2005) assertion seems to imply that an ecological modernisation discourse excludes many areas of concern to publics, such as, for instance sense of place, concern about bio-diversity or significantly, environmental justice (see following section). Furthermore, the discourse's preoccupation with environmental protection which enhances, rather than threatens, economic development resonates with Doyle's (2003) analysis of EU environmental law, as set

out in Chapter 2. So in terms of risk communication research, a useful question to pose is which, if either, discourse of sustainable development or ecological modernisation is adopted by publics, governments and by industry during environmental risk debates[24].

3.3 Place and Knowledge: Contexts of risk communication

Socio-cultural approaches to risk recognise that risk communication is produced, received and interpreted within social, cultural, institutional and historical contexts (Plough and Krimskey, 1987; Beck, 1992; Pidgeon *et al.*, 1992; Wynne, 1996; Giddens, 1998b; Masuda and Garvin, 2006). As Walker *et al.* (1999: 184) conclude 'there is a history, a context, a body of existing knowledge and concerns and a set of pre-existing relationships within which risk communication activities are received and interpreted'. Moreover, in constructing their conceptual framework of the social amplification of risk, Karsperson *et al.* (2005) argue that the socio-cultural contexts within which communication is received help shape the meanings of risk messages for publics. This indicates that the consequences of a risk communication programme can be unpredictable and that disseminators of risk communication need to fully appreciate such contexts (Pidgeon *et al.*, 1992). Contexts which envelop the process of risk communication differ from one risk communication situation to another and may even change over time in response to events or altered circumstances, such as a change in economic climate for instance (Walker *et al.*, 1999). Bearing in mind Hood *et al.*'s (1992) contention, as mentioned earlier, that risk communication is an essential element of risk management, this thesis provides an important opportunity to examine the spatial and geo-political elements underpinning how publics receive risk communication.

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[24] On this point, Barry (2005) makes the interesting observation that despite an articulated commitment to sustainability, political leaders in the UK appear to be engaging a discourse which is closer to ecological modernisation which, he claims fits well with New Labour's Third Way.

This section examines contexts of place, trust and knowledge in relation to their impacts on the receipt of risk communication. It begins with an exploration of the literature on how risky technologies may bring about the stigmatisation of an area and on the peripheralisation and marginalisation of areas where undesirable facilities are sited. Following this, equity and social justice issues involved in siting unwanted facilities are considered and environmental justice literature is reviewed. Finally the ways in which knowledge is utilised in environmental debates and the impact of mistrust on risk communications are contemplated.

3.3.1 Places apart: Stigmatisation, marginalisation and peripheralisation

Simmons and Walker (2004) stress the importance of spatial context in understanding risk debates about siting controversies. Local experiences of pollution appear to be mediated by contexts of place (Day, 2007) and discussions about who benefits from a particular technology and who suffers the side-effects tend to involve conflict underpinned by discourses of place, identity, fairness and social justice (Boholm and Löfstedt, 2004; Wester-Herber, 2004). Indeed, Bickerstaff *et al.* (2006) posit that the management of risk always overlays a backdrop of localised political, economic and cultural relationships. Such concepts then provide a context within which risk communications are heard and interpreted by publics.

The propensity for particular areas and types of areas to become associated with and burdened with risky technologies has received research attention from a number of angles. Some researchers have examined how the siting of risky technologies in an area lead to the stigmatisation of that area, and how, in turn, the stigma results in the location of even more locally unwanted land uses (LULUs) in that area (Slovic *et al.* 1991; Slovic *et al.*, 1994; Flynn *et al.*, 2001). Others have focused on the tendency of LULUs such as the siting of utilities, to result in the peripheralisation and marginalisation of a locale (Blowers and Leroy, 1994; Cullen and Pretes, 2000).

According to Boholm and Löfstedt (2004), modernistic planning tends to favour the needs of the larger community over those of the local community, so that the

common good supersedes that of the local. So then, environmental risk controversies often arise where a facility or activity that brings benefits to the wider population threatens to victimise, in some respect, the community in its immediate vicinity.

Working within the psychometric paradigm of risk perception and using an amplification of risk approach, researchers such as Slovic *et al.* (1991) and Gregory *et al.* (1996) examine the tendency for such victimisation to result in the stigmatisation of an area which becomes associated with polluting activities or technologies. Stigmatisation refers to a process whereby the reputation or image of the area is damaged to such an extent by pollution, an event or a facility that it affects the area's 'desirability as a place to visit, live, and do business' (Slovic *et al.*, 1994: 773). Wester-Herber (2004: 111) describes stigma in this context as being 'where something that is considered to be a risk or hazard turns into something more'. In terms of cultural theory, stigma is arguably implicit (but not explicit), in Douglas's (1992) concept of pollution as something incongruous with its surroundings.

Much of the research around risk and stigma has centred on economic implications of stigmatisation. Slovic *et al.* (1991) contend that there may be lasting and serious economic effects linked to the stigmatisation of an area. The effects of stigmatisation in this respect may include long-term residents leaving, a reduction in the ability of the area to attract new business, negative effect on tourism in the wider city or region (Slovic *et al.* 1991) or a permanent reduction in property prices in an area (Gawanda and Jenkins-Smith, 2001). However, both Slovic *et al.* (1991) and Gawanda and Jenkins-Smith (2001) are investigating the disposal and transport of nuclear waste, respectively, and its difficult to ascertain if the conclusions are directly applicable to MSW incineration.

While stigma research has its origins in the psychometric paradigm of risk perception, it displays strong resonance with the socio-cultural paradigm. According to Gregory *et al.* (1996: 220):

> *"Stigma is a reminder of the vast differences in perspective that exist among members of our society. The same activity that is seen by some as a significant health or safety benefit is viewed by others as an immoral threat. The same technology that some advocate because of its anticipated economic benefits is shunned by others who fear that it will result in catastrophic losses."*

A number of researchers from the socio-cultural tradition have conducted research which suggests that the effects of stigmatisation may not be limited to economic concerns. In examining the role of place-identity in stigmatisation, Wester-Herber (2004) asserts that the negative images of stacks, plumes and risky technologies associated with unwanted facilities and LULUs can affect individuals' self-esteem, wellbeing and their ability to respond to changes in their environment. Likewise, other researchers argue that stigma can affect how residents' themselves view their environment and this can have detrimental effects on their quality of life (Simmons and Walker, 2004; Bullard and Smith, 2005). In addition, the literature highlights the stigmatisation of environmentally-induced diseases and those affected by such (Brown *et al.*, 2003; Wind *et al.*, 2004).[25]

Using studies of risk perception surveys, Gregory *et al.* (1996) identify a number of conditions that denote environmental stigmatisation; the hazard is perceived as high risk, there is violation of what is seen as being right or natural, there is inequitable distribution of risk, there are unbounded possible outcomes and the management of the risk is questionable. While these conditions may aid researchers to define a stigmatised area, the portrayal of an area as stigmatised might be contested by the residents themselves (Bush *et al.*, 2001). Notwithstanding this, Wester-Herber (2004) argues that there is a need for policy and decision-makers to acknowledge concerns related to stigma and place identity by opening up risk communication processes to include such concerns so that the psychological wellbeing of affected communities and individuals could be considered as a legitimate issue alongside health and environmental impacts.

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[25] For example, in the United States asthma is generally associated with disadvantaged areas, and asthma suffers are often stigmatised by the presumption that they are both weak and come from an unclean household or area. (Brown *et al.*, 2003).

While stigmatisation research is useful in so far as it provides an interpretation of important risks that often lie outside the remit of risk assessment processes (Wester-Herber, 2004), its focus is generally limited to that which occurs after a facility is situated and does not address the wider issues of power and social inequity that provide partial explanations for the siting of the facility in the first place. These issues are considered by authors examining the way in which places that are set apart in respect of social or economic grounds often become the repositories of unwanted land uses (Blowers and Leroy, 1994; Cullen and Pretes, 2000; Bickerstaff, 2006).

Peripheralisation describes a process whereby the social, political and economic characteristics of marginal areas render them susceptible to environmental inequalities particularly in relation to the siting of LULUs (Blowers and Leroy, 1994). Blowers and Leroy (1994) base their definition of peripheralisation on the presence of a number of characteristics each of which they contend peripheral communities exhibit to a greater or lesser degree. These include remoteness, economic marginality, powerlessness, a culture of acceptance and environmental degradation. Each one is briefly explained in Table 3.3 below.

Peripheralisation often leads to the creation of 'spatial inequalities of power' resulting in the siting of a disproportionate amount of polluting industries or facilities in particular areas (Blowers and Leroy, 1994: 221). According to Blowers and Leroy (1994: 226) the process of 'dominance and dependence and of power and powerlessness' characterises peripheralisation. Blowers and Leroy (2003) also conclude that social and environmental inequalities do not merely overlap, but are processes that tend to reinforce one another. It is important to note that exhibiting just one of the above characteristics alone does not necessarily denote a peripheralised community. For example, economic dependency on just one industry is not problematic if the industry in question is a high-value added and indeed, low polluting industry. However, both Blowers and Leroy (1994) and Bickerstaff *et al.* (2006) emphasise that a number of the above characteristics must be present for an area to be considered as peripheral.

Table 3.3: Blowers and Leroy's (1994) Characteristics of Peripheral Communities

Characteristic of peripheral community	Description
Remoteness	Geographical isolation, which may mean either actual distance or difficulty of access
Environmental degradation	Traditional associations exist with risk-causing and polluting industrial activities
Economic marginality	Economic dependency on either one industry or company, or on state welfare, areas are sometimes distressed with high levels of unemployment
A culture of acceptance	A culture of acceptance develops and an ambivalent relationship of dependence with a local employer or the authorities may be featured, this tends to stymie resistance to polluting technologies within the areas themselves and opposition campaigns are often organised by those living outside the area, peripheralised communities often resent such campaigns
Powerlessness	Communities usually lack effectual political power and with this comes a reluctance to resist decisions that affect them

Of particular interest to this thesis is Blowers and Leroy (1994) argument that inequalities of power which discriminate against peripheral communities, affect the manner and extent to which the communities can or will mount resistance to polluting activities. Generally, resistance in such areas is initiated by those living outside the area or by newer and more affluent residents, or 'local elites', as Blowers and Leroy (1994: 207) term them, and such resistance tends to be resented by locals dependent the risk-creating industry in question. Further, Blowers and Leroy (1994) posit that the likelihood of other areas mounting more successful resistance efforts to a LULU, mean that planning authorities prefer to place LULUs into peripheral areas. In other words, peripherality involves a political dimension whereby peripheral communities lack the power or ability to significantly influence the siting, planning conditions or operation of a planned LULU. One difficulty with defining political peripherality of a community is that although a number of peripherality indices exist these are tailored towards measuring geographic peripherality (in terms of distance

and transport accessibility) and economic peripherality (see for example, Schürmann and Talaat, 2002).

Blowers and Leroy's (1994) concept of peripheralisation is highly prescriptive and takes only political-economic power relations into account. In addition, they claim that once an area fails to meet one of the criteria, it can no longer considered peripheralised. Studies of incinerator siting conflicts show that although notions of peripheralisation resonate with these controversies (see Petts, 1992; Leonard, 2005; Dodds and Hopwood, 2006), the places in these accounts exhibit some but not all of the characteristics of peripheralised areas. In suggesting that stigma as a result of unwanted or polluting facilities tends to be a long-term, Slovic (1994) contradicts Blower and Leroy's (1994) assertion that places or communities can become so easily un-peripheralised due to economic development, particularly when unwanted facilities remain.

Other researchers have explored the concept of marginality and suggest that although the dominant factor in determining the marginalisation of an area is economic disadvantage, socio-cultural aspects, such as social construction of marginality, are also relevant (Cullen and Pretes, 2000). The social construction of marginality would include some communities being considered as separate, as the 'other' by more powerful actors. This echoes Douglas's (1992; 117) concept of enclaves in relation to risk, that is particular communities geographically or culturally segregated from the wider community as 'groups at risk'. In their study of the UK Foot and Mouth crises, Bickerstaff *et al.* (2006), for example, combine the concept of peripherality with that of marginality to examine how the power relations, the politics of knowledge and policy measures are used to reinforce cultural concepts of marginality in environmental risk situations. Swyngedouw and Heyan (2003), coming from a perspective of Marxist political ecology, extend another richer interpretation of the concept of marginalisation as an economical/political state of marginalisation originating in uneven conditions which are fashioned through capitalist forms of social organisation. Moreover, the case study work of Bickerstaff

et al. (2006) implies that economic maginalisation, including historical economic marginalisation that may no longer be wholly apparent, tends to give rise to political marginalisation.

So then, perhaps there are degrees of peripheralisation and by using the concepts of stigmatisation and of marginality to augment Blowers and Leroy's (1994) definition of a peripheralised community, a more workable analysis of incinerator and other controversial sitings can be achieved. Bringing these three concepts together in an analysis of a particular area has the potential to build a robust interpretation of how the context of place shapes publics' attitudes towards risk, risk communication processes and risk communicators.

3.3.2 Environmental Justice

A growing body of work by researchers such as Bullard (2005) and Walker and Bulkeley (2006), considers the environmental inequality or environmental justice issues that arise when unwanted facilities are inequitably sited on disadvantaged and overburdened localities. Like concepts of marginalisation and peripheralisation, environmental justice is concerned with the issues of power and equity in relation to the imposition of disseminates on disadvantaged areas. Unlike these other concepts though, environmental justice originated, not in academia, but in grassroots movements during the 1960s racial civil rights movement in the southern states of the US. Beck (1998a) credits civil society, in the form of individuals, communities and NGOs with grasping political power and placing environmental issues on the political agenda highlighting grassroots activism as an important form of environmental discourse which happens outside the arena of formal politics.

The concept of environmental justice refers to ideas of social justice within environmental governance and is concerned with the distribution of environmental 'goods' such as recreational areas, for example and 'bads', such as LULUs, for example within society (Walker *et al.*, 2003; Bullard, 2005; Paavola, 2007). A useful way of understanding environmental justice is to look at it in terms of environmental

injustice. It often involves the sitings of unwanted facilities in disadvantaged, or even marginalised areas which already have more than their fair share of polluting technologies (Blowers 1994, Brainard *et al.* 2002). Residents in such areas tend to be unfairly burdened not only with pollution, but also with the task of fighting pollution (Dodds and Hopwood 2006). While the concept of environmental justice grew out of a very particular brand of environmental inequity, that is the tendency for predominantly African American communities in the US to be encumbered with environmentally damaging industries and utilities (Bullard, 2005), it has expanded considerably to encompass broader definitions and understandings, moving beyond the US and becoming more global (Martinez-Alier, 2001; Brainard *et al.*, 2002; Walker *et al.*, 2003; Hillman, 2006; Walker and Bulkeley, 2006). As a result, it has by necessity taken on a multi-faceted character where environmental justice incidences no longer adhere to the same race and class issues found in the early US understanding, but instead encompass a 'pluralism' of meanings that are used in less simplistic contexts (Walker, 2009).

In terms of this thesis, the two most important understandings are distributional environmental justice, or how environmental 'goods' and 'bads' are distributed, and procedural environmental justice, which involves not just the consequences of planning decisions but also the fairness of the decision-making and planning processes around unwanted land uses (Bullard, 2005; Watson and Bulkeley, 2005). Core concerns of procedural justice include questions of who can participate in environmental governance decisions, how they can participate, whose interests are recognised and what is the distribution of power between the parties involved (Paavola, 2007). Paavola (2007) argues that procedural justice goes some way towards legitimising environmental decisions as it makes environmental decisions more defensible. Hence, even in the event that particular stakeholders feel their interests and values have been sacrificed, the decision can be justified. The role that two-way risk communication can play in facilitating the dialogue necessary to foster procedural environmental justice has been implied (Bullard, 2005) and the inequities that are sometimes a feature of risk communication and public deliberation processes

have been stressed (for example Petts, 2008). However, risk communication as a sphere of procedural environmental justice remains an underexplored area in the literature.

The use of the language of environmental justice in relation to incineration debates has provided some interest for researchers as it tends to deconstruct notions of NIMBYism and refocuses the discussion on issues such as democracy, fairness, rights and values (Martinez-Alier, 2001; Shevory, 2007). Interestingly in an Irish context, Davies (2006: 715) concludes that the language of environmental justice had not been explicitly utilised by the resistance to the Galway incinerator:

> *"Interestingly, however, there was no explicit employment of the language of environmental justice, rights or fairness within the initial campaign despite the fact that the risk and need discourses employed implicitly draw on certain concepts that could be located within an expansive interpretation of environmental justice in relation to intra-species and inter-generational justice."*

Davies (2006) credits the reluctance to use an environmental justice framing in the Galway incinerator discourses to a number of reasons including a reticence on behalf of the civil resistance to adopt a victim role and also the logistical reason that the actual site had not been identified. However, since the anti-incineration activists were anxious to avoid accusations of NIMBYism, Davies (2006: 717) concludes that it was curious that the language of environmental justice was not used in order to 'scale-up their political voice'. This is not unique to Irish incineration debates, however. In their study of grassroots resistance to an incinerator siting in Newcastle in the UK, Dodds and Hopwood (2006) find that despite the use of environmental justice language at parliamentary level, activists involved in environmental resistance have not yet begun to use it (Dodds and Hopwood, 2006). Yet, Agyeman and Evans (2004) contend that the environmental justice in the UK has matured to the extent which justifies its playing a role in sustainability and social inclusions agendas.

3.3.3 Knowledge and trust in risk communication

Risk debates tend to be conducted almost exclusively in the parlance of science (Taylor, 2001). As a consequence, different knowledges, knowledge resources, lack of knowledge, interpretations of knowledge and uncertainties within knowledge all become issues in the risk debate (see Wynne, 1996). The dominant trend in risk management, according to Taylor (2001: 120), 'accentuates the function of positivistic science'. In risk communication terms, this means that risk management institutions tend to present scientific knowledge as unequivocal and neutral. In contrast, other knowledges, such as local knowledge are often dismissed by the more powerful actors in risk debates as irrelevant to risk management decisions (Wynne, 1996; Peuhkuri, 2002).

The way in which knowledge is used and prioritised within environmental discourses has received a measure of research attention. One important perspective interprets environmental risk disputes as conflicts between competing rationalities and social positions. Drawing heavily on Foucauldian notions of power in his examination of transport planning, Flyvbjerg (1998: 28) concludes that 'power defines reality' and that technical information tends to be used to rationalise public decisions which have been taken on political, rather than rational, grounds. While scientific rationality dominates environmental risk debates, what Beck (1992) terms social rationality, or experiential knowledges of everyday life, often get pushed aside or ignored within the discussion (Wynne, 1996; Peuhkuri, 2002). Wynne's (1996) study of the scientific and political handling of the radioactive contamination of Cumbrian sheep farms in the aftermath of the 1986 Chernobyl nuclear power plant accident demonstrates that local knowledges may be competent enough to challenge scientific and official knowledges. It would be a mistake, though, to set up a sharp dichotomy between lay knowledge on one hand and 'official' scientific knowledge on the other. Peuhkuri (2002: 165), for example, in examining the use of contesting knowledges in a fish-farming dispute in Finland, contends that the local knowledge often consists of a mixture of 'traditional knowledge, knowledge based on their own experiences, knowledge produced in co-operation with researchers and popularised science'.

Hence, in environmental risk disputes lay discourses, whether from environmental NGOs or local communities may, on one hand, challenge the use of technical information in the making of risk decisions, while on the other hand may use scientific information to strengthen their own arguments (Taylor, 2001). For example, Leonard (2006) points out those middle-class professionals with technical or other relevant expertise have become key constituents of Irish environmentalism.

In environmental disputes scientific rationality is opened up to mistrust by firstly, the uncertainties and constant alterations in scientific knowledge and secondly, by the political and value-imbued nature of such conflicts. Publics confronted with knowledge shot through with scientific uncertainty are left with no recourse but to make trust judgements about the bearers of the information (Giddens, 1994), and thus 'sieve the information through a fine mesh of perceived credibility and trust' (Sligo and Massey, 2007: 12). Furthermore, mistrust between actors in environmental risk conflicts is strongly linked to their respective assessments of each others values, motives and interests (Peuhkuri, 2002). Definitions of trust are numerous and diverse and some authors indicate that the apparent 'fuzziness' of trust definitions in the literature make it a complex issue for both researchers and policy makers to confront (Petts, 2008: 823). A widely used definition from Giddens (1990: 34) states that:

> *"Trust may be defined as a confidence in the reliability of a person or system, regard a specific set of outcomes or events, where that confidence expresses a faith in the probity or love of one another, or in the abstract principles (technical knowledge)."*

Gidden's (1990) definition of trust pinpoints the two principal constituents of trust in risk communication: trust in the knowledge being communicated and trust in the people or systems communicating the knowledge.

Trust (or mistrust) impacts the process of risk communication in two principal ways. Firstly, numerous risk communication studies have identified confidence in source credibility as being an important factor in publics' willingness to accept information

and knowledge about risks (Peuhkuri, 2002; Leiss, 2004; Brownlie and Howson, 2006; Leask *et al.*, 2006). To put it simply, the message will not be trusted if the messenger is not trusted. Secondly, the issue of public trust in risk management institutions, such as government and government agencies, to act in the best interests of citizens in identifying, regulating and policing risk has been noted by some researchers as affecting the risk communication process (Beder and Shortland, 1992; Wynne; 1996; Taylor, 2001).

Research by authors such as Frewer (1996) and Slovic (2000) suggests that publics differentiate between trustworthy and untrustworthy sources of risk information. For example, sources perceived as honest, concerned about public welfare and that have good track records are considered as trustworthy and will be believed more readily than those who are seen as having vested interests or who have in the past failed to disclose information or provided incorrect information (Frewer, 1996). Incompetence or unprofessional practices in the case of institutions or businesses have also been shown to contribute to mistrust (Petts, 1992; Wynne, 1996). Trust is easily destroyed, difficult to build (Pidgeon *et al.*, 1992) and historical mistrust is significant. For example, De Marchi and Ravetz (1999) claim that the handling of crises, such as the Seveso dioxin accident, the Chernobyl reactor accident and the emergence of Bovine Spongiform Encephalopathy (BSF) remain as powerful memories that erode trust in governments.

Studies involving the risk communication processes in other incineration controversies indicate that trust is an important determinant of how publics view the information and communication process around such facilities (Beder and Shortland, 1992; Petts, 1992; Snary, 2002; Ishizaka and Tanaka, 2003; Dodds and Hopwood, 2006). In addition, Davies (2006) identifies that risk and trust discourses are central to incineration debates in Ireland. These studies both pinpoint reasons for the lack of trust around incineration sitings and suggest possible trust building techniques and actions. Petts (1992) argues that the mistrust publics express towards incineration in the UK stems partially from historical factors such as Britain's image as the dirty

man of Europe, incineration having a bad image traditionally and the perception of the waste industry as being less than professional. Other factors identified as affecting publics' trust in incineration sitings include concern about a lack of information disclosure, the exclusion of publics from the siting process (Ishizaka and Tanaka, 2003) and the power inequities between publics and institutions (Dodds and Hopwood, 2006). Beder and Shortland (1992) relate an interesting aspect of trust in an incinerator siting in New South Wales, Australia, when they recall that prior to the siting controversy many of the potentially affected publics had a relatively high level of trust in the government but that this diminished and mistrust set in during the controversy. Beder and Shortland (1992) attribute this loss of trust to unintended messages precipitated by government insistence that incineration is safe on one hand and its decision to site the incinerator in a sparsely populated area, giving the impression that it did not believe its own messages, on the other. Risk communication researchers suggest that the use of two-way communication, or discourse with stakeholders is the key to building trust (Mythen *et al.*, 2000; Ishizaka and Tanaka, 2003; Leiss, 2004) and recent research stresses the importance of dialogue and trust-building during non-crisis times (Hartley, 2006) and of involving the public in risk assessment processes (Cinderby and Forrester, 2005).

However, Snary's (2002) evaluation of a risk communication programme conducted by an incinerator development company points to the difficulties for both communicators and publics where trust is low and the information is perceived by its target audience as being biased. As a consequence, Snary (2002: 276) suggests that the involvement of an independent party in risk communication processes could help to build or restore trust.

> *"Trust might have been increased though the employment of an independent consultant or an independent third party to summarise and validate the information being presented."*

Other researchers stress the importance of dialogue and trust-building during non-crisis times to build trust among publics (Hartley, 2006). As Zinn (2004: 20)

comments, '[t]rust seems to be something that is produced individually by experience and over time and can't be immediately and with purpose be produced by organisations or governments'. Sandman (1994) suggests that rather than expecting trust, governments and business should aim for accountability.

However, more recently authors have warned against regarding public engagement, in and of itself, as a panacea or a silver bullet for developing public trust. Petts (2008) contends that policy makers often expect too much, in terms of building trust, from public engagement processes and that trust cannot be automatically guaranteed by facilitating public participation. Petts (2008) argues that components of public engagement that have a positive impact on trust include engaging a wide range of publics, ensuring a wide range of interests are represented and employing an open and collaborative framework. However, she correctly points out that such processes are difficult to optimise and that the underlying contexts of trust may make trust-building difficult for even the most well operated engagement process. Other authors have suggested that trust and mistrust are not necessarily dichotomous concepts and that nuances exist within the concept of trust. O'Neill (2002) opines that unqualified trust is rare and unrealistic and contends that well-placed trust emerges from querying information and informants and being able to trace specific pieces of information back to reliable sources rather than from blind faith. Pidgeon *et al.* (2003) posit that the propensity to believe what can be verified is a more questioning or critical trust and is a healthy development in risk debates and it would seem that a more active and educated type of trust is developing (Taylor-Gooby, 2006). However, the ability to question authorities and to research the types of technical information that tends to characterise environmental risk controversies is not a universal attribute of publics. Therefore, while the move towards a more critical trust is welcome, it is dependent to some extent on education and on the self-confidence of publics and individuals (Taylor-Gooby, 2006) and it is likely that inequities will remain in terms of which groups participate in risk communication and public engagement processes and which groups do not.

3.4 Conclusions

This chapter details the expansive body of research literature relevant to this inquiry. This body of literature includes research in a range of disciplines including geography, political science and sociology. As the research and the reading of the literature progressed, it became apparent that a single theoretical framework could not hold the many disparate themes that must be investigated in order to usefully address the research questions and to conduct a critical analysis of the themes emerging from the data. Consequently, this literature review addresses different approaches to risk communication in order to provide a theoretical basis for the work while at the same time allowing a flexibility to explore different themes and aspects of the research.

Risk communication research emerged as a response to the gap that exists between technical risk assessments on one hand and ways in which publics and individuals perceive and make decisions about risk. Early risk communication practices addressing public concerns about particular risks were based on the premise that the provision of information about the risk would allay public fears. More recently though, the value of two-way communication, where there is an exchange of views between those proposing a particular technology and potentially affected communities, has been emphasised by researchers. The literature describes a number of public participation mechanisms that facilitate two-way communication. Researchers contend that such processes can enhance a more localised democracy, lessen conflict about environmental risk and result in better planning decisions. However, realising the potential of risk communication is not a straight forward matter since risk debates and communication processes take place in contextualised settings where issues such as trust, justice, equity and power impact on the production and receipt of the communication. Institutional trust has been highlighted as being particularly crucial to the receipt of risk communication. An interesting recent development in risk communication research suggests that it is unrealistic to expect two-way deliberative processes to guarantee that publics will develop

confidence in authorities. However, it may be the case that well designed and executed processes can foster an active and querying 'critical' trust.

There are a number of gaps and limitations in the literature which can be addressed to some degree by this thesis. Firstly, although there has been some insightful and interesting work examining incinerator conflicts in Ireland, risk communication issues within such debates have not yet been examined in detail. Further to this, as the use of MSW incineration has not yet commenced in Ireland and the public debate is relatively new, this study will add a particularly unique dimension to the international literature on risk communication in respect of incineration. Secondly, the few existing studies of risk communication in relation to incinerator sitings tend to concentrate on just one or two stakeholder groups and so offer limited perspectives of what are often multi-perspective debates. In contrast this study offers a multi-perspective study of the risk communications around an incineration conflict which serves to enhance literature in this area. Thirdly, while the importance of risk communication, and deliberative processes in particular, in addressing environmental injustice issues has been given some consideration in the literature, it remains a limited area of research. By examining issues of injustice as contexts to risk communication, this study acts to extend this line of research. Finally, in light of the current trend in researching how trust might be redefined and better enhanced in risk communication and deliberative processes, an examination of trust issues in incinerator sitings in Ireland may offer useful insights that feed into this developing area of research.

Chapter 4: Methodology

The tasks of choosing, adapting and designing a feasible methodological framework are central to any research project and so require intellectual and creative thinking as well as reflection on the part of the researcher. The research questions need to be well formulated, the type and extent of the data required to answer these questions needs to be clear and the researcher needs to be aware of how the benefits and challenges of the methods used may influence or shape the research. The rationale for using particular methods, and indeed for rejecting others, should be well thought out. In addition, more practical and pragmatic considerations in terms of time and resources help set the boundaries of the research, thus stipulating some of the design elements such as sample size or extent of analysis.

The methodological framework developed for this research mixes both qualitative and quantitative methods and so shares attributes of both of those disparate types of research. It is, though, at its heart, qualitative research since it is concerned with in-depth analysis of a particular situation to uncover motivations, nuances and contexts. As a consequence, this research shares an epistemological approach consistent with qualitative research in that it assumes the data generated are constructed by those participating in the research, that is, by both the researched and the researcher (Vanderstoep and Johnston, 2009). Therefore it requires an analysis of the situatedness of the researcher, that is, the researcher's world view, biases and ideological stance (Denzin and Lincoln, 2003). This chapter describes how the methodology was chosen, developed and utilised.

The chapter is set out in four sections. The first section is a review of methodologies used to date in risk communication research, with particular focus on the communication of risks associated with incineration. The second section describes the methodological framework chosen and explains the rationale for using these methods for this particular research. The research experience in the field is described in the third section. Finally, ethical dimensions of the research and the critical

reflections of the researcher on the methods used and the research conducted are addressed in the fourth section.

4.1 Environmental Risk Communication Research

Studies of risk communication emerged from the field of risk perception analysis. In the research literature it is sometimes difficult to untangle these two research fields since risk communication work sometimes includes an examination of risk perception (see Powell and Leiss, 1997; Casiday *et al.*, 2006). Here, both research which examines risk information, messages and mechanisms and studies where the researcher proposes particular risk communication approaches based on their research will be referred to as risk communication research.

Thus far, researchers working in the risk communication field have used quantitative and qualitative methods to examine texts (written, visual and spoken), discourses, perceptions of risk, chronological timelines of environmental controversies and political and social contexts in which risk scenarios are played out. Since social, political and cultural contexts often surround environmental risk controversies, case study research strategies have been used by researchers to study contemporary risk communication phenomena (Plough and Krimsky, 1987; Douglas, 1992). For example, a number of incinerator controversy studies use case study strategies, but they do so with quite different methodological frameworks to this study. Beder and Shortland (1992) use a case study strategy to examine the risk messages disseminated by both the proponents and opponents of a proposed hazardous waste incinerator in New South Wales (NSW), Australia. The methods used include discourse analysis techniques to examine documentation produced about the incinerator from the NSW Federal Government and from Greenpeace. In addition, exchanges at public meetings and informal discussions with residents in the area were included in the analysis. Significantly, the authors do not engage in an examination of media reports, claiming that the media played a minor role in the incineration controversy. This exclusion would seem to contradict a more dominant view that media plays an important role in both shaping and reflecting environmental

and technological issues (Nelkin, 1995; Anderson, 1997; Wakefield and Elliot, 2003). It does, however, point to the importance of documents as sources of data other than mass media, such as government information provision, public meetings and documents produced by environmental activists in the analysis of environmental controversies. One problem with Beder and Shortland's (1992) account of their research is that it offers a rather limited discussion of methods and so, it is difficult to know exactly how the research was conducted.

More recently, case study strategies have also been used for qualitative research into incinerator studies where risk communication was just one variable, and not the major focus, of the case been studied. Case study research generally involves the use of a multi-method approach (Yin, 1994) and environmental risk studies cases often, though not always, use a mixture of both quantitative and qualitative methods, including in-depth interviews, focus groups, surveys and observation. Ishizaka and Tanaka's (2003) case study of a MSW incinerator siting conflict in a Japanese municipality uses quantitative surveys of municipal authority officers' and local residents' attitudes to the incinerator. The surveys, which were carried by researchers completing questionnaires with groups of participants, were designed to provide a basis for designing a risk communication approach for the area. An incinerator controversy in Galway, Ireland, has been the subject of a number of research projects. Davies (2005, 2006) used semi-structured interviews and media content analysis in her research to examine the discourses that developed in the debate around the Galway incinerator and the wider geographical considerations of interscaler power relationships involved in the anti-incinerator protest. Meanwhile, Leonard (2005), a participant in the protests against the proposed Galway incinerator, used a participator-observer method to study the evolution of the Galway anti-incinerator movement. Likewise, Dodds and Hopwood (2006) were involved in the campaign against the siting of an incinerator in the Newcastle area in the UK and so used participant-observer methods, in addition to content analysis and interviews, to focus on environmental justice issues. More recently, Gallagher (2007) used a dichotomous choice contingent valuation (CV) survey to investigate public attitudes

to incineration in the Ringsend area of Dublin and in Castleclare, Co. Clare, the site of an existing commercial incinerator.

Since the number of risk communication research studies linked to incineration is quite limited, it is useful to review methodologies used in other environmental risk communication research, such as studies of facility sitings and Genetic Modified Organisms (GMOs). Lockie (2006) uses content analysis to examine framing in newspaper discourses about organic food, GM food and sustainability issues in Australia, the UK and the US. Crawley's (2007) analysis of media frames and sources in GMO debates in the US, uses a quantitative content analysis to measure the most dominant frames, or constructs, and the most frequent sources used in GMO debates reported in local newspapers in California and Missouri. Recognising the limitations of using content analysis alone, such as its susceptibility to mask nuance, some researchers combine content analysis of media with in-depth semi-structured interviews with sources, journalists and stakeholders in studying environmental controversies (Anderson, 1997; Wakefield and Elliot, 2003). In their case study of the role of newspapers in a landfill siting controversy, Wakefield and Elliot (2003) find that interviewing journalists helps establish the extent to which the risk information has been filtered through the media. They also find that interviewing community stakeholders reveals the contradictory relationship that the stakeholders have with newspapers, in that they utilised newspapers over other information documental sources, but that they also mistrusted their content. Neither of these crucial findings would have been possible through content analysis alone. It is apparent then, that multi-method investigations can increase understanding of phenomena and so tends to enhance research quality (Hoggart *et al.*, 2002).

To date then, the significance of the social and political contexts surrounding environmental controversies has meant that case study research strategies have been prominent in environmental risk communication studies (for example, Beder and Shortland, 1992; Petts, 1992; Ishizaka and Tanaka, 2003; Wakefield and Elliot 2003). Within these case studies an array of methods have been used to analyse risk

perception and communication including surveys, participant-observation, informal conversations, semi-structured interviews and content analysis. These methods, as with all methods, bring with them a range of benefits and limitations. The use of a questionnaire survey is likely to be a convenient way of measuring opinions, preferences or actions of large samples within a community. This allows for ease of statistical generalisations and comparisons in the interpretation of the results. On the other hand, inflexible answer categories used within survey type methods may result in the misrepresentation of opinions or experiences or in missing key information that does not neatly fit into one category or another (David and Sutton, 2004). Interviews held in a group setting, whether structured or semi-structured, might result in respondents being influenced by the group to give socially acceptable, as opposed to actual opinions (Arksey and Knight, 1999). While participant-observer methods are useful for incorporating life experience into research, it is only possible to do this during the lifetime of a phenomenon and would be inappropriate where the researcher requires access to a range of stakeholders with different perspectives (Denzin and Lincoln, 2003). It has been contended by many researchers that interviews usually glean more information than observer-participation since observation alone reveals actions and happenings but not motivations and thought (Anderson, 1997; Holliday, 2007).

In-depth interviews cannot allow for the same breadth of analysis as survey methods. Sample sizes or numbers of people that can be interviewed tend to be smaller than the numbers that can be surveyed. However, interviews do offer a depth of analysis that survey methods cannot provide. Semi-structured, in-depth interviews allow the researcher to steer the research so that information on particular issues is gathered, whilst at the same time the emphasis is on giving the interviewee adequate opportunity to explain, clarify, qualify and add to the information (Rubin and Rubin, 1995).

The use of content analysis in risk communication research has been used extensively to examine both manifest (surface) and latent (between-the-lines) aspects

of risk communication content (Holsti, 1969), but when used alone, it is felt it provides little information about motivations behind the messages (see Crawley, 2007). Therefore many researchers feel that content analysis works best when combined with methods such as in-depth interviewing (Anderson, 1997). The analysis of media channels is more widespread in the research than the analysis of official documents, and the analysis of both in the same study appears to have received little attention. Beder and Shortland (1992) have shown the value of analysing documentation produced by the opposing sides of an incinerator siting debate. However their decision not to include media reports of the discourse raises questions as to how widely read or considered the documentation was and whether it truly formed part of a discourse involving exchanges of views. A recent examination by Masuda *et al.* (2008) of a public engagement process around planning in Canada utilises content analysis of both newspaper articles and official information provision material in combination with stakeholder interviews. The inclusion both of newspaper channels and official information provision channels as well as interviews within a case study context for this thesis is likely to provide a more complete picture of the risk messages disseminated.

4.2 The Methodological Framework

According to Denzin and Lincoln (2003), methodological frameworks should be chosen for their usefulness and appropriateness in answering particular research questions, providing data required, connecting to theoretical frameworks and allowing the issue of validity to be addressed. For this research, a case study research strategy was used with a two phase mixed method approach consisting of quantitative and qualitative methodologies. In addition, the use of a case study provided a geographically and temporally bounded issue to examine. The content analysis of both national and local newspaper reports and of official 'Dublin Waste to Energy' documentation as well as information given in public information sessions provided a comprehensive account of the risk messages communicated. The in-depth interviews explored the motivations and values behind the messages communicated.

Employing both quantitative and qualitative research methods within one project requires an appreciation of the contrasting epistemological suppositions involved in each of these research approaches. A quantitative research perspective assumes that there exists a reality waiting to be disassembled and examined, usually expressed numerically and with a view to making generalisations or predictions. It generally involves measurements and statistical analysis, often with a view of making generalisations or predictions. On the other hand, a qualitative research perspective assumes that reality is socially constructed, that is, it is a product of people, their experiences and their interpretation of their experiences. It is often descriptive with an emphasis on representing those studied rather than readily providing generalisations to larger populations (Vanderstoep and Johnston, 2009). Qualitative and quantitative research methods tend to be presented as philosophical and operational opposites with proponents of quantitative work striving for generalisations from, what they claim is, value-free research and qualitative researchers looking for rich descriptions of phenomena and distaining positivism (Denzin and Lincoln, 2003). However, the practicalities of collecting and analysing data can often put aside this apparent clash of philosophies as qualitative and quantitative methods research may be usefully combined within a single research project (Mason, 1994). As Flyvbjerg (2006) notes, social research is motivated by problems rather than by methods and so methods are chosen which best address the research question being answered. In many cases, this may entail the use of a combination of quantitative and qualitative methods. For instance, in a project researching family obligations, Mason (1994) used a survey method to elicit peoples' attitudes about the importance of obligations between family members and also in-depth interviews to explore actual actions and interactions between family members and analyzed by comparing the statistical data on attitudes with the actual behaviours. Similarly, in their study of the gap between environmental concern and action by publics in Ireland, Davies *et al.* (2005) utilised a questionnaire to gather information on environmental attitudes and practices as well as on socio-economic information about respondents. These survey data were combined with in-depth interviews, focus groups and action research to explore the reasons for the stated

environmental behaviours and to examine how publics may be encouraged to adopt more environmentally sustainable behaviours. These examples illustrate the complimentary roles that quantitative and qualitative research methods often play.

However, the integration of data from quantitative and qualitative methods when analysing research may present challenges. For instance, Mason (1994) found that it was important be clear about which research questions could be answered by qualitative data, which by quantitative data and which questions required a mix of both data to elicit an answer. She contends that the use of both data together gave a more complete picture than either type of data alone. Furthermore, Mason (1994) comments that a fundamental challenge of linking qualitative and quantitative data within a research project is the ability of the researcher to continually move between the qualitative and quantitative data, logic, epistemology and philosophies. It is clear then, that the key to successfully using both quantitative and qualitative methods within the same research project is to appreciate each method's strengths and drawbacks and to be clear about which data are required to answer each research question.

Although case study research, which constitutes this thesis, tends to be used as a strategy in qualitative research (David and Sutton, 2004), it is not necessarily confined to either qualitative enquiry or qualitative methods (Stake, 2005). Indeed, case study research often involves both qualitative and quantitative methods according to what best suits the questions or queries being examined (Yin, 1994; Flyvbjerg, 2006). The research questions as set out in Chapter 1 of this thesis, require a combination of quantitative analysis of textual sources of environmental risk information pertaining to incineration and qualitative investigation of the motivations behind the messages disseminated in the incineration debate in Ireland.

4.2.1 Case study research strategy

According to the Cambridge Dictionary of Sociology, a case study 'refers both to methodological strategy and subject of study. Social scientists use the case-study

approach as a methodological strategy when they wish to provide rich descriptions and analysis of a single case, or a small number of cases' (Turner, 2006: 56). The in-depth approach of a case study allows researchers a detailed vista of the context, processes and interactions involved in a particular event. The significance of context has been stressed by qualitative researchers. According to Geertz (1993: 18) separating an event from what happens around it takes it away from its application 'and renders it vacant'.

Such detail and depth of analysis would be difficult to obtain if large numbers of cases were being considered. While surveys and large sample research are used by researchers to gain a broad understanding of a particular phenomenon in terms of, for instance, the degree to which they exist in society, case studies are used to access and analysis a phenomenon in depth (Flyvbjerg, 2006). Yin (1994: 13) in his definition, focuses on the attributes of the case being studied, suggesting that a 'case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'. The significance of the context in which a phenomenon or event occurs is key in relation to a case study research strategy. The context shapes and is shaped by the event being studied and consequently a separation of the event from the context is often neither possible nor desirable. According to Stake (2005) qualitative case study requires an in-depth understanding of social, political contexts and it is, above all else, an opportunity to learn.

The case study strategy, as with all methodologies, does have some issues which must be addressed here in relation to this project. One criticism of case study research and of single cases in particular is that generalisations cannot be made on the basis of a case study. According to Yin (1994), this criticism arises from confusion between statistical generalisation, which calculates frequencies and analytical generalisation, which aims to generalise and expand theories. In agreement, Firestone (1993: 18) says, 'to generalise to a theory is to provide evidence that supports (but does not definitely prove) that theory'. Other researchers

refute the criticism on the basis that many scientists and social scientists used carefully selected single experiments to prove or disprove theses, for example Galileo did not need numerous observations in rejecting Aristotle's law of gravity (Flyvbjerg, 2006). In other words, the atypical case may provide an enhanced learning opportunity.

Kennedy (1979) suggests that generalising from single case studies is not necessarily a matter of generalisation as a binary function, but rather the strength or degree of generalisation that may be attained. She likens this type of generalisation that to legal precedent on one hand, and to medical or clinical case work on the other, pointing out that the researcher (like a judge in court) should work towards comparing cases with similar attributes. In both legal and medical cases the job of generalisation is left up to those using the data rather than the original producer of the research. So it may not be up to the original researcher to stipulate how their work may be generalised, but rather it is up to others to use the case by comparing it to their own work and deciding if it is relevant and if generalisations between the two can be made. This echoes Stake's (1978) argument that often what is needed is not generalisation to a population from a case, but generalisation from a case to another case, and that furthermore, the best use of the case study is to add to existing understanding. Stake (2005) intimates that the case study is valuable in the naturalistic generalisations that may be drawn as these are how ordinary peoples in real life generalise about events and situations. Indeed, Stake (2005) provides a caveat in relation to generalisation from case studies contending that a tension exists between the need for in-depth understanding of a case study and the perceived need to use it for generalisation and that this can detrimentally affect the research as the pressure to generalise draws attention away from understanding the case.

Yin (2003), offers a number of rationales for choosing a single case study design. These include that the case is one of the following: a critical case which tests a theory, an extreme or unique case, a representative or typical case, a revelatory case where the researcher has access to a situation that was not examinable before or a

longitudinal case, where the same case is examined at two different points in time. However, Yin (2003) also argues that the decision to use a single case study should be adequately investigated as the case in question may turn out to be not quite what it seemed to be when the researcher chose it. Given that Flyvbjerg (2006) choose Aalborg as a case study believing it to be a critical case only to find half-way through that it was actually an extreme case, it would seem that even an experienced case study researcher may misinterpret a case study.

Another recurrent complaint in relation to case studies is that they contain a bias towards confirming researchers' preconceived ideas. Yin (1994: 9) finds some sympathy for this view ascribing its propagation to 'sloppy' research work, he argues that other forms of research and experiment are also vulnerable to bias and that rigour in research should overcome such tendency to bias. On the other hand, Flyvbjerg (2006) contends that the intense understanding that a case study researcher must develop for the case under investigation is likely to result in the falsification of erroneous preconceived notions the researcher may hold. While this may occur, it is still up to the researcher to find appropriate solutions to strengthening the validity of the research, particularly when using in a single case study.

Stake (2005: 454) claims that the key to credibility for case studies is through triangulation since this 'helps identify different realities'. There are different methodological concepts of triangulation. Some meanings of triangulation refer to different methods being used to survey or measure the same data, usually in quantitative research, in order to validate its accuracy (Denzin and Lincoln, 2003). However, such ideas of convergence triangulation are considered by qualitative researchers to be unsophisticated and overly realist and meanings of triangulation have been extended into social investigation to refer to the use of multi-methods to examine a particular problem. In particular, it is argued that the combination of both quantitive and qualitative methods in a social research project provides more robust findings than using a sole single method (Becker and Bryman, 2004). Generally, case study research involves a multi-method approach (Yin, 1994). For example, Sidaway

(2006: xii) tends to rely on the analysis of documents and semi-structured interviews in his case study research of environmental conflicts as it proffers 'a degree of triangulation between sources'. It has been argued that limiting a case study research to one method can lead to methodological bias whereas a multi-method strategy can combine the strengths and reduce the limitations of the various techniques used (Wong, 2002). Yin (1994) identifies six sources of evidence from which data can be gleaned; documentation, archival records, interviews, direct observation, participant-observation and physical artifacts. For this research, two different methods will be used; content analysis of documentation (newspaper articles and information materials) and semi-structured interviews with various stakeholders in the Poolbeg incinerator siting debate.

The decision to use a case study strategy for this particular research was made on a number of grounds. Firstly, since it has been attested that incineration conflicts in Ireland are composed of 'intricate and evolving patterns' of politics and power (Davies 2005: 393), the research presented here is very much contextualised. Secondly, the project entails mainly *how* and *why* research questions (detailed in Chapter 1). According to Yin (1994) both these reasons makes it suitable for a case study strategy. Furthermore, while incineration conflicts typically involve a myriad of variables, many of which have been identified through the literature review, it is possible that more variables may be revealed in the course of the research. A holistic and in-depth examination of the situation will be able to accommodate such discoveries making the case study an attractive approach (Yin, 1994). Thirdly, arguments have been made for a multi-perspective approach to risk communication research (Plough and Krimsky, 1987; Beder and Shortland, 1992) because it allows attention to 'the voiceless and powerless' (Tellis, 1997: 2). Single case study research has been used by a number of researchers investigating environmental and planning conflict situations (for example Flyvbjerg, 1998; Sidaway, 2005).

The subject of this thesis is suitable for investigation as a single case study. As explained in Chapter 1, this is the first time that a study of the risk messages within

an information programme around MSW incineration in an Irish context has been available for scientific study and according to Yin (2003: 42) this constitutes valid rationale for a single case study:

> *"A ... rationale for a single case study is the revelatory case. This situation exists when as investigator has an opportunity to observe and analyze a phenomenon previously inaccessible to scientific investigation."*

4.2.2 The Case Study Area

The case study chosen for this research involves an examination of how environmental risk messages were communicated during the Poolbeg incinerator siting conflict. For the purposes of this study, environmental risk encompasses environmental, health, economic and social concerns expressed by the stakeholders involved. The study of the risk communication issues around the Poolbeg Peninsula incinerator proposal makes for an interesting and pertinent case for a number of reasons. First, the case is unique to Ireland in that the level of information provided to stakeholders and the efforts for public engagement made by Dublin City Council in relation to the Poolbeg incinerator proposal were greater and more proactive than efforts made in the other incinerator proposals in Ireland. As a result it represents both an opportunity to study a phenomenon which has not previously being available for study and an opportunity to explore and possibly extend risk communication theories. Furthermore, the discussion about the proposal has been ongoing for over a decade which means it is a mature conflict. This maturity facilitates the collection of rich data, which according to Tellis (1997), is an important factor in selecting case studies. This point is also significant in light of criticisms that much risk perception research is based on the surveying of badly informed publics (Okrent, 1998).

The Poolbeg Peninsula and its residential and business environs provide the geographical setting for the study of risk communication in this research. Physically, the Peninsula occupies an almost central point in the arc of Dublin Bay comprising, as it does, the south arm of Dublin Harbour. Historically, up until the early seventies, the peninsula was the site of an unsanitary landfill for municipal refuse from Dublin

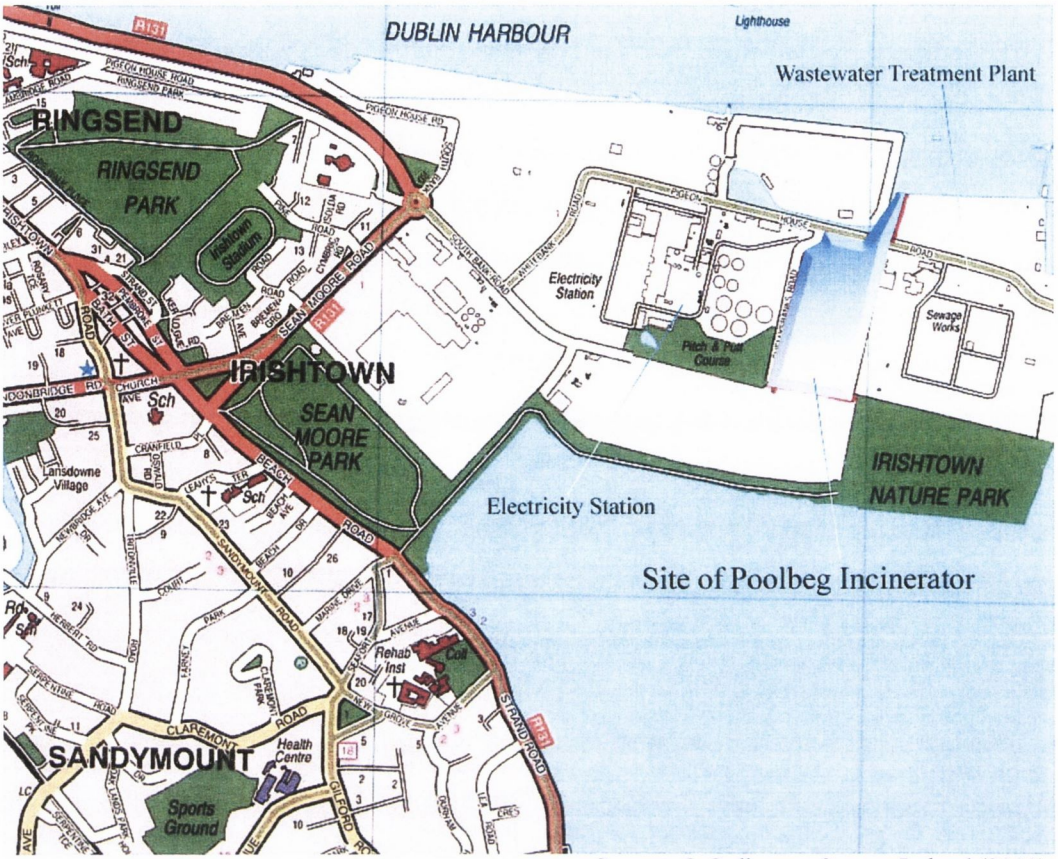
City. When this city dump was closed it was redeveloped as the Poolbeg Peninsula to serve as a site for essential utilities and as an amenity area for the surrounding residential areas. It is now a highly industrialised area already accommodating a number of facilities including Dublin's wastewater (sewage) treatment plant, electricity generating station and Dublin Port, which lies to the north across the harbour. The peninsula also serves as an amenity area with the Irishtown Nature Park, costal walks, sea views, a pitch and putt course and the Shelly Banks beach (See Fig. 4.1 below).

Although the peninsula itself is unpopulated its environs consist of densely populated inner-city areas. The residential areas of Ringsend, Irishtown and Sandymount are closest to the proposed incinerator site at about 1km distance. These areas are interesting in that they display a diversity of socio-economic demographics. Ringsend and Irishtown are considered as disadvantaged areas where significant sectors of the population have low education and employment levels. Conversely, Sandymount village and its surrounding streets constitute some of the most affluent areas in Dublin City. A 3 km radius from the proposed incinerator site, which is at the lower end of the scale of distance used in studies of air pollution studies and house price studies in relation to incinerator sitings (see Kiel and McLain, 1995; Glonnerac *et al.*, 2005), includes areas such as Ballsbridge to the south and East Wall and Clontarf to the north.

The communities who see themselves as being most affected by the incinerator proposal are contained within the South-East Inner City and Pembroke local electoral areas (where the incinerator became a significant election issue). These electoral areas have a combined population of 64,738[1] and return a total of six elected members to the local authority, the City Council. For general elections, they form part of the Dublin South-East constituency, which returns a total of four elected members to the Irish Parliament (TDs), including the current Minister for the Environment and leader of the Green Party, John Gormley.

[1] Population figure from Government of Ireland (2008)

Fig 4.1: Location of the Poolbeg incinerator



Source: © Ordinance Survey Ireland (2002)

The longevity and maturity of the anti-incinerator campaign in the Poolbeg area, and the dedicated information programme carried out by Dublin City Council combined with the highly politicised nature of waste and incineration debates in Ireland (Davies, 2005; Leonard, 2005) are all integral characteristics of the chosen case study. These factors would suggest that the debate around the proposal to site an incinerator in this area of the city was likely to feature a large number of arguments both for and against the proposal and diverse sets of stakeholders. The first part of the study, therefore, was to identify those arguments and stakeholders quantitatively prior to undertaking more exploratory and qualitative work. This was achieved by a content analysis of newspaper reports and official material and documental evidence from the information programme.

4.2.3 Content analysis

Content analysis is a well established method used for organising, categorising and analysing text (whether written, spoken or visual), in order to uncover aspects and patterns of the content not readily apparent to the reader and not necessarily consciously intended by the producer of the content (Neuman, 2003). The strengths of content analysis include its capacity for measuring the attention a topic is given, charting trends over time, revealing patterns and associations and highlighting differences in coverage between channels or mechanisms (Krippendorf, 2004). It has been widely used in studies of media text such as newspapers, radio and television (for example see Nelkin, 1995; Anderson, 1997), but can be used for any type of content including photographs, political speeches or even song lyrics (Neuendorf, 2002). An early, but extensively cited definition describes content analysis as 'any technique for making inferences by objectively and systematically identifying specified characteristics of messages' (Holsti, 1969: 14). A more recent definition describes content analysis as a 'technique for gathering and analysing the content of text' (Neuman, 2003: 310), where content refers to words, meaning, symbols, pictures, ideas, messages, themes and text refers to anything written, visual or spoken. The appeal of the method for researchers includes its unobtrusiveness to the study, relative inexpensiveness, the ease of obtaining material and its ability to deal with examination of text in large scale projects (Berger, 2000; Neuman, 2003; Reason and Garcia, 2007)

Content analysis is conducted by coding text and other material in order to obtain specific information about the communication. For instance, content analysis of a media article might typically include date published, article length, typology (for example letter, news, opinion), author, major themes, quoted sources[27] whether individuals or organisations, how such sources are presented, the presence of visuals, attitude and framing (or attributed salience), and word frequencies (Anderson, 1997;

[27] Sources quoted in news channels have been accredited with a significant role in setting agendas and framing news stories (Anderson, 2002; Ross, 2007).

Neuendorf, 2002; Wakefield and Elliot, 2003; Crawley, 2007; Reason and Garcia, 2007). These variables are rendered into a numerical coding system which allows researchers to gauge the frequency or presence of particular elements of the message. While it has been suggested that there is no formulaic *right way* to conduct content analysis (Weber, 1990), researchers attest to the importance of developing systematic, objective rules for coding (Holsti, 1969; Neuendorf, 2002). However, Weber (1990: 13) stresses that the researcher must choose content analysis methods appropriate to the issue under investigation;

> *"There is no simple right way to do content analysis. Instead, investigators must judge what methods are most appropriate for their substantive problem".*

Though rooted in quantitative research (Anderson, 1997), content analysis often involves qualitative categories and subjective judgements (Holsti, 1969). There exists a long-running debate in the literature as to whether or not true content analysis can accommodate both quantitative and qualitative analysis (Holsti, 1969; Weber, 1985; Neuendorf, 2002). Some researchers claim that content analysis is a purely quantitative method since it produces quantifiable data about texts (Gunter, 2002) and contend that examinations of text which use qualitative aspects, categories or judgements on categories cannot be referred to as content analysis (Neuendorf, 2002). This dogmatic view may be somewhat self-defeating for researchers since it has been argued that restricting the method to quantitative analysis limits its potential for insight (Holsti, 1969). Holsti (1969) suggests that the disagreement is partly caused by differing definitions of what constitutes quantitative and qualitative techniques, observing that qualitative interpretations of text generally use numerical scoring systems to organise the data, and that qualitative decisions are often employed in producing quantitative content analysis. For example, in Crawley's (2007) examination of the media framing of agricultural biotechnology debates, she uses a quantitative content analysis method which depends on the selection of terms and words that the researcher believed to have particular resonance in the debate. In framing analysis 'resonance' refers to terms that are salient or emotionally charged in a specific context. The selection of these terms would appear to require some

qualitative judgment on the part of the researcher. Indeed, the inclusion of categories such as themes, beliefs, principles and symbols is considered by some researchers as being closer to qualitative than quantitive techniques since it is drawing on latent content, meaning underlying meanings in the text, rather than manifest content, as it demands a high level of interpretation by the researcher (Mason, 1994; Reason and Garcia, 2007).

As noted earlier in this chapter, although quantitative content analysis is considered useful in distinguishing particular surface characteristics of content, some researchers contend that its usefulness is enhanced when it is combined with qualitative methods, such as interviewing, to place the analysis in context (Anderson, 1997).

4.2.4 Semi-structured interviews

One of the most efficient and reliable methods for ascertaining people's opinions, thoughts, motivations and attitudes is to simply ask them (Berger, 2000) and hence the interview is regarded as an important source of evidence in case study research (Yin, 1994). Conducting a qualitative interview, however, is not a simple procedure involving as it does an interviewer and an interviewee each with their own particular values, agendas and political and ideological stances (Rubin and Rubin, 1995; Arksey and Knight, 1999).

The strengths of the method identified by researchers include probing meanings, understandings and values, exploring contexts (Arksey and Knight, 1999) and providing rich or in-depth information about the complexities of a situation, which may belie surface appearances (Wengraf, 2003). It is these strengths that make the qualitative interview an important component of this research project given the contextual aspects of power, politics and values that have been associated with incineration debates in Ireland (Davies, 2005; Leonard, 2005). Furthermore, while arguments are made about the inappropriateness of incorporating risk perception and risk communication considerations into decisions, on the grounds that they are value-

laden, ill-informed and biased (see Cross, 1998; Okrent, 1998), other researchers argue that research whether quantitative or qualitative, is not value-free and that working with and acknowledging subjectivity allows researchers access to understanding social processes (Denzin and Lincoln, 2003).

Research interviews tend to be categorised according to structure on a continuum ranging from structured interviews through semi-structured to unstructured (Wengraf, 2003). Structured interviews are generally used for surveying and use a question schedule that the interviewer must follow; semi-structured interviews involve the use of broad and flexible interview questions, while in unstructured interviews a list of discussion topics is employed (Arksey and Knight, 1999). Semi-structured and unstructured interviews present a way of obtaining, what Geertz (1993: 6) terms 'thick description', that is data which allow a rich and deep contextualisation of the issues under examination. Hence semi-structured and unstructured interviewing is rooted in an interpretive approach to research and so provides a counterpoint to positivism with its assumptions of the neutrality of knowledge and its tendency to disassociate phenomena from context (Rubin and Rubin, 1995).

Semi-structured interviews are particularly useful since a well constructed interview schedule facilitates the interviewer in directing the conversation. At the same time the open-ended nature of the questioning allows the respondent to raise issues the interviewer may not be aware of and allows the interviewer to probe interesting leads or topics that might arise. In the context of this thesis, this is important as it allows good use of the interview time where specific information can be targeted, whilst other relevant data can be gathered. Hence, semi-structured interviews offer a valuable means to obtain information about the motivations of those communicating the risk messages identified in the first phase of the research and the understandings of and attitudes of the various stakeholders towards risks and issues around incineration.

Qualitative interviews are, in essence, conversations (Rubin and Rubin, 1995; Berger, 2000). Even though they have different requirements to everyday conversation, for example interviews are generally focused around a particular research topic; this resemblance to conversation needs to be maintained (Rubin and Rubin, 1995). In achieving this, the researcher must understand underlying stances and subjectivities (both their own and the interviewees') to prepare a question schedule which elicits useful information from informants and to guide and improvise during the interview (Wengraf, 2003). The semi-structured interview, like all research methods, suffers from some weaknesses. One criticism is that it is an unreliable method of extracting accurate factual information from informants since memories may be uncertain or respondents may not tell the truth or might tailor their responses depending on how they react to the researcher (Arksey and Knight, 1999; Berger, 2000). However, this research project is not seeking to reveal or to corroborate facts, but to draw out values, meanings, understandings and stances so precise details about events are less crucial to the research.

The literature pertaining to research interviewing techniques tends, with good reason, to dwell heavily on the practicalities of conducting interviews. Interview schedules require careful preparation, since there may not be an opportunity to retrieve missed information or, in the case of sensitive issues, a badly timed or worded question may upset the effectiveness of the interview (Rubin and Rubin, 1995). Furthermore, matters such as choosing respondents, accurate recording and transcribing of interviews all require adequate groundwork and thought (Geertz, 1993; Arksey and Knight, 1999). Researchers also stress the importance of building rapport with interviewees in order to ensure they are comfortable enough to speak as frankly as possible whilst simultaneously avoiding leading question or behaviours that may distort the respondents' answers (Geertz, 1993; Rubin and Rubin, 1995).

Once the important task of interviewing is complete, the data must be analysed. As with content analysis, an initial coding stage is useful to sort and categorise qualitative interview data. Building a coding structure for such material can be an

arduous task, which requires a good deal of intellectual effort on behalf of the researcher, as well as possible trial and error attempts (Green and Gilhooley, 1996). Codes can be concept driven, meaning that the codes are developed from existing literature and developed by the researcher prior to coding, or it can be data driven, meaning that the researcher develops the codes while working through the material by allowing the themes to emerge (Kvale and Brinkmann, 2009). Many qualitative projects use cross-sectional coding, which means that the same set of codes is applied to all data. This is particularly useful when searching for themes, examples and information that may not be contained sequentially in the text and it readies the data for formulating analysis to the theoretical concepts, developing arguments and preparing presentation (Mason, 2002).

The use of computer programmes such as NUDIST and N-VIVO to index or code data has become a popular and useful way of organising large volumes of qualitative (and quantitive) data. While computer coding packages are a hugely beneficial in terms of time and efficiency, they are merely tools for organising the data and making it more manageable. Their effectiveness in doing this depends on the coding skill of the researcher (Richards and Richards, 1994). So while the use of computerised coding can help hasten the mechanical process of coding, the creative and conceptual analytical work of developing a coding schedule and analysing the data remain tasks for the researcher (Weber, 1985; Mason, 1994).

4.3 The Research Experience

4.3.1 Content analysis

As already explained, the content analysis phase of this project examined material from newspaper coverage of the Poolbeg incinerator debate and material from the Dublin Waste to Energy (DWE) information programme run by Dublin City Council management in conjunction with a private consultancy firm.

Newspapers were chosen for this study as research has indicated that newspapers are an important source of knowledge about environmental risk for publics (Wakefield and Elliot, 2003). In addition, it has long been recognised that the media is likely to have an agenda-setting function in public debates (McCombs and Shaw, 1972), can shape publics' risk perception (Burgess and Gold, 1985) and may influence public policy (Nelkin, 1995). Newspaper articles which mentioned the proposed Poolbeg incinerator, from January 1, 2001 until December 31, 2006, were used to examine the media discourse around the proposed Poolbeg incinerator. This time period was chosen because, as mentioned in Chapter 1, the Dublin Waste to Energy (DWE) Project information programme was launched on January 1, 2001 and collecting articles up to 31 December 2006 gave six full years of coverage of the Poolbeg incinerator controversy. The use of full years provided a convenient way to organise data over time, which is an important and useful aspect of content analysis methods.

The decision to use more than one print media publication was made in this thesis because, as already indicated, the communities of the geographic case study area have rather diverse demographic characteristics and it was felt that with using just one publication would provide an overly narrow readership demographic. Besides, the use of multiple media channels would allow for comparisons to be made between them and so proffer the examination of interesting aspects of the role of the media in the incinerator debate. Comparing coverage between different types of publications has been used as a technique in other content analysis projects. For example, Wakefield and Elliot (2003) analysed the content of a daily and a weekly publication in their examination of the role of local newspapers in constructing the news and found that geographical, temporal and operational differences between the papers helped create differences in coverage. Also, Reason and Garcia (2007) found differences in coverage compared the coverage of Glasgow's year of culture between national and local city media. Hence, examining a number of different publications in this research was more likely to proffer a broader reflection of the debate than an examination of a single publication.

Three different publications were used in this content analysis; *The Irish Times*, the *Evening Herald* and *News4*. *The Irish Times* is a national, broad sheet, daily (morning) newspaper which has been in publication since 1859. It is considered to be the national paper of record and has been used as a documentary source in other research projects (for example Heffernan, 2002). *The Irish Times* has a predominantly upper middleclass/ middleclass readership (JNRS, 2005/2006)[28]. The *Evening Herald* is a daily evening, tabloid-sized newspaper, with a lower middle class to working class readership (JNRS 2005/2006). Dublin City does not have a city-wide regional newspaper, however the *Evening Herald* is rather Dublin-based in its coverage and according to readership figures it had a higher level of readership in the city than other national newspapers (JNRS, 2005/2006). *News4* is a small community newspaper produced in the Ringsend area and carries news items pertinent to the immediate surrounding areas. It serves the community that is directly affected by the proposal to site the incinerator on the Poolbeg peninsula. Since 2003, it has been published six times a year, and prior to this it was published quarterly. While many of the articles in *News4* are written in a traditional newspaper inverted pyramid style, where the main thrust of the story is encapsulated in the opening paragraph, it also includes many items that would not generally be printed in a newspaper, such as transcripts from parliament or local authority debates and reports from community activist meetings.

Content analysis requires that the textual material is broken down into units of analysis. Krippendorf (2004: 97) defines these units as 'wholes that analysts distinguish and treat as independent elements', and advises that in newspapers analysis, separate articles or items provide natural unit partitions. So then, the units of analysis used in relation to this research are individual articles, letters, shorts (items in 'In Brief' columns or similar), web-only articles related to the newspaper[29] (*Irish Times, News4*) and articles in 'lite' or 'AM' free sheet versions of the newspaper (*Evening Herald*). Units to be analysed from *The Irish Times* were

[28] Joint National Readership Survey 2005/2006 www.jnrs.ie

[29] Web articles were included as research has shown that on-line news sources, like their print counterparts, do have an impact on public discourse (Schoenbach *et al.*, 2005).

retrieved using the paper's online electronic archives[30], while units from the *Evening Herald* were retrieved using an in-house electronic searchable database in the Evening Herald offices[31]. As noted in Chapter 1, there were a number of different terms used to denote the incinerator both in terms of the type of technology being used and the geographic location of the site. Consequently, all terms and place names used were utilised as search terms to retrieve newspaper units. In addition, a number of concepts and concerns which were prominent in other incinerator debates (for example Davies, 2005; Leonard, 2005; Dodds and Hopwood, 2006; Shevory, 2007) were added as search terms. So, the search terms used were as follows: 'incinerator, Poolbeg' 'incineration, Poolbeg' 'incinerator, Ringsend' 'incineration, Ringsend' 'incinerator, Dublin' 'incineration, Dublin', 'incineration, risk', 'incineration, safe' 'thermal treatment', 'waste to energy', 'incineration, health', 'dioxin'. All items mentioning or referring to the proposed incinerator for Dublin over the period of 2001 to 2006 (inclusive) were extracted for inclusion in the analysis. The unitisation of the materials from the DWE information programme followed a similar rationale. Here, units included self-contained items such as notes documenting individual public meetings, individual Power-point presentations from public meetings, brochures, individual newsletter articles, individual web site items and so on.

For the newspaper analysis, attributes recorded included number and length of articles, publication date and bias[32] of headline and first paragraph[33], and also of visuals[34]. For the DWE information programme units, attributes such as date and type of unit were recorded. For all textual bodies analysed, the following attributes were recorded; whether or not visuals were present, sources, themes covered and

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[30] *Irish Times* archival material be accessed at www.irishtimes.ie

[31] At Independent House, Abbey Street, Dublin 1

[32] Bias in media is a widely researched area of communication studies, due to its highly subjective nature (Zelizer *et al.*, 2002); definitions are eclectic but tend to centre on a lack of objectivity (see Sloan and Burleson McKay, 2007: 6).

[33] The bias headline and first paragraph were deemed important because the headline usually aims to attract the reader (Rupar, 2007; Bell 1991) and the main focus of a newspaper article is often contained in the first paragraph (Bell, 1991). Andrew (2007) contends that headlines are heuristic devices used as shortcuts to information and often meanings created by headlines do not correspond to the messages contained in the accompanying article.

[34]Some researchers suggest that visuals used in print media actually help to shape perception (Gibson and Zillman, 2000; Abraham and Appiah, 2006). Here *bias* refers to giving a pro-incinerator, anti-incinerator or neutral view; neutral means imparting information, such as the submission of a planning application for instance, without representing pro- or anti-incinerator views.

arguments articulated. A detailed content analysis manual was drawn-up to ensure clarity and consistency of coding (Neuendorf, 2002) (see Appendix 1).

Prior to conducting coding, a pilot coding exercise was carried out on a number of newspaper and DWE units and appropriate alterations in the coding frame and manual were made. In addition, in accordance with Neuendorf's (2002) recommendations reliability testing was carried out on the coding frame. Neuendorf (2002) contends that reliability is of paramount importance in content analysis and that if reliability is not established, then data cannot be considered valid. Reliability is a measure of how reproducible findings of research would be by other researchers at another time (Yin, 1994) or as Kvale and Brinkmann (2009: 254) put it, 'the consistency and trustworthiness of research findings'.

Reliability in content analysis means, in effect, inter-coder reliability. In other words, different coders should be capable of obtaining the same results on the same samples. Normally, at least two coders should be involved in the reliability testing to ensure that different coders could obtain the same results, however, in the time and financial constraints of PhD research meant that it was not feasible to train a second coder in order to perform an inter-coder reliability test. In any case, the researcher would be the only coder conducting the content analysis. So the researcher coded the same set of samples twice, one week apart from each other and the level of reliability was calculated using the percent agreement index of reliability. This, as the name suggests, is a simple calculation of the percentage of agreement between the two codings of the sample material. In the case of this thesis, the reliability coefficient was 0.98 which denotes 98% reliability. Reliability levels of 90% and over are generally considered to be acceptable, however it should be noted that the percentage agreement measure is a rather liberal measurement of reliability so an extremely high level of reliability is required. In this case, 98% reliability can be considered sufficient.

Actors, whether individuals or organisations, who were quoted or whose views were represented or referred to within a unit by the author[35], were identified as sources. In this study, sources refers to the individuals and organisational representatives that journalist speak to and use quotations from to substantiate their stories (Sundar, 1998). According to Giddens (1998a), the three major stakeholders in decision making processes are the public, private and civil society sectors. The newspaper sources in this research were gathered into public, private and civil society sectors for convenience of analysis (see Table 4.1).

Table 4.1: Newspaper Sources

Sectors	Source types
Public Sector	Politicians
	Public officials
Private Sector	Consultants
	Business
Civil Society	Academics
	Community including activists and other residents
	ENGOs

The stance of each source was coded as being one of the following; positive; meaning they clearly stated pro-incinerator arguments, negative; meaning they clearly stated anti-incinerator arguments, or neutral; if they simply stated information without being obviously pro- or anti-incinerator.

Of course, the definition of these sectors can be open to interpretation (Edwards 2004), for example media outlets generally claim to operate from an independent stance, but usually run as business interests and so could also be considered as either civil society or private sector. (In this research media has been categorised as civil society, since the stakeholders interviewed were individual journalists rather than newspaper management and the private sector category was reserved for private

[35] Individuals or organisations referred to by other sources within a unit or article, and not by the unit author, were not recorded as sources in that particular unit.

sector stakeholders who were explicit in their views on the incineration debate). Likewise, independent experts, which also have been classed for the purposes of this project as civil society, include academics, who, for the most part, are university lecturers and researchers and are paid from the public purse, and so could conceivably be considered as part of the public sector.

In addition, as the stakeholders are broken down into their categories they are gathered into artificial groups manufactured to a certain extent by the researcher and so imbued with the researcher's own assumptions. This is not unique though; Researchers have attested to the difficulty in categorising publics in that categories tend to emphasise similarities and disregard differences and in that individuals may qualify for more than one category (Garvin, 2001; Cox, 2006), for example an expert may also be an activist or an engineer designing a waste facility may also be a resident in the area where the proposed site.

Presence and frequency of attributes are considered to be important indices in mass media research, with presence indicative of awareness and frequency indicative of emphasis or importance (Krippendorf, 2004). The presence of particular arguments were recorded per unit rather than frequency in order to ascertain the awareness of particular issues (Krippendorf, 2004) and therefore the importance of particular arguments over time, and so within the overall discussion around the incinerator. For this thesis, the number of units within which an attribute was represented was more meaningful than the number of times it was mentioned overall. For example, recording presence would indicate the number of units a particular attribute was mentioned, which in turn would indicate its importance over time (and so within the overall discussion around the incinerator) rather than within particular units.

To identify risk messages, fifty separate arguments, both for and against the incinerator, were constructed through a complete reading of all the textual material prior to coding. These arguments were gathered into four categories; (i)

environmental/health risks, (ii) development process, politics and trust risks[36], (iii) economic/social risks and (iv) waste management and sustainability issues (Table 4.2).

Table 4.2: Argument Categories for content analysis

Argument Category	No. of separate arguments identified	Examples
Environment and health risks	17	Messages concerning dioxins, air pollution, foetal development, heavy metal contamination
Development process, politics and trust, including information provision	15	Messages concerning mistrust, planning and development, the information programme, democracy issues, siting process
Economic and social risks	9	Messages concerning community amenities, stigmatisation of the area, traffic, economic impacts of the incinerator
Waste management and sustainability risks	9	Messages concerning recycling, ash disposal, Dublin's 'waste crisis', district heating

Risk literature, such as the writings of Beck (1992), Douglas (1992) and Lupton (1999), highlights how the benefits of technology and risks of technology are two sides of the same coin and stresses how tensions arise when a larger community reaps the benefit of a particular technology, while a smaller or less powerful community faces potential risk. Consequently, to properly examine the risk

[36] Included here were concerns relating to trust (Slovic, 1999; Wakefield *et al.*, 2001; Frewer, 2004), environmental justice (Davies, 2006; Walker and Bulkeley, 2006), stigmatisation (Slovic, 1991), peripheralisation (Blowers and Leroy, 1994; Bickerstaff, 1999) and power (Lukes, 2005).

discourses around the Poolbeg incinerator, it is necessary to consider arguments raised not just about the potential risks, but also about the potential benefits of the incinerator. Therefore *risk messages*, for the purposes of this research, refer to messages that either support or express concern about the development of an incinerator, or messages that refute or reassure about concerns expressed.

In this chapter, when an argument appears at least once within a unit it is referred to in the discussion of the results as having been *raised.* (For a full list of arguments see Appendix 1, coding manual). The content analysis phase of the research functions primarily as a filter stage of research being used to identify all risk messages communicated within the Poolbeg incinerator debate and to identify the interviewees (sources) for the semi-structured interview stage.

4.3.2 The semi-structured interviews

According to Geertz (1993), the social setting within which research takes place is often crucial to providing significance to the data, why particular actions were taken and what they meant. So, while the content analysis stage of the thesis exposed important and interesting data about the role of the media in the public discourse about the incinerator, the substance of the City Council management's information programme and the main arguments and trajectory of the public debate, it raised as many questions as it answered. These included issues such as why different publications displayed different treatments of the incinerator topic, why particular concerns became important at particular times during the conflict and how risk information from the Dublin City Council programme was received. All these questions required the deeper investigation that semi-structured interviews allow.
Prior to contacting interviewees, an interview schedule was developed (see Appendix 2). This had six main sections;

- An icebreaker and contextualisation question to establish how the respondent became involved in the debate

- Opinions, feelings and concerns about incineration in general and the proposed Poolbeg incinerator in particular
- Opinions and beliefs about the proposed site for the incinerator and about the local communities' understanding of the potential risks and benefits
- Opinions and impressions of the Dublin City Council information provision programme
- Opinions and feelings about the trust and politics issues involved in the incinerator controversy
- Opinions and impressions of the media coverage of the Poolbeg incinerator issue

The interview schedule was broadly the same for each interviewee, but was tailored somewhat to allow, for instance, for emphasis on particular aspects of the debate or sections of the schedule (Rubin and Rubin, 1995). For example, the interview schedule for journalists included questions about the style, editorial control and operational aspects of their particular newspaper while those for scientists and engineers included probing about their particular area of expertise and its application to the Poolbeg incinerator issue. The interview schedule was piloted with a small number of interviewees drawn from the private, public and civil society spheres. A few small changes were made, for instance the order of the questions in the schedule was altered and the wordings of some questions were changed for greater clarity. One pilot interview was extremely informative and interesting and so was used as one of the actual interviews.

Most of the interviewees were identified by their involvement in the debate either in the media analysed or as participants in the Dublin City Council information programme. A few of those indentified in this way suggested other individuals as interviewees whom they surmised would be informative to the project, and so a few of the interviewees were identified in this way by snowball sampling (see David and Sutton, 2004). Interviewees were contacted initially by email, and then if no answer was received within a few days, which was the case in most instances, phone contact

was made to follow up on the initial email. In a few cases, where phone contact was more convenient or practical than email contact, the initial contact was simply made by phone. The initial contact included a description of the project, a request for an interview and an explanation of why that particular individual was chosen.

The stakeholders were not chosen to be representative but rather to facilitate the inclusion of the range of voices in the debate and included proponents of the proposed incinerator (such as local authority officials and private consultants), local anti-incinerator activists, local residents unaligned with the activists, politicians, technical, planning and legal experts, non-governmental organisations (NGOs). Anti-incinerator activists belonged to a number of local groups. Firstly, Combined Residents Against Incineration (CRAI) was the main opposition group to the incinerator in the area and consisted of representatives from a number of residents' associations from both Ringsend and Sandymount. The Ringsend, Irishtown and Sandymount Environmental Group were a small group of local people also opposed to the incinerator. In addition, there were a handful of individual activists who were not members of the above groups, but who worked closely with CRAI, in particular.

Table 4.3 below provides a list of the interviewee stakeholder groups with a partial description of some of the interviewee characteristics. The politicians are referred to as being from government or opposition parties during the timeframe of the case study, that is, at some time between January 1, 2001 and December 31, 2006. Academics/experts refers to academics or experts who were not in the employment of Dublin City Council or their private consultants, but who spoke at public meetings, contributed in some way to the public debate or advised other stakeholders on the Poolbeg incinerator issue.

A good deal of effort was expended to ensure that each stakeholder group identified would be represented. While this was achieved, it proved significantly more difficult to secure interviews with proponents of the incinerator than with those who opposed the incinerator. However, the final group of interviewees included all the main stakeholder groups and had a mixture of characteristics including professions and

age. This meant that a good range of views and perspectives were given voice during the interviews.

Table 4.3: Description of interviewees

Sector	Stakeholder group	No of interviewees
Private	Business sector	3
	Consultants/ DWE	4
Public	Officials/DWE	2
	Government politicians	4
	Opposition politicians	6
Civil Society	NGO sector	2
	Journalists	3
	Academics/ experts	6
	Anti-incinerator activists in community	7
	Non-activist community members	3

The interviews took place between April 2008 and July 2008 in a diverse range of venues, depending on what best suited each individual interviewee, for example their home, workplace or a public areas such as coffee shops, and once in the Rose Garden in Trinity College, Dublin. In an effort to build rapport with each interviewee, care and thought went into the presentation and dress of the interviewer, and previous work experience in public, private and voluntary sectors as well as previous technical training and experience were drawn on. This helped to maintain a sense of conversation about the interviews, which according to Rubin and Rubin (1995) tends to aid in eliciting useful data.

Most interviews ranged in length from forty minutes to eighty minutes long. In a small number of cases the interviewees simply did not have very much time to give to the interview and in some cases they stipulated that they were willing to give a particular length of time to the interview, usually thirty minutes. In these cases the time limit was respected and the question schedule was organised accordingly.

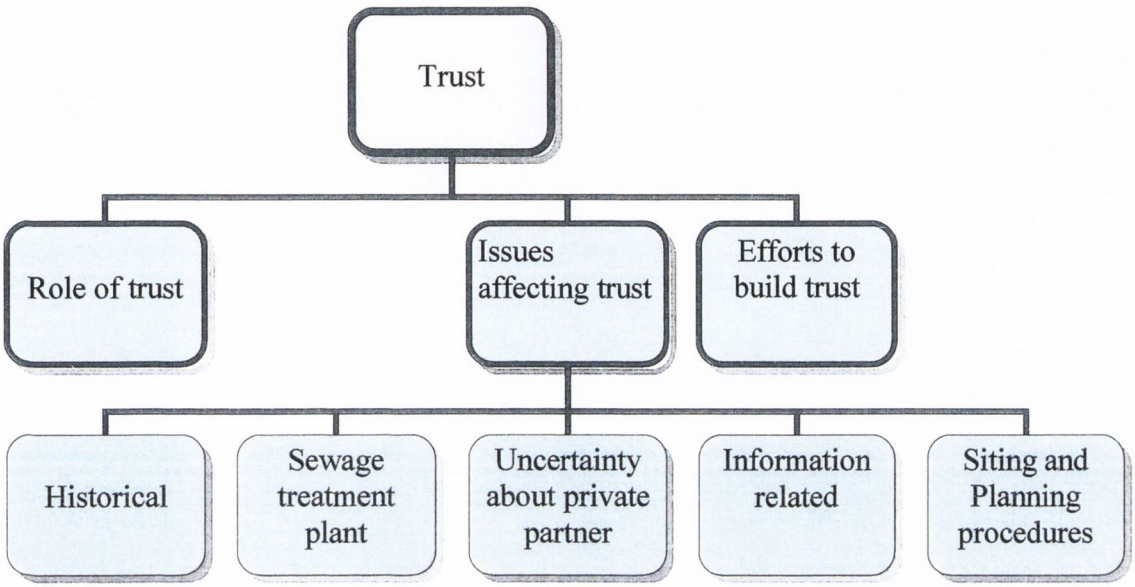
The interviews were recorded using a Minidisc Recorder (Sharp Minidisc Model MD-MT280E) as firstly, this offers excellent sound quality which is important for transcription purposes and secondly, since the machine and its microphone are

extremely small, it is a relatively unobtrusive type of recording equipment. This latter characteristic was deemed to be important since it helps to minimise the effects recording may have such as causing the interviewees to feel self-conscious or maybe prompting them to perform for the recording (Arksey and Knight, 1999). One key interviewee refused to be recorded due to a prior bad experience they had had with a student researcher. Although this was disappointing, there was no choice but to take notes and try to reconstruct the interview later. In order to enhance the accuracy and validity of the interview, the transcript was emailed to the interviewee for verification in case there were any inaccuracies with regards to the interviewee's views or meanings. Following each interview, the interviewee was thanked by email or by phone for their time and their participation. All interview recordings were transcribed by the researcher, primarily due to financial constraints. Although transcription was laborious and time-consuming, it paid dividends in that the researcher developed a detailed knowledge of the data.

The interviews were coded with the aid of the QSR NVivo computer programme using both descriptive and thematic coding schedules. The descriptive coding schedule was based on the question schedule. Thematic codes were identified through open-coding whilst transcribing and later were fashioned into a concept-driven coding schedule based on the theoretical framework of the research (Mason, 2002; Kvale and Brinkmann, 2009). By way of example, a partial representation of coding for the theme of 'trust' is shown here in Fig. 4.2 below. While categories in the content analysis coding frame from the first phase of the research were strictly mutually exclusive, the coding categories for this qualitative phase were likely to be overlapping. The research questions were continually referenced during the construction of the coding frame to ensure the categories were meaningful in the context of the project, Mason (2002) has testified to the importance of research questions in this respect. Each of the coding frames was piloted on interviews from a variety of stakeholders. Although the use of computer-aided coding was useful in the sense that it allowed multiple-category coding where data segments displayed a number of concepts, the creation of new codes, or splitting of existing codes when

needed (Richards and Richards, 1994: Gibbs, 2002), the development of the coding frame was very much a function of the researchers intellectual and creative input.

Fig. 4.2: Coding hierarchy in NVivo for one key risk theme - Trust



Mason (2002) comments that the coding of qualitative data often appears to expand rather than to reduce the data set and that it is easy for the researcher to get overwhelmed in analyzing such data. The data in this project certainly did seem to expand to daunting proportions through the coding process, but nevertheless, with constant reference back to the research questions and the main concepts identified in the literature an analysis took shape. The interview data collected proved to be extremely rich and deep and hence, the analysis (which is detailed in Chapters 5 to 8) involved a good deal of data quoted verbatim. The desire to do justice to the data was strong and although it was tempting to give voice to the interviewees by using extensive verbatim quotes, a balance had to be struck between allowing the interviewees to speak for themselves and performing the task of a researcher by analyzing the data.

Holliday (2007), however, contends that collecting data is just one part of thick description, the other being what the researcher has to contribute to the discussion of

the data. Besides, however rigorous and meticulous the research is, the researcher's presence shapes the data. Therefore, as Geertz (1993: 9) counsels, 'what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to'. As noted earlier, the integration of qualitative and quantitative data adds a further layer of complication to the analysis of data in mixed method research (Porter, 1994). The dilemma of linking the quantitative and qualitative data in this thesis was tackled by adopting Yin's (1981: 60) instruction that in case study research, 'quantitative and qualitative data that address the same topic should be assembled together' and that interview quotes on the same issue by different actors should be reported together.

4.4 Ethics and Reflexivity

Ethical considerations pervade each stage of social research, from choosing the topic, methods and participants through the conducting of the research to the reporting and dissemination of the findings (David and Sutton, 2004). Solving the various ethical dilemmas that surface throughout a research project is not a simple matter. Ethics depend on individual values and life experience and correct or complete solutions to ethical dilemmas may simply not exist (Hoggart *et al.*, 2002). Nevertheless, the researcher must be mindful of the ethical dimensions of her particular research and strive to confront these through a process of reflexivity where the situatedness or positionality of the researcher are constantly deliberated upon (Denzin and Lincoln, 2003; Stake, 2005).

As an extension to the qualitative/quantitive debate, addressed previously in this chapter, comes the discussion about the situatedness of the researcher. Accepting that a researcher, as Stake (2005) intimates, cannot help but instill her research with her own meanings and notions puts an onus on the researcher to examine her positionality. The experience, history and biography of the researcher shapes her values, beliefs and biases all of which have the potential to colour or influence the

research. Indeed, researchers tend to find that their very presence mediates the 'everyday lives of the researched' (England 1994: 84). St. Louis and Calabrese Barton (2002) usefully depict positionality as the context that fashions the bias or subjectivity of the researcher.

However reflexivity is not just a matter of the researcher having a capacity for self-knowledge or self-analysis. It involves a necessity to recognise, analyse and engage with the interactions between the researcher and the many contextual aspects of the research (Hoggart *et al.*, 2002). The contextual aspects of any research provide the prisms through which the research is carried out. For instance, the researcher's positionality is layered over by the political context of the project, the history of research traditions and the different research perspectives of the methods being employed (Denzin and Lincoln, 2003). Furthermore, other authors contend that positionality is not fixed and that stances and beliefs are sometimes altered, diluted or refined throughout the research process (Sultana, 2007). The positionality of the researched also requires the reflexive effort of the researcher, particularly where aspects such as the biographies, experiences or political stances of the research participants are relevant to the context of the issues being examined (Stake, 2005).

According to Hoggart *et al.* (2002), intensive research methods where the researcher has a good deal of interaction with the researched, such as interviewing, are particularly subject to ethical issues. Conflicts may arise between the desire to obtain the richest and most useful data and the need to adhere to an ethical framework. However, as Stake (2005) points out, the quality of research does not outweigh harm that might occur to a person due to participation in the study.

For this project, the ethical challenges that arose throughout the research centred principally on the interview process. Activities such as choosing the interviewees, obtaining agreement to be interviewed, carrying out the interviews, storing the interview material and reporting the analysis all gave rise to ethical questions that required thought and discretion as to the proper and fair way to deal with the research participants. The assumption that an individual would be happy to give an

interview for a research project about the Poolbeg incinerator just because they had been quoted in the media or had taken part in a public meeting about incinerator, could not be readily made. While most of those asked agreed to be interviewed, there were those who declined citing legal, professional or political reasons or changed circumstances for their decision. Others stated that they simply did not have the time or they felt they did not want to take part in the research. Although it is frustrating when a key individual refuses or cannot to take part in research, particularly if the researcher believes that the data set is poorer for their absence, it is hardly ethical to brow beat or harass the individual into being a respondent. Understandably enough, the ethical obligations of the researcher towards those who decline to take part in a research project have received little comment from researchers. However, it would seem fitting that the researcher respects the decisions, autonomy and also the anonymity and confidentiality of those who do not take part as well as those who do.

Those individuals who agree to be interviewed present the researcher with a very particular set of responsibilities. The current accepted ethical norm for research participants is that no harm or injury in the form of, for instance, embarrassment, loss of social standing or loss of employment, should result from exposure due to participation (Stake, 2005; Babbie, 2007). The concept of informed consent attempts to formalise an ethical framework to deal with the protection of those participating in research (Babbie, 2007). A letter of consent was used along with oral explanations of the research to inform participants in this study about how their data would be used. Constant vigilance was needed to ensure that the obligations undertaken in the letter were adhered to in a consistent fashion. In particular, the assurances made about anonymity and protection of identity required careful attention throughout the project lifetime (see Appendix 3).

While researchers comment on the need to build rapport with interviewees (Geertz, 1993; Rubin and Rubin, 1995; Arksey and Knight, 1999), techniques used to make an interviewee comfortable, such as adaptations in dress and language could be construed as creeping towards performance or even a level of deception. However,

such behaviours are usual when interacting in normal everyday life and, as such, would be expected by the individuals being interviewed. Hence, the abandonment of such social norms in the case of a research interview may risk impacting the research process to a considerably greater extent than when the researcher chooses to adopt various versions of herself.

Interacting with interviewees provided many opportunities for reflexivity during the course of this study. For example, that the study was a particularly politically charged one added to the co-incidence that the researcher herself was generally a politically active person meant that the positionality of both the researcher and the researched required a great deal of constant and detailed reflexive thought. The interviewees represented a wide range of political and economic stances (among other things) which sometimes coincided and sometimes differed greatly from those held by the researcher. However, by firstly acknowledging and, more importantly, thinking through the ways in which these contexts shape the perspectives of the researcher and the other research participants, the researcher was able to conduct the interviews and interpret the data accordingly.

As Porter (1994) has commented of her study of Canadian family relationships, once human interaction becomes a part of research, there are times when the lines between who are the researchers and who are the researched are blurred. The researcher may be forming opinions and impressions of the participants that influence and fashion the research, but it is likely that the participants are also gauging the researcher. Hoggart *et al.* (2002) have stressed the importance of the researcher's awareness of how she is seen by those she is attempting to research. While all the interviewees were helpful and amiable, it was clear that they had different views of the researcher. For example, most interviewees were very interested in who exactly commissioned and funded the research and when informed that it was funded by the EPA[37], the anti-incineration activists tended to become somewhat wary and conflicted. However, once it was explained that the EPA funded but did not direct the research

[37] Irish Environmental Protection Agency

these groups saw the researcher as being affiliated more closely with Trinity College than with government and considered her as educated and knowledgeable. Women activists, in particular, were interested in why a thirty-something mother had become a college student. Academics saw the researcher primarily as a post-graduate student and were generous with their information and references. Some government officials clearly saw the researcher as threatening, however the mention of the fact that the researcher had herself previously worked in the public sector dissipated some of the apparent mistrust. Such negotiations and renegotiations of relationships are not uncommon in social research (see St. Louis and Calabrese Barton, 2002; Sultana, 2007) and they proved to be a constant and interesting aspect of this research.

Related to the issue of reflexively thinking through the process of interviewing is the issue of power relations between the researchers and the researched. While the interviewer is usually considered to be in the most powerful position in an interview (Wengraf, 2003), power relationships are not clear-cut and tend to change from interview to interview (Hoggart *et al.*, 2002). Although the researcher in this study formulated and directed the interviews, the respondents had their own power to decline to answer particular questions for example, limit the time given to the interview or refuse to be recorded. In addition, the locations were predominantly on interviewees' territory since it was more practical and convenient for interviewees to be interviewed at their respective homes or workplaces. Indeed, since the interviewees were graciously giving their time and energy to a research project without any clear gain for themselves, it had to be remembered that the interviewer was there at their pleasure and not the other way around. In some ways this reflects what England (1994: 82) terms a 'supplicant' approach to research where much of the power is moved over to the researched to deal with the uneven power relationships that sometimes imbue social research.

Reporting research findings brought issues of confidentially and anonymity into clear focus (Kvale and Brinkmann, 2009). As Arksey and Knight (1999) point out, using direct quotes can make it difficult to ensure confidentially and anonymity,

since reading between the lines may make the interviewees identifiable. In this research many of the interviewees surmised that their quotes would easily identify them as their opinions had been aired liberally to date in the debate. Some claimed they did not particularly mind. However, in the interest of ethical research and in the interests of upholding the letter of consent agreement made with each interviewee, every effort was made in the reporting of this research to protect the identity of all interviewees. To this end, the names used to identify interviewees in this project are fictitious.

4.5 Conclusions

Conducting this research was an interesting and fulfilling experience for the researcher. It required the development of many skills on the part of the researcher and even involved the re-learning of a few. The extent to which the researcher was challenged with ethical considerations in relation to the research on a daily basis resonates with Hoggart *et al.*'s (2002) contention that ethics is not an optional accessory to research, but instead resides at its very core. While the researcher found herself constantly confronting her own positionality, this positionality became an important tool in the research in that her life experience provided her with considerable and varied facets with which to make links and commonalities with those she researched. Hence, reflexivity and positionality are inseparable from this research and, as Holiday (2007) posits, an honest and open approach to detailing the workings of research enhances rather than undermines its findings.

This chapter sets out the methodological framework for this thesis. Given the richly contextual nature of the phenomenon studied, the use of a case study strategy was wholly appropriate to the research. The mixed method approach worked well in providing answers and interesting perspectives in respect of the research questions. Although the methods used, namely content analysis and semi-structured interviewing, have divergent underlying epistemological philosophies, they complemented each other nicely. The methods tended to compensate for each other's weaknesses and provide a form of triangulation, and so strengthened the validity of

the research. Each of the methods provided various insights and lines of inquiry which helped to garner remarkably rich data sets for the study. While, at times, the volume and richness of the data gathered for this thesis was overwhelming, the research questions provided much guidance in the construction of various elements of the analysis.

The case study, bounded as it must be (Yin, 1994), involved those actively involved in the Poolbeg incinerator debate. If there had been enough time for an extended study, it would have been interesting to interview residents of the communities studied who were uninvolved and also residents from other areas in Dublin to examine a wider set of views. In addition, extra research on this particular topic could have included an examination of the role of broadcast media in the debate, since it was raised a number of times by the research participants. Further research in this area could focus on comparisons between the anti-incinerator campaigns in other areas of Ireland and the Poolbeg campaign and between the risk information provided by different local authorities.

Chapter 5: The Role of the Media

The findings of this thesis are laid out over four chapters. This chapter relays the findings pertaining to the first research question: what was the role of the media in the debate about the Poolbeg incinerator? The role of the Dublin Waste to Energy (DWE) information programme will be dealt with in Chapter 6, while Chapters 7 and 8, respectively, will detail the main risk discussions of the debate and the main conceptual themes present in the debate. This Chapter will detail the press coverage the Poolbeg incinerator received over the time period examined, the news treatment of the story in the three publications studied, the main sources whose views were represented and the key risk messages which emerged from the debate. It should be said that although many parameters were coded for and recorded during this analysis, results related here are those that are statistically significant (using z-tests at 1% and 5% significance levels). Rather than reiterating the findings of earlier research, the findings reported here are those that make the Dublin incinerator case study unique and interesting, therefore promoting further understanding about the role of the media in communicating risk. Finally, as noted in Chapter 3, Yin (1981: 60) suggests that both qualitative and quantitive evidence that address the same topic should be 'assembled together'. For the purposes of this Chapter, relevant data from the interview phase of the research are also reported to provide an in-depth examination of the role of the media in the communication of incineration risks to publics in Ireland.

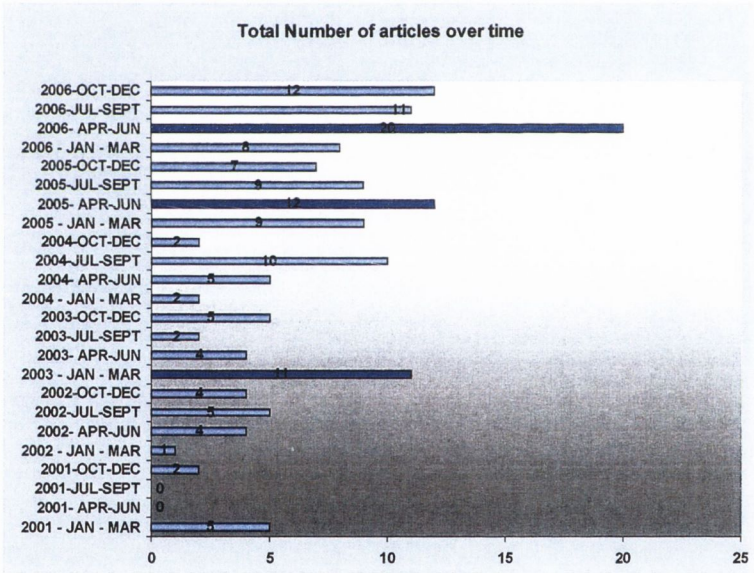
5.1 Newspaper Coverage

The amount of coverage received by a topic in the press indicates how important or newsworthy a topic is deemed to be (Bell, 1991), while the angles used by a particular publication depend very much on the style and readership of that publication (Reason and Garcia, 2007). The six years of news coverage from the three newspapers examined yielded a total of 150 articles: 85 articles from *The Irish Times*, 41 from the *Evening Herald* and 24 from *News4* (in 30 issues). Proportionally speaking the topic received more attention in *News4*, the local community newspaper, which indicates the incinerator's higher importance in the local area relative to its importance at a city-wide level. As other researchers have noted (see

Crawley, 2007), little work has been conducted on the difference in coverage of technological controversy between local and national media. However, a similar pattern of difference between coverage in a local newspaper and in a regional newspaper of a landfill siting controversy was found by Wakefield and Elliot (2003). Also, since newsworthiness in a topic is judged on a number of factors including proximity (how close it is to readership), consequence and impact (for the readers) and conflict (two or more opposing sides involved) (Bell, 1991), so the high prominence of the Poolbeg incinerator topic in *News4* is not unexpected.

The coverage increased over time as the controversy continued. There were just 7 articles in 2001 but this rose to 51 in 2006. When this is broken down on a quarterly basis, the peaks and troughs in the coverage become apparent (see Fig. 5.1 below).

Fig 5.1: Newspaper coverage of the proposed Poolbeg incinerator



The peaks (denoted by the darker bars) correspond to significant events related directly or indirectly to the incinerator controversy, a finding also noted by Wakefield and Elliot (2003). For example, the peak in the first quarter of 2003

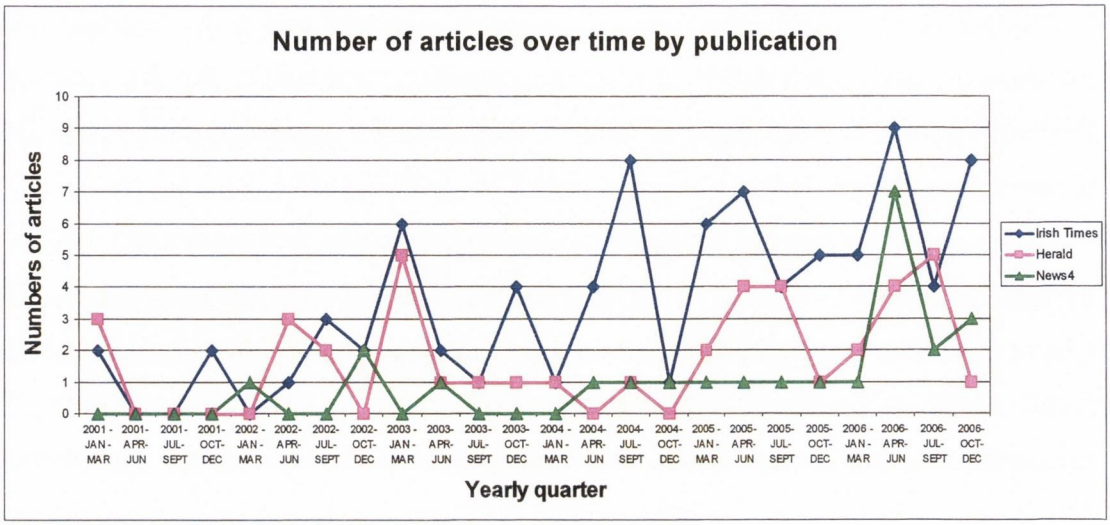
relates to events on three consecutive dates in February 2003: the Health Research Board (HRB) published a report of a review of research on health and environmental effects of incineration and landfill (HRB, 2003); the next day the Minister for the Environment, Heritage and Local Authorities announced that plans for municipal solid waste (MSW) incinerators were proceeding (Donnellan and Kehoe, 2003); and a day later, an Open Day or information meeting was run by the DWE Project information programme and was picketed by local protesters. The peak in the second quarter of 2005 corresponds with the Dublin Chamber of Commerce criticising the lack of progress on building the incinerator, the launch of the Dublin Waste Management plan reiterating the intention to incinerate 25% of the capital's waste, both in March, and a trip organised by Race Against Waste[1] in April. The large peak in the second quarter of 2006 corresponds with a rally involving hundreds of people against the incinerator and the local authority, Dublin City Council, seeking planning permission for the facility.

When the coverage over time is considered for each publication, the pattern of coverage shows that *The Irish Times* has a peak in the third quarter of 2004, which is not mirrored in the other publications (Fig. 5.2 below). This peak is partly linked to the coverage of topics such as planning and waste, where the Poolbeg incinerator is referred to but is not the main focus of the item. The geographical and temporal aspects of the incinerator controversy were key to the topic being deemed newsworthy, a phenomenon noted by other researchers (Bell, 1991). In addition, some vigorous and on-going political bickering about the issue between two prominent politicians in the area appears to have increased coverage further. An *Evening Herald* journalist explained the reasons the incinerator topic was covered:

> *"If you think about it, issues like incineration are generally always covered no matter where they are in the country, no matter where an incinerator may be sited. But this particular one is right in our consumer belt. It's because it's in the Ringsend/Sandymount area... As time went on, I think it was covered more as it became more of a reality and there was also political mileage being made out of it, particularly through the PD-Greens and it became a bitter row at that level"*

[1] Race Against Waste was a waste reduction publicity campaign conducted on behalf of the Department of the Environment by the same consultancy firm running the DWE information programme

Fig. 5.2: Coverage of the proposed incinerator at Poolbeg by publication



In addition to numbers of articles, other indices of media attention include length of the articles in column cms (formerly inches) and how prominently the article is placed in the paper (Table 5.1 below).

Table 5.1: Media attention indices for coverage of proposed Poolbeg incinerator

Publication	No. of articles	Average column cms	No. of front page headlines about incinerator
Irish Times	85	11.3	2
Evening Herald	41	8.3	2
News 4	24	15	2

On average *News4* units were longer (15 column cms) than the average unit in *The Irish Times* (11.3 column cms) or *Evening Herald* unit (8.3 column cms). Incinerator units accounted for 2 front pages in each publication (see Fig. 5.3 below as an example).

Given the prominence of the topic in *News4* it might be surprising that it did not receive more front pages, however the publication uses a variety of different topics for its front pages, including local government plans, seasonal topics (Christmas and Summer issues). A journalist from the *Evening Herald* explained that decisions about front page stories are generally made on the basis of broad readership interest:

> *"While the incinerator was very topical, editors have to whittle down the front page hugely every day to ensure the topics that appeal to the absolute widest audience available feature strongly. It doesn't particularly mean it wasn't front page news – as it stands, getting there twice is pretty good given the competition that exists for the front page space."*

Fig 5.3: Incinerator as front page item in *News4*, October 2004

HAS THE INCINERATOR BEEN RUBBER-STAMPED?



5.2 News Treatment and Publication Styles

News treatment involves the decisions that editors, journalists and others in the news production area make in relation to news coverage. There a number of factors involved in this process, but in terms of this research the most important are considered to be the intended audience, the instincts of reporters and editors in relation to what that audience wants to read and the philosophy or style of the publication (Itule and Anderson, 1994). Media research has found clear distinctions in style and values between different types of newspapers when covering the same topic (for example, Reason and Garcia, 2007). An *Evening Herald* journalist explained the range of influences and factors involved in decisions about news treatment:

> *"Generally, the angles of stories are mostly decided by the news desk and or the editors. The chief subeditors and the subeditors will decide the headline that is to be*

> *carried. If reporters think they have a particularly good angle, generally they are listened to by the news desk. ...News lists [are drawn up] based on what is topical; what is making people talk; what is carried on the radio, to some extent, and the demands of the various people and organisations who want to have their say on a particular issue".*

The content analysis showed that the scalar reach of the different newspapers did affect how the Poolbeg incinerator topic was treated. *The Irish Times* tended to place the incinerator controversy in national, waste management and economic contexts, as well as reporting on the story itself. Indeed, in 53% of *Irish Times* articles that mentioned the Poolbeg incinerator, the main focus was waste management, incineration in general or planning. In contrast, the local site and the incinerator itself constituted the focus of the majority of articles examined in the *Evening Herald* (71%) and *News4* (96%).

In addition to offering a wider perspective on the Poolbeg incinerator controversy, *The Irish Times* appeared to strive for the inclusion of both pro-incinerator and anti-incinerator positions. While objectivity in reporting is considered to be an important value in journalism, it remains an aspiration rather than a reality (Schudson, 2001). Researchers examining bias in media reportage have contended that bias is 'inescapable', embedded as it is in many types of news presentation including headlines, leading paragraphs and visuals (see Zelizer *et al.*, 2002: 302). Moreover, other research suggests that in addition to operational news criteria (such as newsworthiness, conflict and timeliness) the values, perceptions and predispositions of news producers influence decisions in the newsroom (Donsbach, 2004). There is a limited amount of literature on the topic and definitions of bias are elusive. However, Anderson (1997:50) sees bias as a 'lack of neutrality', while Sloan and Burleson McKay (2007: 6) usefully define bias as follows:

> *"Bias involves some or all of the following characteristics*
> *Partiality*
> *One-sidedness*
> *Unbalanced selection or presentation*
> *Tendency or inclination that prevents a fair or balanced approach*

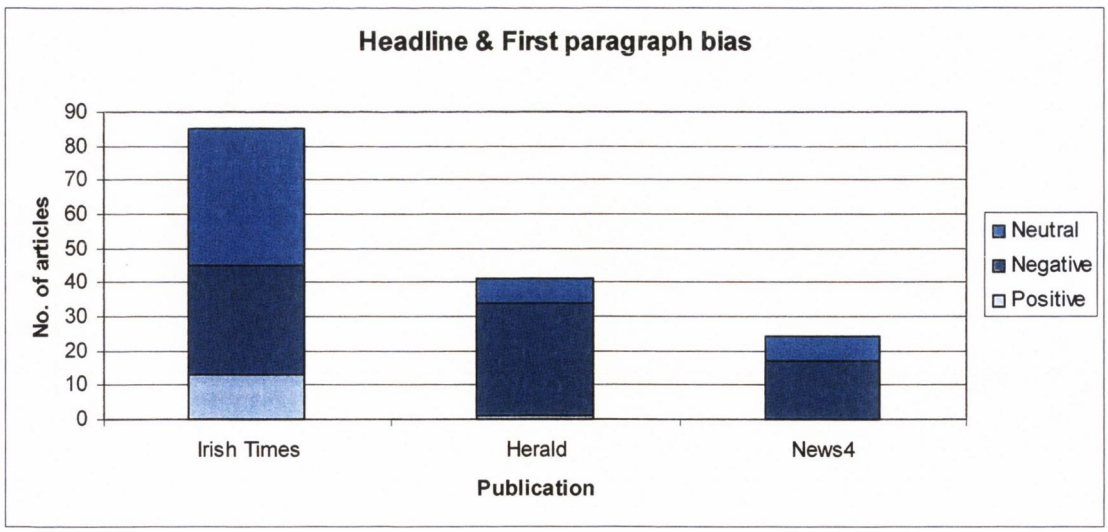
Temperamental or emotional leaning to one side
Favouritism that distorts reality
Personalized, unreasoned judgment
Predisposition or preference"

Entman (2007: 163) defines bias in relation to how the term is generally applied:

> *"Sometimes, it is applied to news that purportedly distorts or falsifies reality (distortion bias), sometimes to news that favors one side rather than providing equivalent treatment to both sides in a political conflict (content bias), and sometimes to the motivations and mindsets of journalists who allegedly produce the biased content (decision-making bias)".*

The headline and lead paragraph of each unit was coded as being positive towards incineration or the proposed incinerator (making a pro-incinerator argument), negative (making an anti-incinerator argument) or neutral (neither pro- nor anti-incinerator). Fig. 5.4 shows the results of this analysis. The analysis indicated that 47% (40) of *Irish Times* units had neutral headlines and opening paragraphs, 38% (32) negative headline and opening paragraphs and 15% (13) positive headline and opening paragraphs. The headlines and opening paragraphs of the *Evening Herald* and *News4* are predominantly negative, 81% (33) and 71% (17) respectively. The *Evening Herald* has just one positive headline and opening paragraph, which was published in February of 2001 which was quite early on in the incinerator debate. *News4* had no positive headlines and opening paragraphs (see Fig. 5.4 below).

Fig. 5.4: Headline and first paragraph bias



Thus, on this measurement at least, *The Irish Times* appears to be the only publication to have a propensity towards objectivity.

The Irish Times was more likely to offer neutral stories than stories with a clear pro- or anti-incinerator bias. For example, Fig. 5.5 below is typical of the headlines used in *The Irish Times* for straight news story articles about the incinerator. However, it had more units indicating an anti-incinerator rather than a pro-incinerator bias while both the *Evening Herald* and *News4* showed clear anti-incinerator biases.

Fig. 5.5: Headline, pg. 4 of *The Irish Times*, 8th October 2005

Dublin managers confirm proposals for incinerator

Presentation of a topic can also be ascertained through an examination of the language used. Bell (1991:3) asserts that language is 'a tool and expression of media messages'. While both the *Evening Herald* and *News4* showed clear anti-incinerator biases in this analysis, the *Evening Herald* had a greater tendency to dramatise and sensationalise the story in terms of language used. Examining the language used in all three publications, indicates that the *Evening Herald* was much more likely to use terms such as 'risk', 'hazard', 'toxin', 'pollute/pollution', 'emission', 'cancer' and 'dioxin' than either *The Irish Times* or *News4* . The headlines used in the Evening Herald are further evidence of how the publication tended to sensationalise the Poolbeg incinerator controversy. For example, headlines from the Evening Herald included 'Long awaited report reveals startling risks to our health'[1] (Hogan, 2003) and 'Giant Incinerator Edges Closer' (Hogan, 2005).

Some researchers suggest that visuals used in print media actually help to shape perception (Abraham and Appiah, 1999). Geraghty (2005) asserts that photographs,

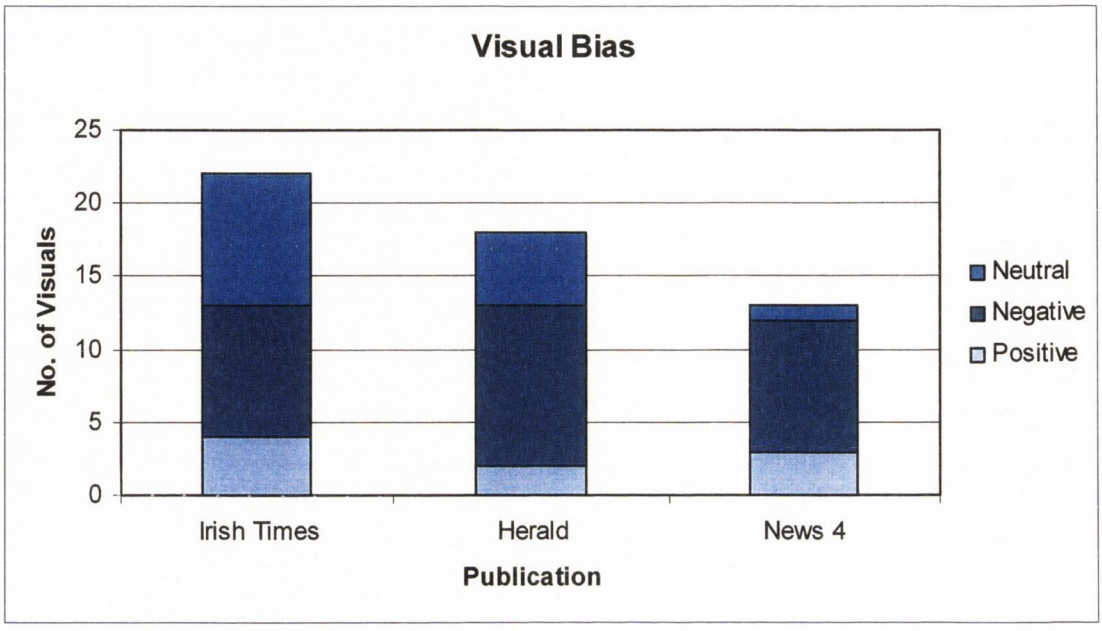
[1] From Hogan (2003). The report referred to was the Health Research Board (2003) report on risks associated with incineration and landfill

in particular, are often seen by audiences (and claimed by media) to provide evidence of the truth, while Gibson and Zillman (2000) contend that dramatic and negative representations of risk in the media can increase perceptions of risk to self and others, and that information accompanied by such images is generally more memorable to readers. In the research described here, all images were coded for type of image (photograph, cartoon or informational graphic) and for bias (positive, negative or neutral). If an image encapsulated an argument for the incinerator or pictured persons who had presented favourable views about the incinerator it was classed as positive, if the visual encapsulated an argument against the incinerator, showed protestors with posters or pictured persons who had presented unfavourable views about the incinerator it was classed as negative. Other visuals, such as pictures of Dublin Bay, or Ringsend, or of an incinerator were classed as neutral.

The majority of images used were photographs (46 out of a total of 54). While almost half of the units in both *News4* and the *Evening Herald* were accompanied by visual material, just less than a quarter of *Irish Times* units had visual accompaniment. Fig. 5.6 below shows that negative images were the most common among the three publications and positive images the least used. *The Irish Times* has equal amounts of negative and neutral images, 41% (9) each and a handful of positive images, 18% (4) of the three publications examined. *News4* had the largest proportion of negative visuals 69% (9) and the lowest proportion of neutral bias visuals at 7% or just one photograph. Interestingly, *News4* also had the highest proportion of positive-bias visuals at 23% (3) as opposed to 18% (4) in *The Irish Times* and just 11% (2) in the *Evening Herald.*

Both the *Evening Herald* and *News4* had more positive images, than they had positive headlines. This raises the issue of text and photos merging to create a message, a phenomenon about which Gibson and Zillman (2000: 355) concluded that '...reactions to featured photographs shift the primarily text based perceptions and evaluation of issues in the direction suggested by the photographs'.

Fig. 5.6: Visual bias for each publication

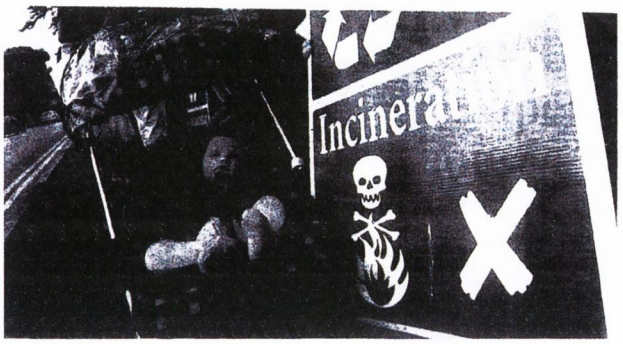


There were some interesting photograph-text combinations in the publications studied that should be noted here. For example, Fig. 5.7 below shows the only positive headline used in the *Evening Herald*, but the accompanying photograph has a definite negative bias with regard to incineration, with its poster displaying a poison symbol and a baby in juxtaposition. While the article is expounding the view that Dublin requires an incinerator to deal with its waste crises, the photograph highlights fears that the communities may have about possible health effects, concerns about potential poisoning and the vulnerability of children to incineration by-products. The effect of the photograph may serve to negate the headline.

In some cases, a photograph alone is enough to convey risk messages. Fig. 5.8 below appeared in the community newspaper *News4*. This photograph was not accompanied by an article. However, the message is clear and it serves as a demonstration of the power of the image in news coverage.

Fig 5.7: Headline and photograph published in the *Evening Herald*, 13th February 2001, pg 12

We mustn't refuse radical waste plan



© *Evening Herald 2001*

Fig. 5.8: Photograph and caption published in *News4*, April 2004



No Way!
The signs say it all: From left William Ralph, Councillor Dermot Lacey, Bill Ralph, Councillor Kevin Humphreys and Councillor Claire Wheeler pictured recently on Pigeon House Road.
© *News4* 2004

Gamson and Modigliani's (1989: 3) analysis of the media as using a 'set of interpretive packages that give meaning to an issue' offers a number of mechanisms through which an issue is framed including catchphrases, metaphors, visual images, depictions (such as moral appeals) and exemplars (or lessons from historical events). Here most of those mechanisms are encapsulated within this photograph. Firstly the

visuals in the photograph are replete with imagery and meaning. The white protective clean-room suits and the dramatic effect of the child wearing a gas mask suggests danger or toxins from an industrially source. The metaphor being used here is that of the human body as a representative symbol of the community or the social body, under threat from an external enemy, such as pollution. This is deeply resonant of Douglas's (1992) theories of the links between community and the body and how they work to protect each other in the face of external threat. One poster in the photograph carries the anti-incinerator slogan, 'No 2 Incineration', a form of catchphrase used in the anti-incinerator campaign. A second poster, 'Yes 2 Recycling', denotes the depiction of the campaign as including critical comment on waste management policies in general and not a NIMBY cause, a point which was a significant aspect of the anti-incinerator campaign.

The journalists interviewed cited various reasons including style, readership and operational restrictions for the clear differences of treatment and control of bias between the three newspapers. *The Irish Times* journalist explained:

> *"You have to give balance... you have to give both sides of the story. It's taxing sometimes when it's hard to see the other side of the story, but if somebody has a point of view, contrary to the main stream, it does need to be voiced.....We probably do environmental and local government stories, in general, a lot more than the other papers.."*

The *Evening Herald* journalist commented that the newspaper did present topics such as the incinerator from the local community point of view, but also made the point that tight deadlines sometimes prevented all views been covered:

> *"I suppose the Herald would be very strong[ly].., you know, community-based, [the Evening Herald] would always be pushing the community line, always. And then you'd always be ringing Dublin City Council and [the City Council's PR consultant] to react to that. And if you didn't get them in time, or whatever, well that's the problem that the Herald has the tightest deadline in the country".*

In their examination of the newspaper coverage of the Israeli-Palestinian conflict, Zelizer *et al.* (2002) comment on the propensity of those on both sides to claim that the media displays a negative bias towards their particular point of view. Such claims are thought to be usually coloured by the perspectives of those making the claim as well as the actual media content (Sloan and Burleson McKay, 2007). While some pro-incinerator stakeholders interviewed for this thesis did indeed view the newspaper coverage as having a predominantly anti-incinerator bias, and some stakeholders who were anti-incinerator viewed it as having a predominantly pro-incinerator bias, overall the interview data indicated a more complex perception of media among publics. This interview data also suggested a degree of discernment among publics about the differences in coverage of the issue between different types of media and between the three publications and also an awareness of the limitations of media as a communication tool in a risk controversy situation.

There were clearly different perspectives of what constituted bias among the stakeholders interviewed. While some stakeholders said that they believed the media to be generally fair about how the controversy was reported, this concept of bias tended to be based around normative judgments such as 'balance', 'truth' or 'fairness'. For example one member of the community commented on the coverage of the issue in *News4*:

> *"I think the nearest to the truth of a report ..., I don't read newspapers because it's biased reporting, but the News4 did a very good article, or maybe three or four very good articles on the actual planning that went on and they were very good and I think people in Ringsend read them, and not only in Ringsend, but around the whole area, and got a good insight into what was going on and they did cause a lot of concerns, a lot of anger."* Luke, Community 6

The equating of 'good' articles here to the amount of concern and anger generated is particularly telling, in terms how media bias is perceived by stakeholders. The implication is here that these 'good' articles were not biased, but clearly this perception of a lack of bias seems to suggest that the content of the articles reflected rather than contradicted the speaker's stance on the incinerator.

While the local newspaper may have found favour with stakeholders who were anti-incinerator, those who credited the national media with a degree of objectivity were generally those proposing the incinerator. For instance one member of the DWE team said of the media coverage:

> *"I thought it was very fair. I thought it was very fair. It was very fair because if they asked a question, they got answers. And they didn't always print the answers they got from us. If you pick up any article from the media on [the] Poolbeg [incinerator], you'll find that both sides of the argument were articulated there. So, I suppose, the most sensational stories were in the free sheets that depend on advertising, but the national papers, and I find, you know, on all these projects, that the national papers behave very responsibly in fact."* Mark, DWE 5

In the above quote, the speaker describes the coverage as being 'balanced', which is a normative judgment, since it could be dependent on perspective; however, it is qualified as meaning that 'both sides of the argument' were represented. It is interesting, though, that a member of the team running the communication programme would consider that there were just two sides to the controversy, given that such cases are often multi-sided (see Flyvbjerg, 1998; Sidaway, 2005).

Others were more skeptical of the media's role in the debate and less confident of the media's capability to represent different points of view. One business spokesperson commented:

> *"Generally, I would have thought that the media have been more than happy to report the scare stories and they rarely set out to explain the point of view of the promoters, or attempt it. Although this hasn't always been the case, there have been other opinions and there have been some balanced opinions also. But generally speaking, it seems scare stories sell more newspapers than rational debate. And generally, the flavour that would have come across, I would have thought, in the media, was one of negativity towards the project."* Philip, Business 2

The cynicism apparent in the above quote in relation to scare stories selling newspapers was echoed by a number of different stakeholders. For instance, the following comment made by an NGO spokesperson resonates with Dorothy Nelkin's (1995) observations in relation to the dichotomisation of parties involved in controversies into victim and malevolent forces:

> *"It's very typical of all these [type of controversies], the most recent one being the Shannon harbour debate, you know, big development which is being put forward as being in the national, or in this case regional interest, versus local community as victims, stereotype interview of local community type going on about this toxic monstrosity in the back yard, you know it's very (laughs), you know."* Shane, NGO 2

The above comment shows an awareness that media tends to portray such controversies in a particular way. This awareness of the workings of the media was also prevalent among politicians, which would be expected given the high level of symbiotic interaction between media and politicians. For example, one politician observed:

> *"I thought on balance they were reasonably fair, I mean, as always in newspapers, the headline doesn't always reflect the article underneath. And the articles, I thought, on balance, were fair. I can't remember any stories off the top of my head that I was really annoyed about or thought were unfair. But I remember regular RTE references to it where I thought they were heavily imbalanced."* Michael, Politician 2

Although broadcast media was not part of this research, unprompted comparisons between print and broadcast media occurred frequently in the semi-structured interviews. While most of stakeholders raising this comparison deemed print media to be less biased, some held the opposing view. Bias, it would seem, is in the eye of the beholder.

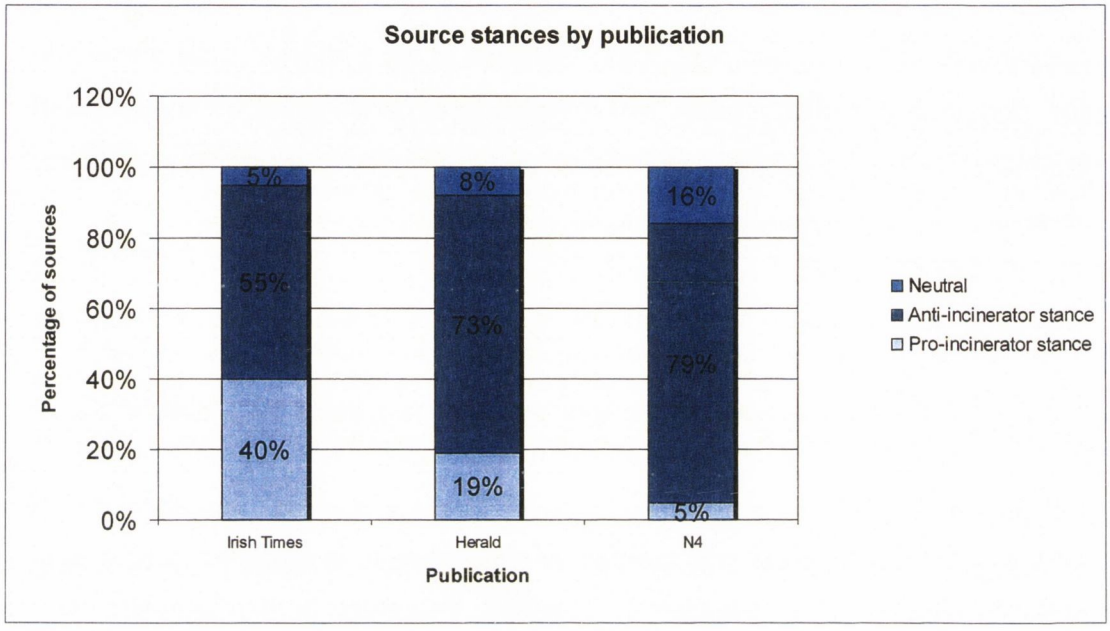
5.3 News Sources: Vocal Residents and Official Reticence

As well as being consumers of the media reportage on the Poolbeg incinerator, stakeholders in the debate were also quoted in much of the coverage of the issue.

Prior to examining the pro- and anti-incinerator arguments contained in the media coverage of Poolbeg incinerator debate, it is useful to consider the sources from whom those arguments arise. This section begins by examining the mixture of pro- and anti-incinerator sources used by each publication. The numbers and types of stakeholders used as sources will then be set out, followed by an in-depth discussion of the interactions and relationships between the media and the stakeholders in the debate around the Poolbeg incinerator.

Examining the pro- or anti-incinerator (or neutral) stances of the sources, it appears that both the *Evening Herald* and *News4* had significantly more anti-incinerator sources than pro-incinerator sources (see Fig. 5.9 below).

Fig. 5.9: Stances of sources with regard to the proposed Poolbeg incinerator



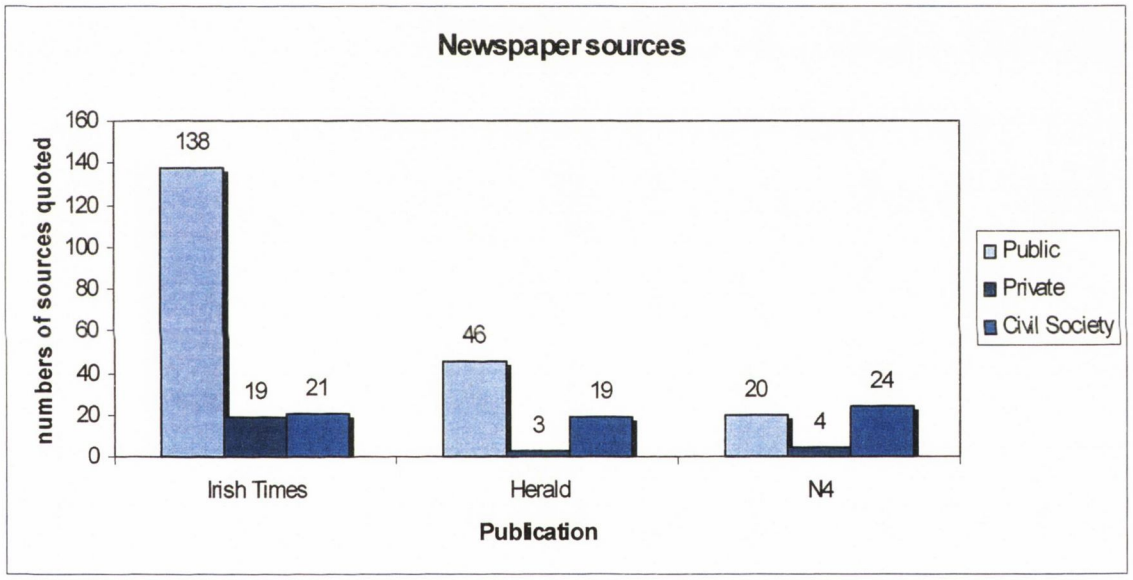
There were no statistically significant differences in the biases of sources used by the *Evening Herald* and *News4*. The differences between both negative and positive bias for *The Irish Times* and the *Evening Herald* and for *The Irish Times* and *News4* did show a statistically significant difference at a 1% confidence level using a z-test, with *The Irish Times* having more pro-incinerator and less anti-incinerator sources than the other two publications. *The Irish Times* displayed a difference between the proportion of its negative sources (56%) and its positive sources (41%) which is significantly different at a 1% confidence level.

Examining the numbers and types of sources used by each publication, it is apparent that the public sector (politicians, state officials) dominated the incineration debate (see Fig. 5.10 below). This was particularly the case in *The Irish Times* newspaper and in relation to politicians. In the *News4* units, civil society sources were the most prominent and, at 24, were greater in number than either the *Evening Herald* (19) or

The Irish Times (21). Proportionally speaking, the difference is even starker with 50% of *News4* sources falling into the civil society category while the proportions for the *Evening Herald* and *The Irish Times* are 31% and 12% respectively. The prevalence of civil society sources in *News4* relates very much to the community-based function of that particular newspaper, and as a *News4* journalist explains it, the use of community voices is a reader-led strategy:

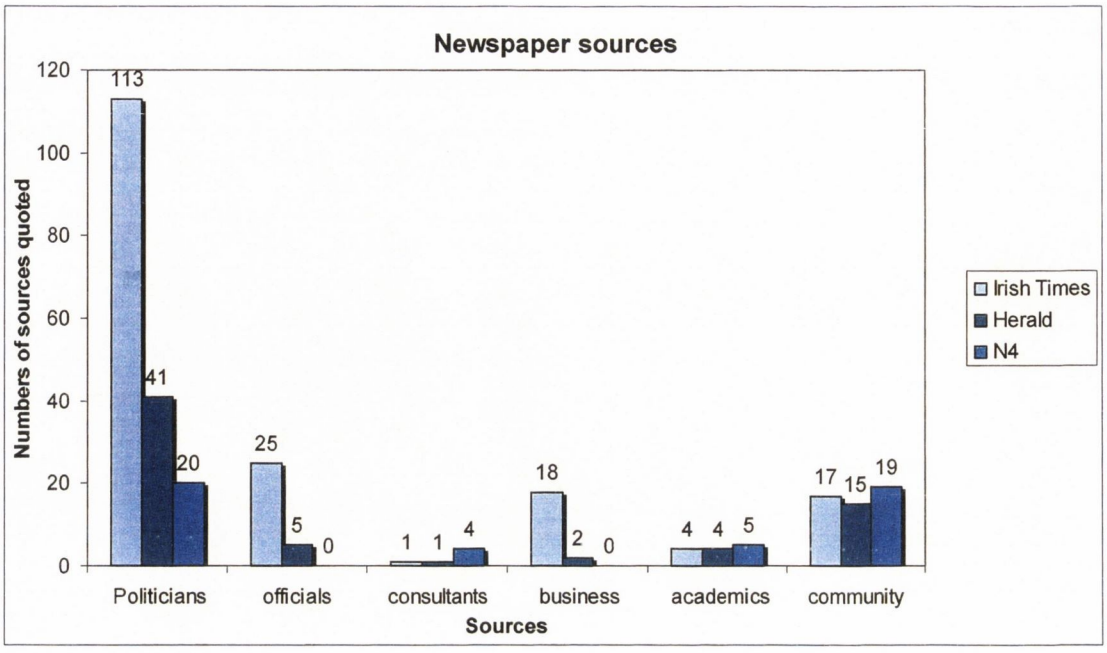
> *"They like that, News4 readers like that, it's like, they like all those community things. They like this kind of thing, you see ...So you kind of vox pop it. That's what [the readers] seem to encourage."*

Fig. 5.10: Numbers and types of sources by sector



When these figures are broken down into their constituent categories it is clear that the contribution of politicians in *The Irish Times* and the *Evening Herald* dwarfed that of the other categories (see Fig. 5.11 below). *News4* broke from this trend, however, with community sources (publics, activists, NGOs) being used more or less in equal measure to politicians.

Fig. 5.11: Sources by category appearing in each publication



The ubiquity of politicians in this debate is hardly surprising given that they would tend to have the media skills and material resources (such as press officers or researchers) to help gain coverage for their views and political actions (Davis, 2002). In addition, research by Davis (2002) in Britain indicates that politicians often utilise controversies and public arena debates, such as this one, to attack each other and highlight their own political ideology. These ideas dovetail with Douglas's (1992) contention that risk controversies can be a backlash against the governing power. From this perspective, the incinerator case is particularly interesting since the majority of politicians involved, regardless of political affiliations, displayed an anti-incinerator stance. This contrasts with many other case studies of incineration controversies where politicians tended to be in favour of incineration proposals placing them in opposition to local grassroots anti-incinerator campaigns (see Dodds and Hopwood, 2006; Shevory, 2007).

Despite their concurrence in opposing the proposed incinerator, the politicians representing the area still indulged in political disagreement. Local government politicians who were opposing the incinerator (and therefore their own Environment

Minister) received a good deal of criticism from opposition politicians which indirectly hinted at possible duplicity of intentions. One opposition TD (member of the Irish Parliament) was quoted in the *Evening Herald*, 8 July 2005, as saying the following about his parliament colleague:

> *"I am calling on Minister McDowell to ensure that this proposal is rejected. During the last election, Michael McDowell claimed in a special leaflet, that he would stop the incinerator going ahead in the Ringsend area. He also dismissed the Green Party's policies. The implication was clear - if you wanted to stop the incinerator then you ought to vote for Michael McDowell ... the time has now come for Minister McDowell to stop his bleating and to deliver to his constituents, as promised."* John Gormley, the Evening Herald, 8 July 2005[40]

Another instance of political dispute can be seen in this letter published again in the *Evening Herald*, 9 June 2003, from a local opposition Dublin City Councillor referring to his council colleague:

> *"[Cllr. Chris Andrews] might even let the people of Dublin South East know why, despite his many public advertisements on the issue, he has failed to persuade his Government to drop the plan to locate a toxic incinerator at Ringsend/Sandymount or why he has failed to support most of the motions on this issue tabled at Dublin City Council"* Cllr. Dermot Lacey, Evening Herald, 9 June 2003[41]

The community category (publics, activists and NGOs) was, proportionally speaking, well represented in the *News4* units with 19 different community sources mentioned over a total of 24 units. This category also had a reasonable presence in the other two publications. *The Irish Times* quoted 17 community sources and the *Evening Herald* quoted 15 community sources. It should be noted though that the non–governmental organisations (NGOs, taken to be environmental groups and other civil society lobby groups), a subgroup of the community category, were barely used as a source in the dispute, instead members of the anti-incinerator activist group and 'ordinary' members of the public were used. The significant showing of the community category is not unusual in such disputes; the role of 'ordinary' citizens in incinerator disputes has been documented (Leonard, 2005; Davies, 2006; Dodds and Hopwood, 2006). Furthermore, it has been suggested by Davis (2002: 134) that

[40] See Hurley (2005)
[41] See Evening Herald (2003a)

'outsiders' (those outside government and corporate circles) can run effective publicity campaigns by building media skills capacity, regardless of resources.

The data in this case do not indicate that the local newspaper, *News4*, had a greater range of voices than the national newspaper, as has been found in other studies (for example, Crawley, 2007). However, it did have a range of voices that was somewhat different to the other two papers. Many of *News4*'s community category sources were local people who were not necessarily prominent activists in the campaign against the incinerator, unlike the community sources for both the *Evening Herald* and *The Irish Times*. When considered in the light of Wakefield and Elliot's (2003) findings that social networks of family and friends were the most trusted suppliers of risk information, it raises the question of whether *News4* was a more trusted source in the eyes of the local people than the other newspapers.

The promoters of the incinerator, the Dublin Waste to Energy project (DWE), included council officials and private-sector consultants employed by the local authority. This was a particularly notable group of stakeholders in that it represents a blending of public and private sectors. An employee of the private consultancy company was seconded to Dublin City Council for the duration of the Dublin Waste to Energy project, an event which further blurs the lines between public and private sectors in this case study. Davies (2008) stressed how the private sector is a powerful player in waste management in Ireland, between the government policy support for public private partnerships (PPPs) in the provision of waste facilities and the use of private consultants for the making of waste management plans.

A lengthy public communication programme, aimed at the population residing in the environs of Poolbeg, was undertaken by the promoters of the project. However, there was a relatively low presence of spokespeople from Dublin City Council and their waste-management consultants in the print media examined when compared with the other stakeholders. There was an effort on the part of the incinerator proponents to

provide some information through the media in the form of short advertisements[42] in the local paper, *News4,* and to answer questions asked by journalists. But they did appear to restrict their interaction with the print media by adopting a reactive rather than a proactive media strategy. As one DWE employee explained, the media simply was not considered to be relevant to the development process. The emphasis placed on the delivery of the project in the quote below would seem to be the key to the incinerator proponents' lack of media exposure:

> *"I mean, you just don't hear about it in the papers anymore. We did have a concerted effort to keep it out of the newspapers .....*
> *We were never going to win it in the media. You don't win over people in the media. It's just not relevant to the local situation. I see that on all of the projects that I'm on. If you want to deliver a project, and that means get it through planning and get it built, media is in the background."* Sarah, DWE 1

Of course, the belief that the media is 'just not relevant' to political and environmental debates does not appear to be valid when the findings of earlier studies such as those of McCallum *et al.* (1991) and Wakefield and Elliot (2003) are taken into account. However, the quote above suggests that the relevance, according to this particular stakeholder, is related to delivering the project by getting it through the planning process. This suggests that it is the delivery of the incinerator that is the focus of the DWE information programme, rather than the task of communicating with affected publics. A further comment about the relevancy or otherwise of newspaper coverage of the incinerator issue in relation to planning lends credence to this possibility:

> *"An Bord Pleanála is a semi-judiciary body so they would be as immune to media coverage as the senior judiciary would be at legal hearings. Media coverage is irrelevant from the point of view of An Bord Pleanála.....In terms of influencing the outcome of [the anti-incinerator] cause, yes, it's futile, yes. Because the decision is a judicial one at the end of the day and it's based on Government policy."* Shane, NGO 2

[42] DWE took out a series of eight full-page advertisements in relation to the incinerator between 2001 and 2004 in the local newspaper *News4*. These are analysed in Chapter 5 as they constitute part of the DWE information programme.

It would seem that DWE and Dublin City Council are exhibiting what Anderson (2002) describes as an insider strategy, since they have no need to use the media to influence policy. In any case, their own information programme proffered a more dependable and controllable option for communicating their risk messages, as one Dublin Waste to Energy employee stated:

> *"... we have a newsletter and a dedicated website, and .... when the oral hearings were going on for Bord Pleanála we had chapter and verse of every day on our website by ourselves, we didn't depend on the local media or the national media, even though they had a role in informing the public what was happening."* Mark, DWE 5

In light of Davis's (2002) assertion that the restriction of information is a usual corporate and political public relations strategy, it is clear that the low representation of Dublin Waste to Energy sources in the print media debate is due chiefly to a decision made by these stakeholders and not by the media producers. The quote above suggests that DWE stakeholders preferred to disseminate information via controllable self-produced channels, such as newsletters and web site content, rather than through the media (Reber and Berger, 2005).

An even greater amount of information restriction in terms of media coverage is apparent in the case of Elsam, the private company originally contracted to build and operate the incinerator. There were no quoted sources from that company in the newspapers examined between 2001 and 2006. According to a member of the development team, the local authority's negative experiences during the conflict over the operation of a large sewage treatment plant in the Poolbeg area precipitated the decision that in the case of the proposed incinerator, the private service provider would not speak directly to the media:

> *"But the service provider has always been incidental the local authority has always stayed front and centre and never pushed anyone out in front of them. They have always taken responsibility...And I think Dublin City Council learned the hard way on the water treatment plant where too much risk was assigned over to the service provider,....., but the focus of media and the community never shifts from local authority"* Sarah, DWE 1

There is a noteworthy PPP angle that can be highlighted here where the public partner are providing a public face for what is essentially a private operation. Since Petts's (1992) work on risk communication for waste facilities clearly shows that proactive and on-going engagement between waste operators and waste industry companies to publics is essential, Elsam/DONG's low-profile strategy seems ill-advised. The lack of access to the private operator was particularly problematic for journalists when the private service provider, Elsam, was amalgamated with another company, DONG. Contractual difficulties then arose between the public and private partners with respect to the Poolbeg incinerator and the issue became a newsworthy element of the Poolbeg incinerator story. A journalist from *The Irish Times* described the problems encountered by the press in trying to gain access to the private partner at that time:

> *"Any time you do approach [the private service provider] they very much direct you to [Dublin City] Council or the Council press office directly, or [council official] . . They wouldn't talk to me directly, they'd just put out a press release, they'd just put out a statement. You'd ask them a question and they'd send it back in the form of a press statement. They wouldn't actually speak to me.. [The press release] mightn't even answer the question you asked them"*

The current private operator, Covanta, to whom DONG eventually sold on the contract, appears to be more open to engagement with the media and during 2007 sources from the company were quoted in a number of newspapers. As a representative from the company explained:

> *"....we know the numbers better than anybody else, better than a consultant ever will, so when a [municipality] is looking to communicate with a community, they want the best information, not what a consultant heard from somebody else. Because we have to make guarantees, we have to communicate at the point. We don't need a middleman to translate what we can do."* Ray, DWE 6

While the Dublin Waste to Energy project personnel were eschewing media coverage, anti-incinerator activists were working to maximise media exposure, an example of Anderson's (2002) outsider strategy of media agenda-building.

One anti-incinerator activist explained:

> Scott, Community 2: *"But we ... phoned the media, you know phoned the individual desks ...tell them what was going on, where you were going to be. Email out the press release out to the various groups, and try to orient, well, we did orient some of our events by having photo-shoots.*
> Interviewer: *Tell me about the photo-shoots.*
> Scott, Community 2: *Well. For instance the car convoy, we had one location down in Sandymount ..... oh and the submissions, we organised that for the media, the wheelbarrow idea would get media attention and do the symbolic handing in, so in terms of access, we would have phoned them up."* Scott, Community 2

According to the content analysis data, of the three publications examined, *The Irish Times* appeared to be the channel which gave voice to the views of the business community, with 18 business category sources recorded as against 2 for the *Evening Herald* and none for *News4*. This is not unexpected for a number of reasons. Firstly, as the as detailed in the preceding section, *The Irish Times* appeared to display a less biased presentation of the Poolbeg incinerator topic than the other two publications and so, would be more likely to include a wider range of views in the incinerator debate such as prominent business voices. Secondly, *The Irish Times* carries a business news section and employs a team of reporters and editors dedicated to business news. This would suggest that the business sector is one of the newspaper's principal audiences and therefore this publication is likely to cover the business view.

Technical experts in the discourse around the Poolbeg incinerator fall into either the consultant or academic categories. From Fig. 5.11 it is clear that the presence of experts (whether academics or consultants) as sources in the media debate was relatively low, merely a handful of both anti-incinerator and pro-incinerator experts quoted. It is interesting that there were more quotes from experts in the 24 articles in *News4* than in the 150 articles in *The Irish Times* or in the 48 articles in the *Evening Herald. News4* tended to publish detailed reports of public information meetings organised by the DWE project and quoted experts in that context. This in effect means that of the three publications examined, *News4* in particular, made more of an effort to relay the technical information about incineration. It is perhaps no accident that the *News4* journalist had a technical background, while the journalists who

covered the issue for the other publications examined were general reporters. Both of these journalists attested to the difficulties in obtaining expert information and *The Irish Times* journalist mentioned a reluctance to use technical information unless corroborated by an expert source, which resonates with Tanner's (2004) earlier work on U.S. television journalists. As *The Irish Times* journalist commented:

> *"In terms of the "hard science", I remember feeling that there was a real lack of that around it was simply not to hand. .....Of course, you can take a chance and download general information from the internet, but that's risky as you may be picking a different type of [incinerator] plant without realising it, and so in the absence of hearing solid facts about the particular Ringsend plant, I certainly wouldn't risk it and I don't think many others would try to either."*

The experts in the debate around the proposed Poolbeg incinerator exist in the public sector (state officials working in a technical field), private sector (environmental consultants) and the civil society sector (academics). From Fig. 5.11 above it would seem that experts were not used often as sources. In particular, the numbers of consultants were very low, with academics faring a little better. The differences in the treatment of the expert sources between publications is worthy of note. For instance, the desk study report produced by the Health Research Board (HRB) about the health and environmental effects of incineration and landfill was covered by both *The Irish Times* and the *Evening Herald* (but curiously, not by the subsequent issue of *News4*), and in both cases, experts were used as sources, but treated in different ways.

The *Evening Herald*, 20 Feb 2003, used just one expert source Dr. Dominique Crowley, who was the co-coordinator of the report study. She was quoted directly, without any opposing views being reported. The article went on to claim that there were definite risks of great magnitude even though the expert, whose language was cautious and measured, made no such claim:

> *SHOCKING evidence of birth defects from landfill dumps and respiratory deaths from incinerators are revealed in a damning government-commissioned report today...startling findings on a range of health defects...*
>
> *"Acute and chronic respiratory systems are associated with incinerator emissions," the shocking report concludes...*

> *Dr Crowley said that while the evidence for a link between cancer and proximity to an incinerator was not conclusive, she said that further research was needed "to determine whether living near landfill sites or incinerators increased the risk of developing cancer".*
> Evening Herald, 20 Feb 2003[43]

The Irish Times article, dated two days later on 22 Feb 2003, used Dr. Crowley and an expert who spoke at the DWE information session on health who opposed Dr. Crowley's views. The criticism of Dr. Crowley's views was the main focus of the article:

> *"An international consultant on dioxins and other toxic emissions has criticised this week's Health Research Board report which calls for more study on risks associated with incinerators.*
>
> *Prof Dr Dieter Schrenk, a consultant to the World Health Organisation and the German Federal Environmental Agency, said the report raised unnecessary fears about modern incineration techniques".* Irish Times, 22 Feb 2003[44]

The reportage here about the potential health risk of incineration is interesting in that it is a mediated disagreement between two experts. The *Evening Herald's* treatment of the argument concurs with Nelkin's (1995) observations about the sensationalisation and simplifying of risk issues in the media. *The Irish Times's* treatment of the story focused on the views of Professor Schrenk, whose contention that incineration health risks were negligible reflected the line of argument followed in the DWE information programme. At the same time, the views of the authors of the HRB report were afforded little space or emphasis in the national newspaper. This could be interpreted as an example of media reinforcing the views of powerful actors (Palentz and Entman, 1981; Cox, 2006).

Since most sources were named, it was possible to identify the set of sources used for each publication. The publications had quite separate groups of sources with very little overlap, although the prominence of politicians is further underlined by the finding that seven of the nine individual sources that were used by all three publications were politicians. The remaining two individual sources used by all three

[43] See Hogan (2003)
[44] See O'Brien (2003)

publications were both members of the local anti-incinerator activist group. Nelkin (1995) claims that journalists and editors choose sources that share their values and philosophies. However, this research indicates that sources themselves do not wait passively to be chosen but often choose their preferred publication or media channel and play an active part in the production of news. Journalists, for their part, may be driven by pragmatism as much as by a desire to reinforce their values or to include a range of viewpoints. An *Evening Herald* journalist commented:

> *"Relationships and trust develop between certain papers and certain groups of sources. And sources can have their preference too over where they are quoted, some preferring The Irish Times and some definitely opting to give their time to Independent Newspapers[1]. It's not so much a question of choosing sources but using the ones you have to best advantage in the timescale available to you."*

In summary then, while earlier studies have focused sources in environmental controversies competing for media representation (see Anderson, 1997; 2002), this case study shows that different sources use the media in different ways and may deliberately choose different levels of media representation. Anderson (2002) argues that official sources are not always foremost in coverage of environmental issues. However, this thesis finds that a dearth of coverage of official sources may be due to a deliberate strategy on the part of those particular sources. Davis (2002) has found similar strategies used in political and corporate communications. However, it must be acknowledged that once a source has engaged with the media, the decision of whether and how to present the opinions or information from that source still lies with the media producer and the mediated messages are subject to influences from both media producers and media sources (Anderson 1997).

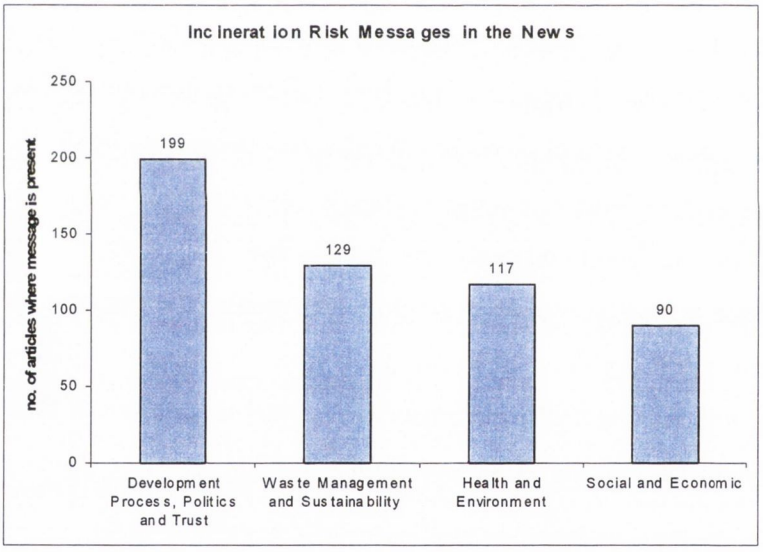
5.4 Incineration Risk Messages in the News

As noted earlier, risk to one sector of a society or community is sometimes the price paid for benefit to the wider society, or the common good (Beck, 1992), and the risk communications considered in this thesis include arguments for the incinerator, arguments against the incinerator and counter arguments to both of those positions.

[1] The *Evening Herald* is part of the Independent Newspaper group

Of the four categories[2] of pro- and anti-incinerator arguments that were coded in the content analysis, the total number of arguments or risk messages relating to development and trust exceeded the total number of arguments from the other three categories. Arguments about waste management and sustainability comprised the second most commonly reported category of arguments in the media, followed by the health and environmental category and lastly the social and economic argument category (see Fig. 5.12 below). The arguments or risk messages reported in the media generally reflected the concerns and opinions expressed by the various stakeholders interviewed during the second phase of the research. This contrasts with work by Wakefield and Elliot (2003), which showed that the issues reported in the media reports of a landfill siting controversy in Ontario, Canada, differed a good deal from those that concerned the residents of the area being studied.

Fig. 5.12: Categories of risk messages raised in the newspapers



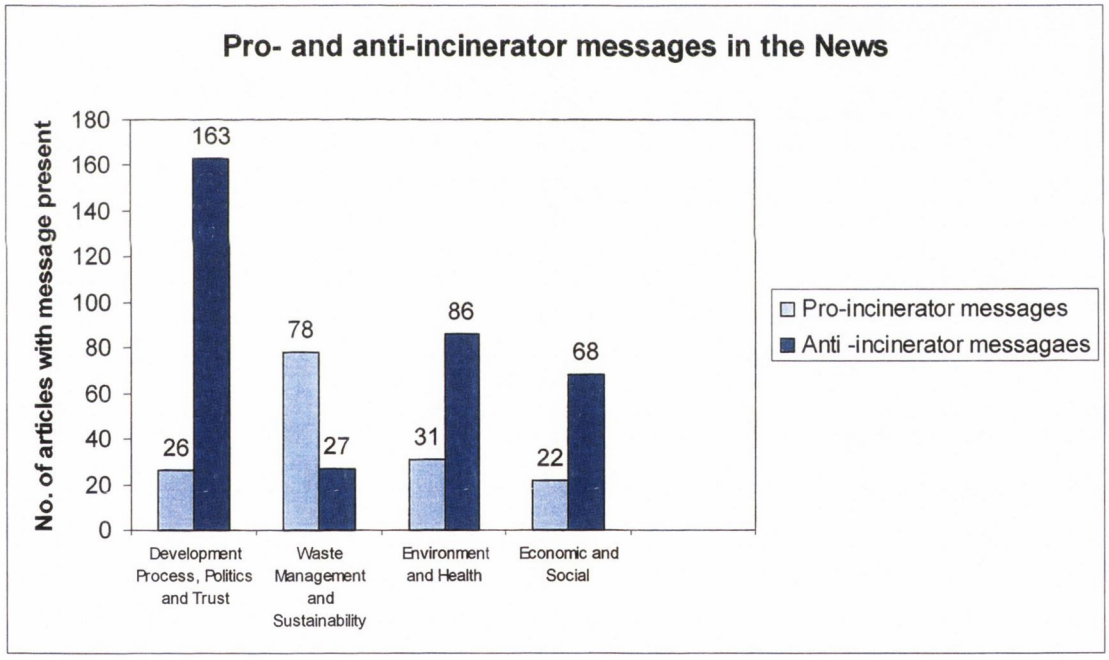
There were marked differences in the numbers of pro- and anti-incinerator messages quoted in the newspapers for all four message categories. Generally, there were more anti-incinerator arguments than pro-incinerator arguments presented in the newspapers. Only in the waste management and sustainability category did pro-

[2] Development, politics and trust; Waste management and sustainability; Health and environment; Social and economic

incinerator messages outweigh anti-incinerator messages (see Fig 5.13 below). The higher prevalence of anti-incinerator risk messages than pro-incinerator messages in the newspapers surprised very few of the stakeholders interviewed. Likely reasons for the lower instances of pro-incinerator messages are, firstly, the reactive rather than proactive media strategy by the DWE information programme, secondly, the strong representation of politicians (who were mostly opposed to the incinerator) as media sources and thirdly, anti-incinerator messages being simply more newsworthy to journalists. As *The Irish Times* journalist commented:

> *"The Council are rarely going to come to me with stuff, unless, you know they're comfortable with nice soft lines like 'recycling is up by such an amount'. But that's just not as interesting. It will still get space, but it wouldn't get as prominent a space."*

Fig. 5.13: Pro- versus anti-incineration messages in the newspapers



From Fig. 5.13 it is apparent that there was a particularly striking difference in the anti-incinerator and pro-incinerator arguments in relation to development and trust. Indeed messages expressing concern about these aspects of the proposed Poolbeg incinerator were raised in the newspaper units over six times more than reassurances or refutations. Since trust is considered to hold such import in risk perception and communication (Slovic, 2000; Frewer, 1996), this finding suggests that mistrust in

the incinerator project and concern about the development process were significant motivations for anti-incinerator views in relation to the Poolbeg incinerator.

Examining the rankings of individual risk messages, trust issues account for three of the five most frequent arguments (ranked in places 2, 4 and 5) reported in the newspapers considered (see Table 5.2 below). Health risks were raised most often, which is to be expected since health concerns are generally a principal motivation for many anti-incineration activists (for example see Leonard, 2005; Shevory, 2007). However, it is notable that traffic, which was classed as an economic and social risk, has such a high ranking (3), despite the low frequency of arguments raised in the economic and social risk category as a whole. Again, these rankings in the media reportage of the topic were reflected by concerns voiced in the interview data. For example, one anti-incinerator activist explained the key risk messages being advanced by the residents' campaign against the incinerator:

> *"The key messages were number one; the health impact on the community, that this was going to cause potential cancer ... you know have a huge impact on the health of the community, number two; the traffic impact on it, number three; is that the community wasn't consulted properly and that this is being imposed by the government and Dublin City Council".* Scott, Community 2

There are some parallels between these data and other incinerator siting controversy studies. For example, Ishizaka and Tanaka (2003) found that risk concerns about a municipal incinerator in Japan included possible health impacts, environmental pollution, increased traffic, lower quality of life as well as issues of trust and worries about the development process.

An examination of the different arguments within each category provides a useful vista of the issues involved in the public debate around the incinerator. Concerns about trust and the development process included arguments about perceived technical or legal flaws in the process, that the site selection was not conducted properly and that the community was not involved in these substantive decisions.

Table 5.2: Top ranked arguments in the newspaper units

Rank	No. of units where message was present	Risk Message
1	44	Waste-to-energy / incineration constitutes/ may constitute a health risk
2	35	Government politicians have split views about the incinerator
3	33	The siting of a waste-to-energy plant / incinerator in Poolbeg will result in an increase in traffic in the surrounding areas, with which the area may not be able to cope
4	32	The development/planning process around the proposed Poolbeg incinerator is undemocratic / the incinerator is being imposed on the area against the wishes of the local people or City Councillors
5	31	Mistrust towards government, City Council or the waste industry exists in relation to the incineration proposal
6	25	Concern about the site selection process and/or suitability of the site
7	24	The incinerator will burn x tonnes annually
8	21	The development/planning process around the proposed Poolbeg waste-to-energy / incinerator is technically or legally flawed
9	19	Waste-to-energy /incineration is compatible with recycling and/ or will be used as part of an integrated waste strategy which includes recycling, reuse and reduction
Joint 10	16	Waste-to-energy / incineration constitutes/ may constitute an ecological risk
	16	Waste-to-energy / incineration offers energy recovery
	16	Waste-to-energy / incineration is an outmoded technique in waste management / provides a disincentive with regards to reduction, reuse and recycling

Mistrust appeared to be directed largely at Dublin City Council management. In addition, there was a contention that government was putting the needs of business before people. Ishizaka and Tanaka (2003) and Hopwood and Dodds (2006) found similar worries over the siting process in their research. There were also issues of mistrust in relation the Dublin City Council information programme about the incinerator with a number of newspaper items suggesting that there was controversy

and criticism surrounding the programme. In a report about one DWE public meeting in the local community newspaper *News4* one councillor was reported as saying:

> *"The sole purpose of this meeting is to promote incineration and massage this community into accepting hazardous incineration here on our doorstep."* News4, Oct 2004[47]

Such arguments were not really refuted by DWE through the media. Instead references were repeatedly made about the existence of the information programme and about how Dublin City Council welcomed publics' views on the incinerator proposal. There was a strong feeling that the incinerator was being imposed on the communities surrounding the Poolbeg peninsula in an undemocratic fashion. For example, one local activist was quoted in *The Irish Times* as saying:

> *"People do not want this. Local residents and local representatives have made the council very aware of this and it is an outrage that they are being ignored," The Irish Times*, July 1, 2005[48]

Davies (2006) attests that the language of environmental justice is largely absent from incinerator disputes in Ireland. The content examined in this research would seem to suggest that there is a sense of environmental justice woven through the discourse, but it is not as yet explicit. For example, the burdens imposed on the Ringsend area, in particular, were mentioned a number of times in the reportage of the incinerator controversy. In addition, the tendency for areas of disadvantage to be encumbered with unwanted facilities was commented on in the media:

> *"Many houses in Ringsend were built on a former landfill site in the first place. But long-suffering residents there know that it easier to push through controversial projects in areas with environmental problems than it is to push them through an unpolluted middle-class suburb*". Evening Herald 22 Feb, 2003[49]

> *"our backyard is full"* News 4, Oct 2002[50]

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[47] See News4 (2004)
[48] See Kelly (2005)
[49] See Evening Herald (2003b)
[50] See News4 (2002)

The Dublin waste water treatment plant, situated on the Poolbeg Peninsula, was mentioned in a number of articles as being an existing burden on the communities in the area. For example, the headline shown in Fig. 5.14 below highlights this:

Fig. 5.14: Headline from the *Evening Herald*, 19 April 2005


PLAN IGNITES OUTRAGE: 'First the stinky sewage plant, now this'

Incinerator - we're the new Sellafield

The mention of Sellafield here is interesting from a risk perception point of view, since it draws parallels between the risks associated with incineration and the risks associated with nuclear power. While the risks associated with nuclear power are of a greater magnitude, both of these technologies have the 'dread' factor (Bennett, 1999; Bennett *et al.*, 1999) that cause people to over-rate risk (Slovic, 2004) and the lack of controllability and voluntariness that lessen their acceptability to publics (Slovic, 1987).

There were a number of significant political issues and legislative developments, which received a good deal of coverage in the newspapers in relation to the Poolbeg incinerator debate. For example, the introduction of the Waste Management (Amendment) Act 2001[51], a fast-track planning proposal for critical infrastructure, intensified media coverage of the Poolbeg incinerator controversy, as did the squabbles between various politicians about the incinerator.

Waste management and sustainability arguments were articulated by both proponents and opponents of the incinerator. The assertion that a failure to build an incinerator would result in an uncontrollable waste crisis was expressed with some frequency by

[51] As outlined in Chapter 2, the Waste Management (Amendment) Act 2001 transferred the power to alter Waste Management Plans from local councillors to council officials and prevented Dublin City Councillors from blocking the incinerator development

business, government and government official sources. Also, the capability of thermal treatment to convert waste into energy and heat was mentioned frequently by those purporting the incinerator. The arguments from those opposing the incinerator as reported in the newspaper coverage tended to be centered around the possible effect an incinerator may have on incentives (for both government and citizens) to optimise recycling. However, proponents countered this by claiming that there were no compatibility issues between recycling and the use of thermal treatment.

Since health risk messages are a prominent feature of waste facility siting controversies (Wakefield *et al.*, 2001; Ishizaka and Tanaka, 2003), it was to be expected that health issues would be a significant aspect of the media coverage of the Poolbeg incinerator. Health concerns were mentioned in 44 of the newspaper items analysed, which was more often than any other risk message identified. In addition, health-related issues such as potential air pollution, possible effects of dioxins and the lack of certainty about safe threshold levels were articulated with some frequency in the publications examined. Concern in relation to emissions monitoring and possible accidents involving the proposed incinerator were also present. However, there was very little discussion in the media about medical or scientific evidence in relation to health and environmental effects of incineration. The *Evening Herald*, in particular, tended to provide quite potent and emotional presentations of health and environmental concerns. For example, the following quote from the *Evening Herald* combines health and environmental concerns with possible risks in the context of children:

> *"Mother of two Caroline Spollen slammed the proposals for an incinerator. Holding a placard reading "No more cancer factories" protester and mother of six Theresa McCormack said: "We have a nature trail with lots of wild animals and birds that our children love close to where they want to build the incinerator, if it goes ahead, we can kiss all this goodbye".* Evening Herald 24 Feb, 2003[52]

The incorporation of mothers, children, cancer and nature (trails) in this excerpt combines a number of concepts that are significant in terms of risk perception and risk communication. The notion of danger to children as being particularly important

[52] See Hurley and Hegarty (2003)

in relation to risk has been explored in the literature. In her definition of risk, Leiss (2004) refers to risk as being a threat to children. Additionally, potential risk to small children and future generations is, according to Bennett *et al.* (1999), a fright factor which serves to make risk more worrying and less acceptable. The quote above also alludes to social risks to children in the sense that the incinerator might cause a loss of their access to the local nature trail, would lower their quality of life and, presumably, lay waste to an educational resource. The portrayal here suggests that the children are enriched by their interaction with 'nature' and hints at an acceptance of the intrinsic value of nature by the mothers and children (Butler and Acott, 2007). The reference to 'cancer factories' evokes Beck's (1992) risk society theory in that it equates the risk of serious harm, that is cancer, with industrial and production processes. The resultant paragraph is a very powerful image of mothers and children fighting against threats to health and quality of life and it provides a telling snapshot of how some publics involved in the Poolbeg incinerator debate perceive and conceptualise the risks potentially posed by the incinerator.

Messages used to counteract health and environment concerns included statements about the safety of incineration, assurances about the experience of the incinerator company, claims that stringent controls would be in place and statements about the lack of evidence of health or environmental effects.

Of the economic and social risks articulated, by far the most frequent were concerns about traffic. Such risks were present in 33 newspaper items. A main city traffic artery runs through the Sandymount and Ringsend areas and there were fears that the extra truck traffic to service the incinerator would worsen congestion in the area. In contrast to the high level of media coverage received by concerns about traffic, a traffic mitigation plan formulated by the City Council received very limited coverage. Economic effects were articulated mostly in terms of the risks of not having an incinerator and less often in terms of the risks of having an incinerator. The business community, through organisations such as Irish Business and Employers Federation (IBEC), Dublin Chamber of Commerce and the Constriction

Industry Federation (CIF), expressed concern that without an incinerator, Ireland's waste infrastructure would not have the capacity to deal with the country's waste and that this would undermine Ireland's competitiveness and so, its economy. One prominent business spokesperson commented:

> *"If the Irish economy is to grow, to realise its potential, to become a sustainable, first-class world economy, we must put in place a properly functioning and properly resourced waste management infrastructure... Mr. O'Sullivan said..."This acts as a deterrent to inward investment and to indigenous industrial and commercial innovation and development."* Irish Times 4 Oct, 2003[53]

While concerns about possible effects on property prices have been articulated in some local unwanted land use (LULU) siting conflicts (Clark *et al.*, 1997; Ishizaka and Tanaka, 2003), such arguments were not mentioned in the publications examined here.

During the research period, the emphasis on different aspects of the discourse change and definite trends in the risk messages can be seen. Examining the data in Fig 5.15 below, it is clear that messages in relation to all four categories of risk increased over time. Of course, this is to be expected as the number of units, or newspaper articles about the incinerator proposal increased during the time period 2001-2006.

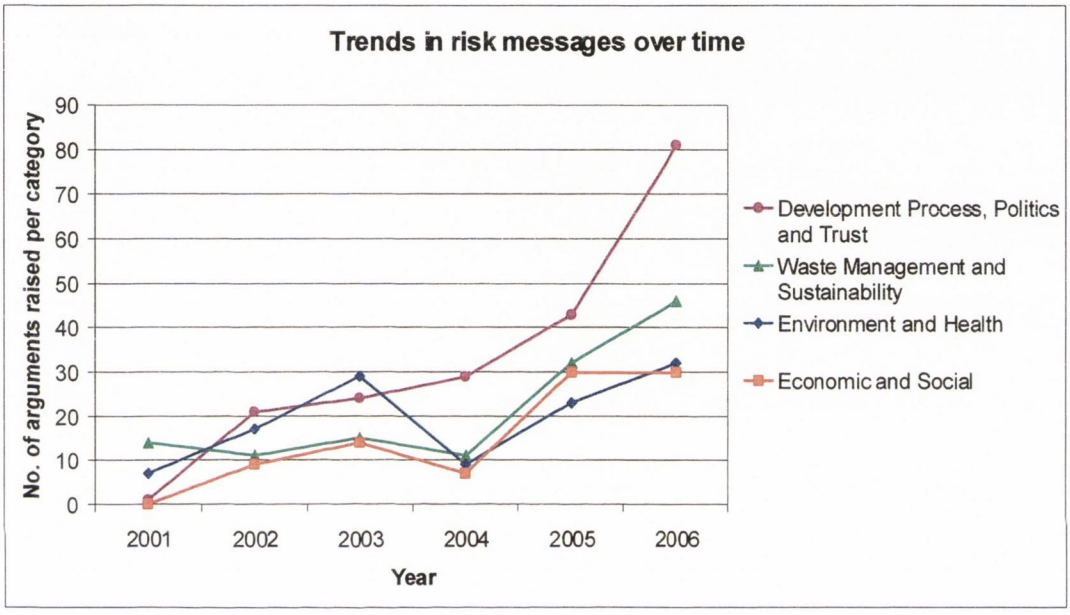
There are a couple of notable findings here though. There is a peak in risk messages pertaining to Health and Environment in the newspaper reportage in 2003. This peak relates in part to the launch of the Health Research Board (HRB 2003) report on incineration and landfill risk. After 2003, the messages related to health and environment decreased significantly, while those related to trust and the development process increased steadily until 2004 and then dramatically between 2004 and 2006. This indicates a definite shift in media coverage away from health towards trust and development issues. On one level this shift in emphasis can be, at least partially explained, by the way in which environmental conflicts develop and, indeed, by the way in which newspaper coverage of such conflicts develops over time. For example, accounts of other incinerator campaigns show that different issues come to

[53] See Dooley (2003)

the fore over time (Dodds and Hopwood, 2006; Shevory, 2007). As the *Evening Herald* journalist explained:

> *"....angles change over time on almost every major topic. They develop quite naturally as an issue winds its way through public forum and debate and so on. On a topic like the incinerator, you could nearly predict what the development path was from health and environment concerns, to political rows to accusations and innuendo over planning".*

Fig. 5.15 Trends in risk messages over time



On another level, the interview data suggest that this shift in emphasis was due in part to planning procedures which required CRAI to switch the focus of the anti-incineration campaign from health to traffic and planning issues. This will be explored in greater depth in Chapter 7, but it is, nevertheless, important to note it here.

5.5 Conclusions

Press coverage of the proposal to site an incinerator in the Poolbeg area of Dublin increased over time in both national and local papers. The topic was treated quite differently in each of the three publications in terms of angles and sources used. This can be attributed to differing editorial lines, different presentation styles and the

varied readership of the three publications (Bell, 1991). While such differences were expected, they underscore the inconsistency of the media as a risk information tool and bolster arguments for the necessity of two-way ongoing risk communication programmes from waste facility operators. Although such inconsistency may seem in some ways to validate the reticence of DWE stakeholders to communicate through the media, the importance of media as a source of information for publics about environmental issues (Wakefield and Elliot, 2003) suggests that eschewing the media to the extent that DWE stakeholders did, may be unwise. In one respect, Dublin City Council management did not need to use the media since it did not need to influence policy or public opinion as 'outsiders' may do (Anderson 2002). However, its reticence to media coverage and the absence of the private operator from the media debate fueled already high levels of mistrust among publics with respect to the local authority.

Indeed, the inconsistency of the mediated versions of the Dublin incinerator conflict provides evidence that the media is not a neutral conduit of risk information in environmental controversies (Anderson, 1997, 2002; Cox, 2006). The resultant news is not a product of journalists and editors alone, however. The various actors or stakeholders in the debate around the Dublin incinerator helped to shape the risk messages, not least by their respective decisions to use the media in particular ways or to opt out of media coverage if possible. The deliberate effort on the part of Dublin City Council and their consultants to tightly control the media exposure of the DWE risk communication programme, and the risk messages disseminated by that programme, was particularly interesting and not wholly expected. In addition, the public sector controlled access to the private sector incinerator operator and journalists who tried to gain access were directed back to Dublin City Council's press office. It is tempting to pose the question whether or not a more proactive media strategy on the part of the incinerator proponents and the inclusion of the service provider in the period between 2001 to 2006 would have enriched the public debate on the incinerator and, in doing so, helped build public confidence, or at the

very least, prevented it from languishing. Petts (1992) suggests that being open and accessible to the media is essential in waste facility controversies.

In contrast to the official council sources, the elected politicians, councillors and TDs in the area, dominated the media debate often using the issue to attack each other and differentiate themselves from their political foes (Davis, 2002). Although the use of expert sources was relatively low, the publication that made most use of expert sources and community sources, proportionally speaking, was the local community newspaper.

The risk messages identified by the content analysis of the newspaper coverage of the incinerator debate indicate that there are parallels between concerns voiced during the Dublin incinerator controversy and those voiced in relation to other incinerator siting controversies (for example, Ishizaka and Tanaka, 2003; Leonard, 2005) with some differences. For example, concern about possible negative effects on property prices was not articulated in the Dublin case study. A number of issues arose that merited further exploration in the interview phase of the research. The prevalence of issues relating to trust including planning, development and politics suggests that there were serious issues of mistrust at the heart of the risk discourses around the Poolbeg incinerator. The shift in the focus of the anti-incinerator campaign from articulating health issues to planning issues is a particularly interesting aspect of the Poolbeg incinerator debate.

The differences between the publications in the treatment of the incinerator topic and in the communication of risk were to be expected (and indeed the purpose of examining the discourse in a number of newspapers was to examine such differences). However, the key issue here is that although newspapers are considered to be an important risk communication channel in environmental conflicts (McCallum *et al.*., 1991; Wakefield and Elliot, 2003), it would appear that media as a risk communication tool is inconsistent and is very much dependent on context and readership as well as on editorial style. Although print media constitutes

an important risk information channel, it should be remembered that the primary function of commercial newspapers is not to communicate risk but to sell newspapers.

Chapter 6: Risks, Rows and Reassurance: The Role of the Dublin Waste to Energy Project Information programme

Risk communication research has emphasised the importance of effective risk communication strategies involved in public discourses around technologies or facilities which are perceived as risky (Petts, 1992; Wynne, 1996). While content analysis of communications around environmental controversies usually concentrates on media (Anderson, 1997; Wakefield and Elliot, 2003), the value of analysing communications from those proposing the facility in question has been shown to be a valuable tool in identifying risk communication strategies and helping to assess their effectiveness (Beder and Shortland, 1992). In this section, content analysis results of materials used in the information programme around the proposed Poolbeg incinerator conducted by RPS Ltd., an environmental consultancy, on behalf of Dublin City Council's Dublin Waste to Energy (DWE) Project, will be set out. As with Chapter 5, data from both phases of the study will be integrated where appropriate in order to present the findings in a comprehensive fashion.

It is important to state initially that the DWE information programme did not claim to be a risk communication campaign per se, but rather an information and awareness raising campaign. However, taking a cue from the various risk communication definitions discussed in Chapter 3, the communication campaign fills the criteria of risk communication since it is clearly a 'purposeful exchange ..between interested parties' (Corvello *et al.*, 1986:171) about 'the existence, nature, form, severity, or acceptability of risks' (Plough and Krimsky, 1987: 6). Therefore for the purposes of this thesis, an assessment of the role of the DWE information programme as a risk communication campaign is undertaken.

This thesis examines the non-statutory phase of public involvement of the Dublin Waste to Energy Information Programme. The time frame used for this research was from January 2001 to December 2006. There were a small number of Community Open Days held in 2008 and early 2009, however as these Open Days fell outside of

the case study timeframe they are not included in the analysis here. Unlike notes from the early phase of public involvement, though, reports from these later Open Days cannot be accessed through DWE web site. It is important to note here that statutory consultation also took place in accordance with the legal obligations governing planning application procedures. The statutory phase began in early July 2006 and lasted thirteen weeks. Publics could make submissions in relation to the planning application. In addition, there was a public hearing in relation to the EPA licensing process.

To begin with, this chapter will detail the aims and structure of the DWE communications programme. Following this, in-depth exploration of firstly, the one-way or 'top down' mechanisms and secondly, the public participatory mechanisms will be conducted. This will be followed by a study of the types of sources given voice and the risk messages and content conveyed through the communications programme. The importance of incorporating the views and values of affected publics (Hiskes, 1998; Willis and Wilsdon, 2003; Sidaway, 2005) and of building trust are stressed as key outcomes of risk communication strategies (Mythen *et al.*, 2000; Ishizaka and Tanaka, 2003; Leiss, 2004). In addition, researchers have emphasised the necessity for risk communication to have concrete aims (Bennett *et al.*, 1999; French and Maule, 1999). This chapter will lastly address three key questions in the evaluation of the role of DWE communication programme in the debate about the Poolbeg incinerator;

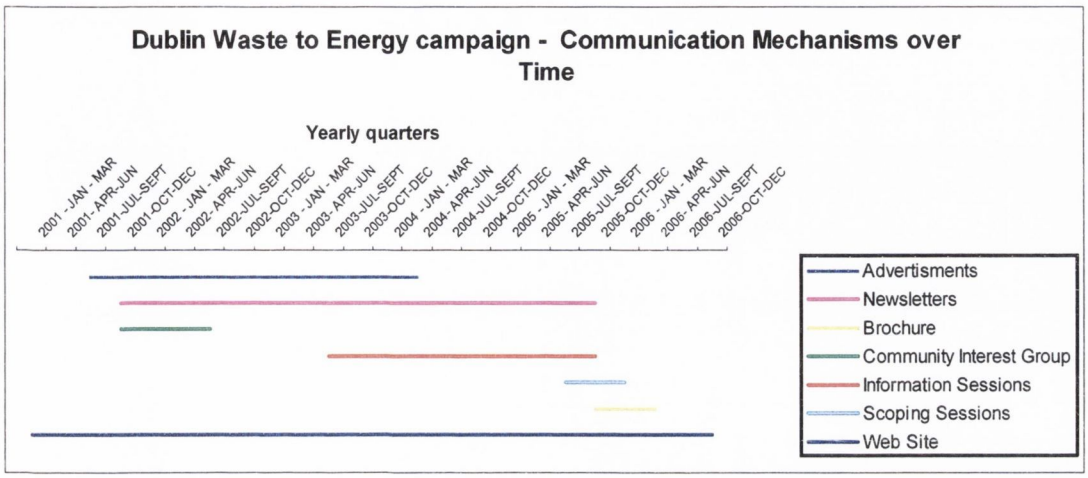
- What were the aims of the information programme and were these achieved?
- How were the public participation mechanisms viewed by the stakeholders?
- Did the information programme help to build trust in the DWE project?

6.1 Structure of the Dublin Waste to Energy Information Programme

Morgan *et al.* (2002) observe that in practice, most risk communication strategies will include aspects of both a one-way technical information provision model and a cultural model with two-way information exchange. A range of different

communication mechanisms were used by the DWE information programme. Fig. 6.1 shows these various mechanisms along a time line of the campaign.

Fig. 6.1: Communications mechanisms used by the DWE information programme over time



In all there were 130 units analysed from the DWE information programme. Of these units, 73% were from one-way informational mechanisms, and the remaining 27% were from mechanisms that involved some form of direct public participation. Table 6.1 below gives a full breakdown of the units analysed.

Table 6.1: Communication mechanisms used by DWE information programme

Mechanism	Frequency	Dates	Direct Public Involvement	% of total DWE units analysed
Local Office - one-to-one meetings	Constant	From 2001 and ongoing	Yes	No documents available
Web Site	Constant	From 2001 to present	No	5%
Advertisements	7	Autumn 2001 to June 2004	No	5%
Waste Wise Newsletters	11	Sept 2001 – Oct 2005	No	62%
Community Interest Group	7 meetings	Oct 2001 – July 2002	Yes	5%
Information sessions (including power point presentations)	12 meetings 14 power point presentations	Sept 2003 – April 2004	Yes	20%
Scoping sessions	2	Nov 2005 – Feb 2006	Yes	2%
Brochure	1	Early 2006	No	1%

6.1.1 'Top down' communication mechanisms used by DWE

Seven full page advertisements were taken out in the local community newspaper, *News4*, between 2001 and 2004. These consisted of two basic types of advertisements; those which advertised Open Days and asked publics to submit queries and questions to the DWE team, and those that set out the 'facts' and 'myths' around the incinerator. Eleven issues of a newsletter, *Waste Wise*, were produced by DWE between 2001 and 2005 (see Fig 6.2 below). Approximately 5,000 copies of each issue were delivered by An Post[1] in the Ringsend and Sandymount areas.

Fig. 6.2: Front Page of the Oct 2004 issue of *Waste Wise* Newsletter



Dublin Waste to Energy Project

WASTE MANAGEMENT PLAN
Working for the Dublin Region

waste wise

October 2004

YOU ARE INVITED TO...

INFORMATION SESSION 6: INCINERATION TECHNOLOGIES

for the Dublin Waste to Energy Project on Saturday 13th November from 12 noon to 4.30 pm in Ringsend Technical Institute, Cambridge Road, Ringsend, Dublin 4

Experts will be on hand to deliver a presentation on the types of incineration technologies that are available. The presentation will also cover the incineration process and provide examples from other countries in Europe. A range of experts will also be on hand to answer general questions about the proposed development such as the statutory process, air quality, monitoring and licensing of the proposed facility and traffic.

INFORMATION SESSION 5 - STATUTORY PROCESS

The latest in the series of Information Sessions on the Dublin Waste to Energy Project, was held on 25th September, in Ringsend Technical Institute. The information sessions, which are facilitated by Dublin City Council, aim to provide information to the local community regarding a number of topics they have raised. To date, the sessions have dealt with the baseline monitoring of Air Quality, Ecology, Health and Traffic.

The latest Information Session dealt with the Statutory Process. In order for an incinerator to be built, there are three main statutory processes that must be fulfilled. The service provider will need to obtain:

- planning permission from An Bord Pleanála
- a waste licence from the EPA
- a licence to generate electricity from the Commission for Energy Regulation (CER)

Both the application for planning permission and the application for the waste licence, provide the best opportunities for members of the public to register their views or objections on the proposed development. Two presentations were given on the day, which explained to the public both the planning application and the waste licensing phases.

A protest was held on the morning of the Information Session. The protest was organised by local group, Combined Residents Against Incineration(CRAI) and, apart from local residents, was attended by some of the area elected public representatives. Approximately 30 people were in attendance at the gate of the venue, urging visitors not to attend the session, as CRAI claimed that attending the meeting would inhibit them from taking legal action at a later stage in the process. Assistant City Manager, Matt Twomey, who was in attendance, stated that attending the Information Session would not put a restriction on any future objections. He said, "People not familiar with the statutory processes can find them confusing so this is a great opportunity for people to come along and ask the expert planners exactly what they can expect to see happen and how they can get involved in the process. While it will be next year before the chosen service provider is in a position to lodge a planning or licence application, we are continuing our policy of holding regular Open Days to let people know well in advance how the project is progressing and to give them ongoing information. I find it strange, therefore, that people are protesting over an information meeting that is advising how to participate in the statutory process and how people can object to this if they want to."

Despite the protest, a number of people came in to attend the first round of presentations, to view the displays and have their questions answered by the experts on hand. The presentation was repeated in the afternoon and the session was also well attended.

NDP

Dublin City

[1] Irish postal service

This was a 4 page, A5 sized publication. It included articles about different aspects of the incinerator proposal including technical details about incineration, information about the development process, articles about possible incineration risks such as health risks, articles about waste management and recycling and small pieces of information about waste and incineration. Each article/ piece in the newsletter was treated as one unit since some (67%) were solely about the proposed incinerator and the remainder were about recycling or other topics other than the incinerator. The *Waste Wise* units accounted for 62% of the total units analysed.

Many of the items concerned a recycling promotion scheme the campaign ran for primary schools around the area. The inclusion of such material stressed that the DWE information programme had a wider remit than just providing information about the proposed incinerator and instead included an educational purpose to create awareness of more environmentally friendly waste disposal methods. The inclusion of general waste treatment information coincides with Ishizaka and Tanaka's (2003) suggestion that general waste management information should be included and also resonates with recommendations that reasons for taking a particular course of action should be made clear (OCED, 2002; Leiss, 2004). However despite the findings of the content analysis that well over half of the articles in the newsletter were about the incinerator, many community and politician stakeholders interpreted the general waste management content as repetitive promotional material rather than relevant information:

> *"Well. Their one aim was to meet the requirements of the European Commission's money that they received. They had to show that they had so many newsletters published, they were repetitive. They sang their own praises about their bottle banks and recycling centres. They gave very little information about the incineration process itself. They repeated material that had been given to them by the few experts they brought in like Schrenk and others".* Stephen, Community 10

These *Waste Wise* newsletters also carried reports of the other mechanisms used, such as Open Days or Information Sessions. These were normally accompanied by photos of people attending the sessions which acted as a counterpoint to the media reports of protests outside these sessions. The newsletters also gave contact details

for the information programme local office in Ringsend and invited queries and comments from publics.

In early 2006, a brochure containing general information about the project and about incineration risks was launched by the Minister for the Environment (See Fig 6.3 below). The information covered included the following;

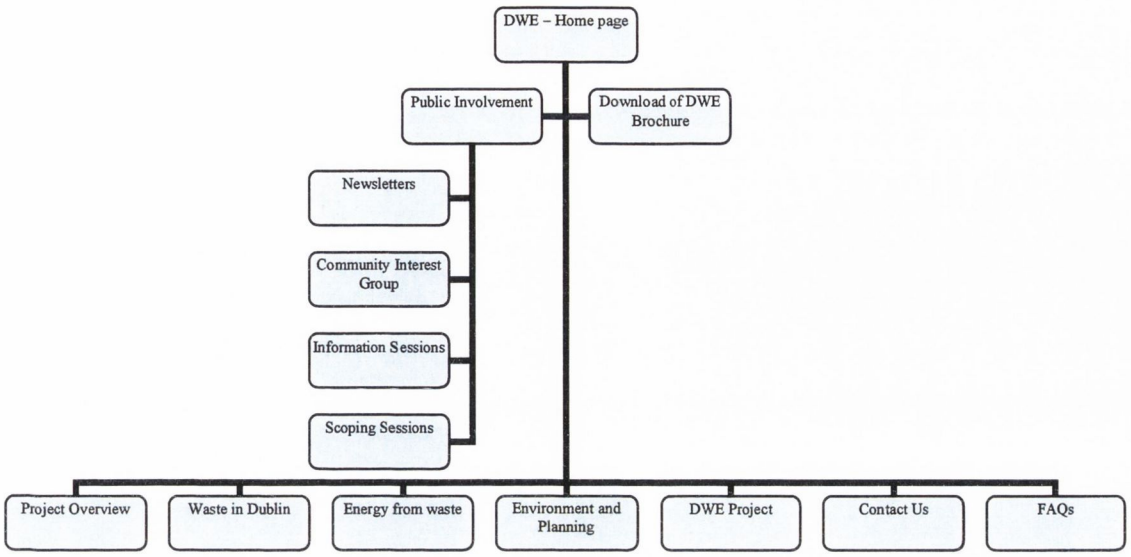
- an overview of the waste crisis situation facing Ireland
- an explanation of the proposal to build an incinerator in the Dublin area
- an outline of the planning process including the DWE information programme and statutory consultation stages
- a description of the incineration process
- an account of the next steps in the planning process and information on making submissions to An Bord Pleanála

Fig. 6.3: Selected pages from Dublin Waste to Energy brochure



A DWE campaign website was set up containing information about the statutory basis of the waste legislation and planning process around the incinerator as well as copies of all the informational material used in the campaign and the notes from the public involvement aspects of the campaign. General information about incineration and the proposed Poolbeg incinerator was also included (see Fig 6.4). Each web page was analysed as a unit in this research.

Fig 6.4: A partial representation of the Structure of the DWE information programme showing the units analysed in this research



The DWE website provided an archive of all the materials used for the Dublin Waste to Energy information programme including electronic copies of the *Waste Wise* newsletters and the Waste to Energy brochure as well as minutes from, and presentations given at, the public involvement information sessions. The web site also carried details about the project, the private operating company as well as downloads of planning and development related documents such as the Environmental Impact Statement (EIS)[1], the planning application and the transcripts of the An Bord Pleanála[2] hearings. The web site was a useful resource and was updated frequently. As one DWE employee explained:

> *"But, you know, we have a newsletter and a dedicated website, and one of the things that we are particularly proud of is that when the oral hearings were going on for Bord Pleanála we had chapter and verse of every day on our website by ourselves... But you know, every expert's brief of evidence is still on the website to this day."* Terry, DWE 4

As discussed in Chapter 5, the DWE team did not rely on the print media to disseminate their information, preferring instead to use channels where they could

[1] The EIS was published in June 2006, but was not included in the analysis of this research as the research was concerned with mechanisms used as part of the communication programme for the local community.

[2] An Bord Pleanála is an independent statutory body that rules on appeals from decisions made by local government and since 2007 decides directly on large infrastructural projects

exercise full control (see Reber and Berger, 2005). From the content analysis, and as suggested by the above quote, it is clear that despite the potential of the internet as a productive public participation mechanism, it was used in the DWE programme as a one-way communication model. According to Castells (2004), this is not unusual as expert organisations tend to use the internet as a top-down communication model to provide information.

Although a great deal of work was conducted and material produced by DWE for the top-down mechanisms in the information programme, most stakeholders, whether anti-incinerator, pro-incinerator or indeed, those who worked on the programme, spoke a good deal more about the public involvement mechanisms used than about these one-way communication mechanisms.

6.1.2 Public involvement communication mechanisms

The three main mechanisms for fostering two-way communication in the communication programme around the Poolbeg incinerator included a consultative body for citizens called the Community Interest Group, day-long information sessions or Open Days and a local information office.

The Community Interest Group (CIG) was set up whereby eighteen members of the community were chosen[3] to meet periodically with members of the DWE team and discuss what information may be needed by the community about the proposal. The group was set up in held October 2001 and between this time and July 2002, when it dissolved, a total of seven meetings were held. From the content analysis of both the newspaper articles and the DWE information programme items, it was clear that the

[3] The planned selection method was as follows; notices would be delivered in the area looking for volunteers to sit on the CIG; an independent panel would then assess interested individuals and choose a group of 12 to 14 members ensuring a broad demographic mix with respect to age, gender, occupation, geographic spread and so on. The independent panel consisted of a local guard (policeman), a local school principal and an academic. However, in practice, a lack of initial applications meant that the selection was carried out a little differently; see section 6.4.3 of this chapter.

CIG was a highly contentious part of the DWE campaign. The interview data provide an in-depth look at the accomplishments and pitfalls the process encountered.

The CIG process was designed to be the most participative part of the information programme for publics and was a group which would reflect rather than represent of the community. As one DWE employee explained:

> *"What was envisaged was setting up a group of about twenty people who lived and worked in the area, basically they lived [there] I think, most of them, that would be fairly representative on the geographical spread, you know Ringsend, Irishtown, Sandymount, that would be gender-balanced, you know, different socio-economic sort of factors"* Terry, DWE 4

Similar mechanisms have been used in other public participation processes around incinerator sitings (Snary, 2002; Dodds and Hopwood, 2006). Snary (2002) concluded that a contact group designed to allow discussion between all stakeholders about an incinerator development process became dominated by technical assessments and provided little opportunity for community stakeholders to participate. Conversely, Dodds and Hopwood (2006) recount how community stakeholders in Newcastle, UK used a broadly similar public participation mechanism to defeat an incinerator proposal and effect change in local government waste strategy.

Seven information sessions, Open Days were held between September 2003 and April 2004 (See Fig. 6.5 below). The Open Days were designed to provide information to the local community about the issues that had been identified through the CIG process. Each one focused on a different key topic, including proposal information, ecology, health, traffic, statutory procedure (planning and licences). These meetings involved presentations from experts such as academics, consultants and council technical personnel[1], questions and answer sessions and one-to-one discussions at information stands.

[1] Both PowerPoint presentations and notes from these sessions were analysed, as were notes from two Community Gain scoping sessions held in late 2005 and early 2006.

As one DWE employee explained:

> *"It moved from [the] CIG process to the Open Days, and the Open Days really were, again to have experts, to have experts there to be available for the local people to come in and to find out whatever their concerns and issues were, it was to make information available. The Open Days, again there were stands at those Open Days and people could go and read around them there were experts at those stands and then there would be a focus on a topic, I think they were quite beneficial in terms of getting a bigger picture."* Geraldine, DWE 3

Fig. 6.5: Photograph of people attending an information open day in *Waste Wise* June 2004



A third mechanism for public engagement in the DWE project was the local office in Ringsend where the DWE information programme personnel were based. Since this mechanism involved unrecorded one-to-one meetings between publics and DWE stakeholders, there were no documents to analyse. However, they did receive some comment in the interviews, so this can be examined here. According to the DWE stakeholders, the office was utilised a good deal by local people enquiring about various aspects of the incinerator.

One DWE employee claimed that this was the most important mechanism for building relationships with the local communities:

> Sarah, DWE 1: *"We did Open Days... but they were just ticking the boxes. The local office was absolutely key".*
> Interviewer: *"And did people use that?"*
> Sarah, DWE 1: *"Oh yeah. And they'd ask me not to record it, not to take notes, 'I want to find out what's going on, I want to know what's going on. Tell me about this community gain thing, I've heard a rumour about it.' And so people wanted to talk away from people listening to what they were asking. And that was hugely important to provide people with that space. Even politicians..."* Sarah, DWE 1

However, community members who were asked about the office did not believe that it was utilised to any great extent by publics looking for information about the incinerator, as one community stakeholder commented:

> Interviewer: *"And what about the office they have down there, do local people go there for information?"*
> Sadie, Community 4: *"I have to say (laughs), ... no they go in for everything else, but they don't go in about the incinerator. They go in for all the complaints in the world....but they don't want to know from [council officials], because they don't trust them."*
> Interviewer:*" So what do they complain about?"*
> Sadie, Community 4*: "They don't go up there to complain about the incinerator, they might be asking about repairs to the house, things like that. But they don't go near them for the incinerator."* Sadie, Community 4

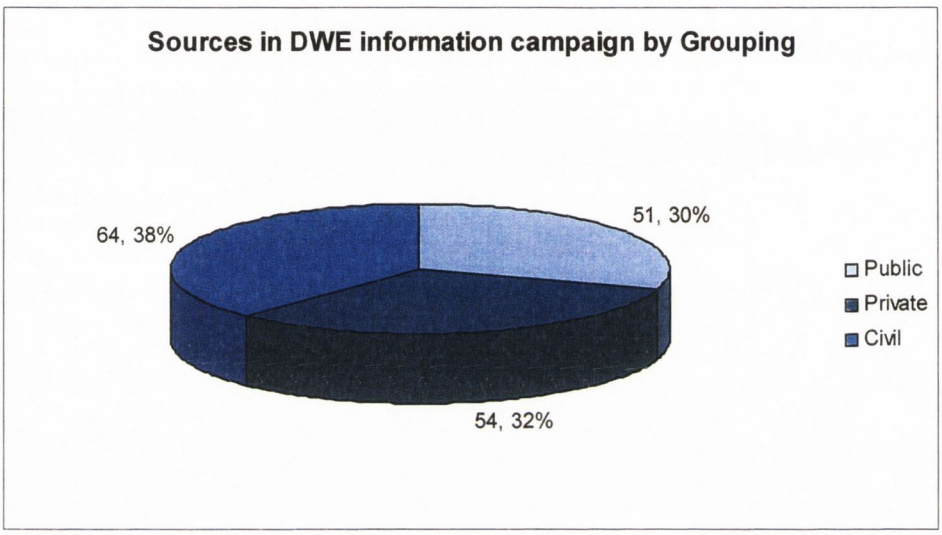
Without documentation or notes taken, however, it is difficult for this thesis to ascertain the sorts of issues discussed during those one-to-one discussions. Further, since these one-to-one discussions were informal and undocumented, they could be neither part of the decision making process about the incinerator, nor could the views of the publics emanating from such meetings influence the policy or processes surrounding the proposed development of the incinerator. While such meetings may have potential for information provision, reassurance and relationship building, the comment from Sadie, Community 4 about the lack of trust in the council officials would seem to diminish those potentials, since publics tend to filter information according to the perceived trustworthiness and credibility of the source of the information (Giddens, 1994; Peuhkuri, 2002; Sligo and Massey, 2007).

6.2 Sources of Messages in the DWE Information Programme Units

In the content analysis of the available documents from the DWE information programme, all persons and organisations whose views were represented were coded as *sources*. The same categories and groupings developed for the newspaper content

analysis described in Chapter 4 were used for the DWE information programme units, so the consultants' grouping involves some of the DWE team. Again, sources were recorded for presence in a unit. Examining the data shown in Fig 6.6 below, there was a fairly even distribution of sources between the three groups; public sector (30%), private sector (32%) and civil society (38%).

Fig. 6.6: Sources by group in DWE information programme



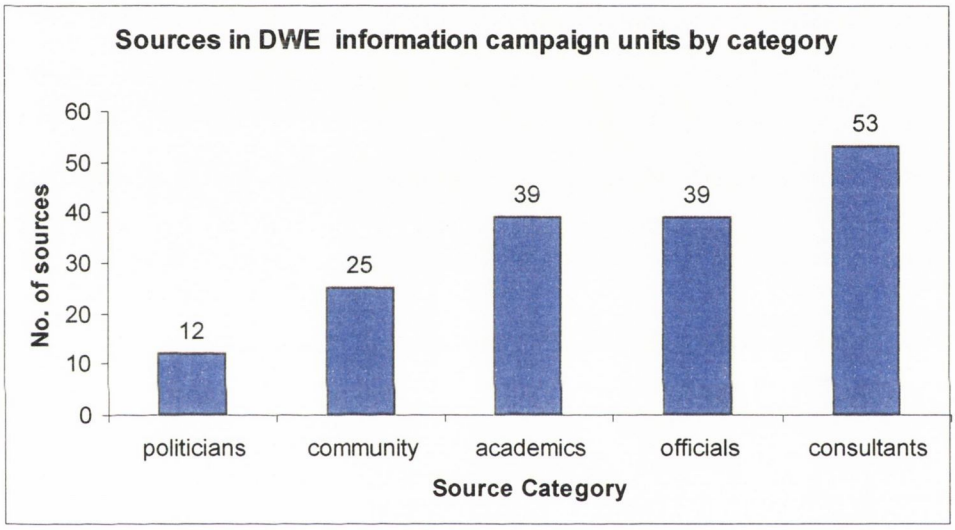
When the data are broken down into the constituent categories, the three categories containing most sources are the consultants (53, 31%), government officials (39, 23%) and academics (39, 23%). The community sector has a moderate amount of representation (25, 15%) made up of CIG members and publics attending the information sessions (see Fig. 6.7 below).

The majority of sources represented by the three most prominent categories were experts of some kind. This indicates that the risk communication model used by the DWE information programme is likely to be rooted in the more traditional technical one-way information model despite its public involvement components (Hilgartner, 1990). Also notable is the low instance of politicians taking part in the discussion, even though this was the most vocal group in the media debate about the Poolbeg

incinerator. This originates from the decision of the DWE information programme to restrict the amount of opportunities that local representatives, all of whom opposed the incinerator, had to speak at the public participation sessions. One DWE employee explains the rationale for this:

> *"I think that local politicians.. have as many questions as the public, and I think they have a right to have their information satisfied as well. But what I think you have to be really careful about with local politicians is that it doesn't become a soapbox... And I think there is a risk that they will dominate sessions like that .. but I suppose it's about getting a balance and making the time available for ordinary people as well."* Geraldine, DWE 3

Fig. 6.7: Sources by category in DWE information programme



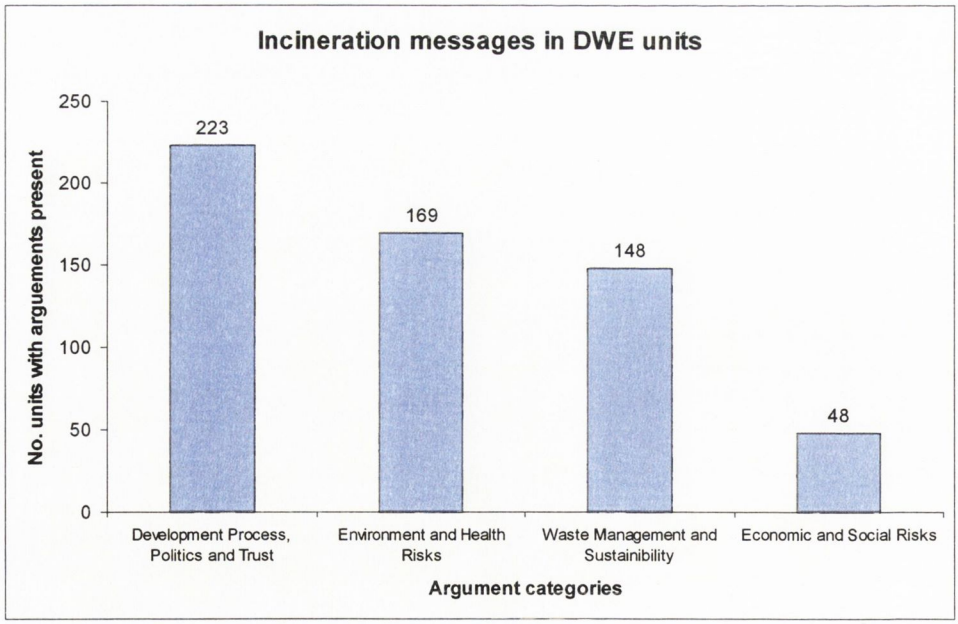
Most of the experts used as sources in the DWE information programme were chosen by the DWE team, but some were requested by the CIG members. Although the underlying discourse of the elites (business and government) in disputes about risk tends to be one of consensus (Hilgartner, 1985), and in terms of tone and language this seems to be the case with the DWE campaign, the very act of deciding who is an expert is an act of power in the Foucauldian sense as it defines reality, knowledge and ultimately truth as being the opinion of the expert (Foucault, 1980).

6.3 Messages/Arguments in the DWE information programme units

The two bodies of textual material examined in this content analysis, the newspapers and the information programme materials, were quite different since the information programme was run on behalf of Dublin City Council who supported the incinerator and the newspaper reports were, if not completely independent, at least not subject to the same degree of control by an interested party in the discourse. Therefore it is difficult to draw direct comparisons between the two data sets. However, at times there are contrasts and correspondences that are noteworthy and these will be highlighted here.

Unsurprisingly, given the support of Dublin City Council management for municipal waste incineration, most of the messages in relation to incineration risk disseminated by the various communication mechanisms by the DWE information programme promoted the positive aspects of incineration (see Fig. 6.8 below). Arguments which were of an anti-incineration stance originated from the public participation communication mechanisms.

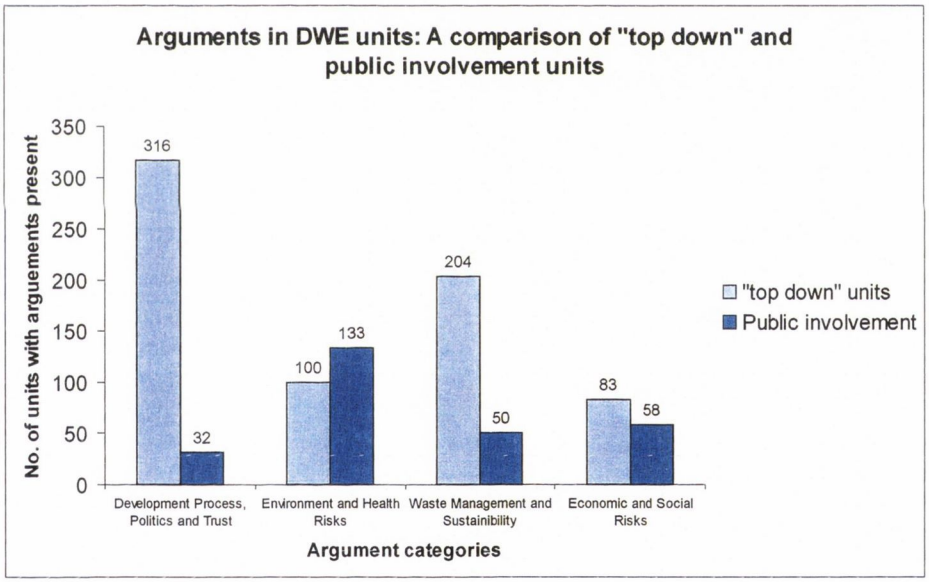
Fig. 6.8: Risk Messages raised in DWE units



It is clear that messages about development and trust dominated the DWE information programme (as it did in the newspapers), with economic and social risk messages the least significant category. In contrast to the newspaper units, the information programme itself was the subject of a high proportion of the messages it generated (28% as opposed to 5% in the newspaper units). The presence of both risk and trust issues concurs with earlier studies of incinerator siting controversies (Petts, 1992; Snary, 2002; Ishizaka and Tanaka, 2003; Dodds and Hopwood, 2006).

When data for units involving direct participation of publics are compared with the data for 'top down' units, there are statistically significant differences (at a confidence level of 1%) between the types of risk messages articulated in each category (see 6.9 below).

Fig. 6.9: A comparison of messages in units involving the public with 'top down' units



From the chart above it is apparent that messages about environment and health risks and economic and social risks were raised more often in communication mechanisms that involved direct public participation and that risk messages about development and trust were raised more often in 'top-down' units. This finding backs up conclusions of earlier studies by researchers such as Wynne (1996) and Peuhkuri (2002) that there are considerable differences, in terms of which risks receive

attention, between public involvement communication mechanisms and one-way communication models. Although, as is detailed in the next chapter, Chapter 7, the resistance to the incinerator was framed so as to include waste management and sustainability issues, these issues received considerably more attention in the 'top-down' units than in the public participation units. It would appear, therefore that the sustainability arguments were stronger motivations for the development of the incinerator than they were for the resistance to the incinerator.

Examining the data in terms of pro- or anti-incinerator arguments shows that communication mechanisms with direct public involvement (Fig 6.10) exhibited higher numbers of anti-incinerator messages than 'top-down' mechanisms (Fig 6.11), particularly with respect to health, environmental, social and economic risk messages. These differences, though significant in terms of proportions and frequencies, may not carry equal significance in terms of influencing the outcome of the decision process around the siting of the incinerator.

Fig. 6.10: Negative and positive messages in DWE public involvement units

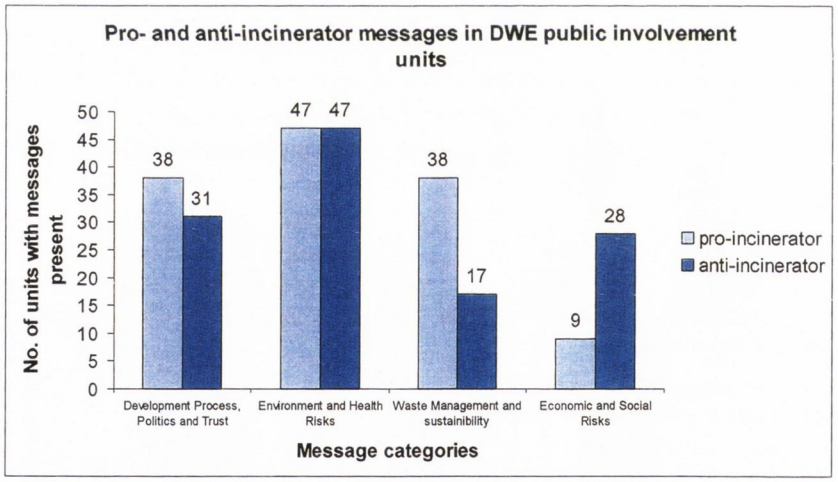
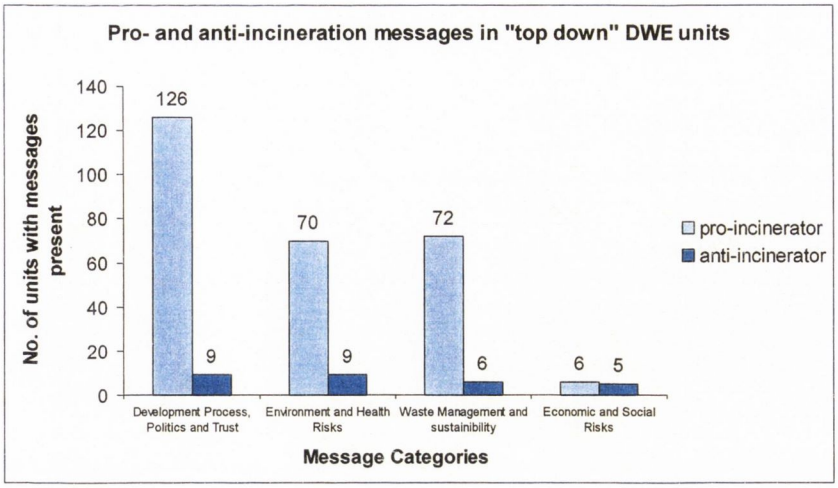


Fig. 6.11: Negative and positive messages in top-down DWE units



As the majority of anti-incinerator messages were raised in those units directly involving publics, it is likely that many of these negative messages originated from publics. However, an examination of the highest ranking arguments (see Table 6.2 below) shows that just one of the ten highest ranked arguments is an anti-incinerator argument regarding the potential impact of the incinerator on traffic in the area, and this is ranked here at joint ninth place. This lends weight to Snary's (2002) contention that using a public participation model of risk communication does not guarantee opportunities for those potentially impacted by facilities such as incinerators to participate fairly or competently. It is notable here that two of the three highest ranked arguments identified in the content analysis of the DWE information programme units were about the information programme itself.

While the content analysis data reveal important patterns about the arguments articulated in the DWE information programme, the interview data provide insights into the impressions of the information provision held by those conducting the programme and the target audience. According to DWE employees, the information provided at the Open Days was useful to the community members attending as it provided some reassurance and probably aided them in their quest to oppose the incinerator:

> *"What seemed to me was that the people who were coming were genuinely looking to get information. They knew that this was the most friendly way.... Now whether that was with the motive from the community perspective of sort of being informed,*

being fully informed so that they could make an informed judgement or case at an oral hearing, there was some of that, but I think they were looking for reassurance that the project didn't pose the threat that was emotively articulated by the C,R,A,I, the Combined Residents". Terry, DWE 4

Table 6.2: Top ten ranked risk messages in DWE units

Rank	No. of units where message was raised	Risk Message
1	43	The planning and development process is proceeding in a systematic, proper and statutory fashion
2	38	A comprehensive and open information programme about waste-to-energy/ incineration is being undertaken by the Dublin Waste to Energy project
3	36	The public's queries and views are welcomed by the Dublin Waste to Energy project/ Dublin Waste to Energy project wishes to have a dialogue with the public
4	29	Waste-to-energy /incineration is compatible with recycling and/ or will be used as part of an integrated waste strategy which includes recycling, reuse and reduction
5	29	Waste-to-energy / incineration offers energy recovery
6	25	Incineration is/ the proposed incinerator will be subject to stringent legal requirements, emission limits and conditions
7	24	The Poolbeg peninsula is the most suitable according to the criteria used/The siting process was properly conducted
8	19	An awareness raising programme about waste disposal options is being undertaken by the Dublin Waste to Energy project
9	18	The siting of a waste-to-energy plant / incinerator in Poolbeg will result in an increase in traffic in the surrounding areas, with which the area may not be able to cope
9	18	The city council is undertaking/ has undertaken a baseline study of air quality and a range of environmental parameters in the Poolbeg area.

The description of the 'emotive' articulation of threats by the anti-incineration activists is reminiscent of Okrent's (1998: 21) portrayal of publics' concerns about risks as 'fanciful fears'. In addition the contrast made in the above quote between the 'emotive' CRAI activists and the 'fully informed' public making 'informed judgement[s]' sets up a dichotomy between the supposedly rational authorities and the supposedly irrational opponents of the incinerator. However, researchers such as Slovic (2004) and Renn (2005) argue that such dichotomies are false since emotion plays a legitimate part in publics' psychological heuristics for evaluating risk. The quote above also displays a restricted concept of the types of information required by publics about risk. As Hampel (2006), in his review of risk concepts points out, scientific and factual information form just one component of risk communication while other issues such as institutional trust and credibility (Renn and Levin, 1991) have a role in shaping publics' risk perceptions.

6.4 The Role of the DWE Information Programme

6.4.1 Aims of DWE programme

Bennett *et al.* (1999) opine that deciding exactly what is to be achieved is a key component of planning a risk communication programme, while French and Maule (1999) suggest that this step is too often neglected. At the same time, Bennett and Calman (1999) stress that risk communication requires a coherent strategy rather than being allowed to descend into a series of ad-hoc reactions. An examination of the DWE information programme as risk communication, then, should include an attempt to unravel the aims behind the campaign.

According to the Environmental Impact Statement[59] prepared in respect of the Poolbeg incinerator project, public involvement aimed to firstly, provide information for the community about incineration and about the incineration planning and

[59] The EIS in respect of the Poolbeg incinerator was prepared by Elsam Dublin Waste to Energy Ltd. and Arup Consulting Engineers on behalf of Dublin City Council; it was last updated in June 2006 and can be accessed on line at http://81.17.252.110/~dwte/index.php?page=project-downloads

development process and secondly, to provide an opportunity for the members of the community to raise any queries or concerns they may have had about the DWE Project (Dublin City Council, 2006). RPS (formerly MC O'Sullivan) a large Europe-wide engineering consultancy firm, who also prepared most of Ireland's regional waste management plans, was appointed as the client's representative for the DWE Project. This meant that the consultancy firm acted as advisors to the council officials on the management of the development process around the waste-to-energy facility, or incinerator, including representing the public interest. This incorporated what the EIS document terms, 'a public involvement and information programme' (Dublin City Council, 2006: 2-6).

Sidaway's (2005) assertion that planners and developers of facilities tend to undertake public engagement processes for pragmatic reasons, seems to be borne-out by the following comments by members of the DWE team:

> "*So, you know, we've learned from the down-side of not engaging and the problems it created subsequently and I suppose, RPS, we must have selected the right consultants, that were very progressive and you know, that the days of making decisions in City Hall and imposing them on top of the community is fraught with all sorts of difficulty*".
> Terry, DWE 4

> *"[Communication with the public] is absolutely critical and you know ..there's a very practical reason it's critical (laughs), and it can be summed up in three words, and the three words are; People Stop Projects."*
> Mark, DWE 5

Terry, DWE 4 implies that a lack of public participation in earlier planning experiences caused problems which in turn prompted a change in the attitude and practices around communicating with the public on such issues. The comment that decisions can no longer be 'imposed... on top of the community' signals a realisation on the part of the local authority that publics are not passive in the process of public administration but that accountability to citizens is required in communication and decision-making (Lovan *et al.*, 2004b). Mark, DWE 5, on the other hand, implies that public participation is a necessity in order to salve conflict and that the priority is getting the project through planning. This echoes comments reported in Chapter 5 by

Sarah, DWE 1, that communication through the media did not help to deliver the project and therefore was not a focus of the DWE project.

The aim of Dublin City Council's information provision around the Poolbeg incinerator project was described by one particular DWE team member as being one of reassurance:

> *"It was to give people information in a calm and relaxed fashion that was appropriate to their understanding, to their audience dynamic and what have you... The aim of my information programme ..was to take the fear out of the community. And we felt very strongly about that; that we didn't want people to live in fear of something in their community. Object to it, hate it, hate the sight of it. But don't be afraid of it. .. And that was really my job; to make it factual, to cool it down, make it factual and make it about what the issues really are"* Sarah, DWE 1

The above quote makes it clear that the focus of the information programme, was the provision of information rather than the exchange of information. While the programme incorporated two-way communication mechanisms, from this stated aim, the focus seems to have been on top-down communication. The aim to take the fear out of the community about the concerns or perceived risks people may have, has echoes of Hilgartner's (1990) deficit model as it suggests that if publics have the correct information they will no longer be concerned. The notion of alleviating publics' fears about incineration seems to incorporate a condescending attitude towards publics as it implies that when they are clear about the 'facts' of incineration risk that they will no longer be concerned about the facility. The interesting phrase in this quote is that the aim of the communications programme was to 'make it about what the issues really are'. This implies that the communication programme aimed to steer the debate towards particular topics while seeing other topics as less relevant tangents. This resonates with Lukes's (2005) faces of power theory, where certain interests, topics and values can be suppressed within a debate.

From the interview data, those working on the DWE information programme were clear that the programme was not a public relations exercise, nor was it an attempt to 'sell' incineration to the communities of Ringsend, Irishtown and Sandymount.

Indeed, both the private and public sector employees involved in the programme insisted that there were as many anti-incineration papers and speakers provided as there were pro-incineration papers and speakers and that the information given by the programme aided those opposing the incinerator to mount objections. For example, one DWE employee describes it thus:

> *"It was never my job to stop people from objecting, that was never my mandate. My mandate was to make sure people knew exactly what they were objecting to."* Sarah, DWE 1

While this aim may seem magnanimous on the part of the local authority, it could also be seen as an attempt to control the objections to the project. Viewed in the light of Slovic's (1999) assertion that whoever controls the risk definitions controls the solution, this aim could be seen as somehow helping to shape the objections to the incinerator. As with the last quote from Sarah, DWE 1, this could be construed as acting to control the debate by pointing those opposing the facility in particular directions. In their examination of public participation, Coote and Franklin (1999) list such actions as a common failing of many public participation mechanisms. The controlling of the debate in this way was mentioned by a number of community stakeholders. For example Julia, Community 5 below stated:

> *"The problem was only certain questions were allowed, or the questions were controlled, or you didn't get an answer, or they'd say they had already given the information, or 'that isn't available'. The questions were never answered."* Julia, Community 5

One key query in this thesis was why there was a formal information programme developed for the Poolbeg incinerator proposals when other MSW incinerator proposals in Ireland, such as those in Carranstown, Co. Meath and Galway City, were afforded no such forum for discussion. The reason suggested by one DWE employee, Sarah, was that while the other incinerator planning applications were executed by private firms, the Poolbeg incinerator proposal came from a public-private partnership and had the local authority at the helm. As a local authority, it was argued, Dublin City Council management felt it had an obligation to publics to

provide a safe waste disposal facility and to provide information about it. Explaining the conception of the information programme, Sarah commented:

> *"I suppose if you compare what we did in Ringsend to other incineration projects around the country, we went way over the top and that really came from Matt's [Twomey][60] belief that as an authority, our obligations are very different. The obligations on a local authority are very different to those that would be on a private company. We have an obligation to the citizen, a contract with the citizen, to develop infrastructure that is safe and sound and sustainable."* Sarah, DWE 1

The statement here suggests that one motivation for the DWE communication programme was the obligation on the state to safeguard publics from risk. This, of course, is in addition to the aim, mentioned by Sarah, of preventing publics from being fearful. This is interesting in that it seems to contradict assertions from authors such as Taylor (2001, 2009) that governmental responsibility has moved from the protection of vulnerable publics to the protection of the economy. However, it also contradicts, somewhat, earlier quotes from DWE employees who suggested more pragmatic aims for the communication programme, as 'people stop projects' (Mark, DWE 5). However, the project is a public-private partnership and as such is seen by many stakeholders, particularly those opposed to the facility such as community, politicians, NGO's and some experts, as predominantly a private enterprise whose prime motivation is the generation of profit. As one community stakeholder commented:

> *"It's a PPP, it's about profit maximisation for the private operator, they will want to maximise the amount of waste going into that facility."* Scott, Community 2

To summarise then, it would appear than that there were a number of key aims in the information programme around the Poolbeg incinerator. The programme aimed to provide information, to allow for public involvement, and to gather feedback from potentially affected publics. It seems there were dual motivations for this non-statutory communication. On one hand there were pragmatic aims such as to decrease potential conflict, to shape the discussion in terms of which topics could be

[60] Assistant Dublin City Manager, who has responsibility for the DWE project

discussed and ultimately, to deliver the project without undue delay. On the other hand, there was a belief that the local authority had an obligation to the welfare of citizens and an effort was made to provide information which would reassure publics and to help them formulate their objections. Both ideological (Howes, 2005) and practical reasons for public participation in planning processes are commonly articulated in the literature (see Lovan *et al.* 2004a; Dryzek, 2005; Howes, 2005).

It is notable that while the programme was described as 'public involvement' in the EIS (Elsam Dublin Waste to Energy Ltd. and Arup Consulting Engineers, 2006: 2-6), the aims articulated by DWE personnel made no mention of publics deliberating, participating in or otherwise influencing the final decisions about the development of the incinerator, a factor which has been emphasised as being important in terms of democracy and transparency in environmental planning controversies (Hiskes, 1998; Davies, 2003; Sidaway, 2005). The question then, of how the public involvement component of the DWE communication was viewed by the residents and publics of the Ringsend and Sandymount areas is explored in this chapter.

Trust is a vital part of risk communication (Giddens, 1994; Peuhkuri, 2002; Sligo and Massey, 2006), and although building trust was not mentioned explicitly as an aim of the information programme, there are a number of indications that trust-building was at least part of the desired outcome of the communication programme. Firstly, it was stated by Sarah, DWE 1 that the informal one-to-one discussions in the local office about the incinerator were key in building relationships with local residents. In addition, members of the DWE team were aware that there were issues of mistrust between Dublin City Council management, for instance one DWE team member remarked:

> *"Huge. Huge trust issues. And it's still a challenge. The City Council has had difficulties with the adjacent waste water treatment plant since which they didn't expect to have indeed. And indeed, which the locals didn't expect to have. ... I mean, I would say we would have boiled down the, in recent years, the opposition to the plant in two words that start with the letter "t", Traffic and Trust. And I think the traffic is dealt with, the trust will take longer."* Mark, DWE 5

Therefore it is reasonable to examine the DWE communication programme in terms of whether or not it helped to build confidence in the incinerator project among publics.

From the interview data, it is possible to ascertain whether or not the aims of the information programme were achieved. Those who were in favour of the incinerator, including the DWE employees, felt that those various aims were achieved to one extent or another, while the anti-incinerator stakeholders were more equivocal.

6.4.2 Information provision

While those who were in favour of the incinerator tended to give positive accounts of the communication programme, those who opposed the incinerator gave either negative or positive accounts with qualifications. Community stakeholders interviewed were divided in their opinions about the usefulness and veracity of the information offered at the Open Days. The stakeholders who attended the Open Days and were interviewed for this research related mixed experiences of the information given at the sessions.

A common complaint from community members was that while information was available, receiving it often depended on asking particular questions. One community member, Julia, gave her impression of the information provided as follows:

> Interviewer: *"What did you think of the information? Did it assure you?"*
> Julia, Community 5: *"Em no! It was very limited, it was very... I suppose, basic. It didn't give enough information. They set up these information days, the open days, or what ever you like to call them. Now they were quite informative in many senses. There was a lot more information available then, provided you asked the right question, but nevertheless, it was there. Elizabeth Arnett ran most of those, and Elizabeth is rather straight, she would rather say 'Yes', 'No' or 'I can't say', which is fair enough"*, Julia, Community 5

The comment here about the level of information availability being dependent on asking the right questions was echoed by a number of anti-incineration stakeholders. That such a perception existed does not instil confidence in the transparency of the

process, if it seemed to stakeholders that information was not being fully or readily disclosed and therefore they felt that they were not afforded clarity into the various decisions made around the incinerator development (Andersson, 2008).

One interviewee pointed out that Dublin City Council management and their consultants and experts were not the sole sources of information, which resonates with Gidden's (1990) assertion that in late modernity publics are more discerning about information from experts:

> *"I thought [the Open Days] were reasonably okay. They were delivered by the officials who were implementing the decisions and not drafting them and to that extent they were well done. Relative to what Dublin City Council has done in the past I thought it was state-of-the-art information delivery. I wouldn't have faulted it at all. But they were speaking a pre-internet language. You know, they weren't recognising that they were no longer the sole source of information, that people might have other information, alternative information".* Tom, Politician 1

The quote from Tom, Politician 1, here acknowledges the role that the internet played in the discussion about the incinerator, providing an 'alternative' source of information, and thus empowering the community members. The implication is that government and governmental scientists may not be the only source of valid knowledge and information. This comment has shades of both Peuhkuri's (2002) contention that lay knowledges are a mixture of science and experiential social rationalities and Wynne's (1996) assertion that lay knowledges can competently compete with official sources of information. It also highlights the flaw in Beck's (1992, 1998b) apparent assumption that there is a hard dichotomy between lay knowledges and scientific or official knowledges.

The above quote from Tom also points to publics in the debate proactively seeking information rather than passively accepting the information proffered at the Open Day meetings. As happens in similar environmental disputes in other parts of the

world, the internet was used as both as a source of information and as a conduit of information[61] in the Poolbeg incinerator debate (Pickerill 2003).

Other community members were more favourable towards the information disseminated, claiming that it did indeed reassure. For example, one community member claims that his perception of incinerator risk changed due to the information he received:

> *"[Communication programmes] have to be done. They absolutely have to be done. Do they change minds, well, they certainly changed my mind, so they changed one person's mind and I suspect that by going along to meetings and speaking publicly on the subject, I would have got some people to realise I wasn't a hundred percent opposed to incineration".* Keith, Community 8

The above comment seems to back up Hilgartner's (1990) deficit model assumption, whereby publics are lacking in understanding and that scientific information will aid them to change their positions.

However, not all those who began with an open mind on incineration were convinced by the information given in the communication programme. Some stakeholders felt that there was a lack of information about particular aspects of the development and operation of the incinerator. One community stakeholder, who was not opposed to incineration to begin with, felt that the information provided was incomplete:

> *"I actually qualified as a scientist but I'm an engineer...When I got involved, my main focus was on wildlife and I went to the information meetings, I felt the information wasn't being fully given. They got expert talks on wildlife, they got expert talks on dioxin levels and sediments, they got expert talks on toxicology and so on and so on and so on. I don't think anybody really assessed the impact on the community. We had lots of talks about dioxins and dioxin levels in European cities and so on. We had no talk of the impact of 500 construction workers on the community and I actually worked at Poolbeg... I know the impact that has on the community."* Robert, Community 9

[61] A website, Fiasco.ie, set up prior to the Poolbeg incinerator debate by a community member, was used to publicise anti-incinerator arguments about technical and financial aspects of the incinerator debate.

Here Robert, Community 9, suggests that the information given was not necessarily always the information needed by the community. The importance of formulating messages about risk that are salient to the audience has been stressed by a number of risk communication researchers (for example Mythen *et al.*, 2000; Morgan *et al.* 2002). In addition, Renn (2003) highlights the need for the content of risk messages to be informed by the type of information asked for by publics. It would seem that in some instances, and on some topics, the DWE information programme did not achieve these objectives.

A number of anti-incinerator stakeholders expressed the belief that some of the details about issues such as the chosen site, disposal of the bottom ash and fly ash, the size of the incinerator were either false or were obscured. As the following stakeholders commented:

> *"Don't let anyone know how big this thing is, don't let anyone become fully aware of the problems. We can either sweep them under the carpet, or we can put them on a ship and export them to another country, which is basically what they were doing. We didn't get clear, unambiguous answers."* Julia, Community 5

> *"I went to all the open days and I was lied to by Dublin City Council on several occasions. One of the very interesting lies is; 'we have no plans to burn sewage in the plant.' And less than a month later, in their application document, there it was. And the guy said, 'We had no plans at the time I said it', and I said, 'So you wrote it within the next three weeks?'"* Roger, Politician 9

The importance of honesty and openness in effective risk communication processes in environmental controversies has been articulated by researchers (Petts, 1994; Covello and Sandman, 2001; OECD, 2002; Leiss, 2004; Palenchar and Heath, 2007), as has the importance of transparency and the provision of clear information about decisions taken in planning and siting conflicts (Andersson, 2008). However, according to DWE employees, there were details in relation to the incinerator development that Dublin City Management and RPS simply did not have at that time and they were aware that this was a challenge to the information programme.

As one DWE team member explained:

> *"At that stage the spec hadn't been defined, so 'it's a waste-to-energy plant, but we don't really know the size, we don't have it spec'ed out, we don't really know the technology, we just know the broad principles'. And I think that's really difficult for people to understand.. and I think they think you're hiding stuff from them. But the City Council doesn't have that sort of information at that stage."* Geraldine, DWE 3

Despite DWE's attempts at providing information that covered both benefits and drawbacks of incineration, many stakeholders believed that the information programme promoted the incineration proposal, whether by design or not. As one expert involved in the information programme commented:

> *"It was obviously an attempt by the developers, by the people responsible for putting this scheme forward to try and articulate a balanced view, but I think inevitably that view tended towards the view that the organisers wished to portray."* Martin, Expert 6

It can be concluded therefore, that whereas on one hand, a good deal of useful information was provided, the information programme was generally believed to have been carried out well by the DWE employees, and it did reassure some people, on the other hand, overall confidence in the information provision was damaged by the perceived bias of the DWE project and some stakeholders believed that there were incidences of incomplete and even untrue information.

6.4.3 The DWE communication programme as public engagement

The information programme examined here incorporated two formal mechanisms for engaging the general public; the CIG (Community Interest Group) and the information sessions or Open Days. Research focusing on public participation in policy and risk decisions suggests that such public involvement is validated and required by democracy (Bier, 2001; Davies, 2003; Renn, 2004). However, the DWE did not claim that the information programme would allow publics to participate in the decision-making process in relation to the Poolbeg incinerator, so criticising the programme for failing to include publics in these decisions would be unfair.

However, it is important for this thesis to examine the public participation mechanisms used in terms of how they operated and how they were viewed by the stakeholders, particularly those they attempted to engage.

As mentioned earlier, the CIG process began in October 2001 and ran for just under a year. It required a great deal of time and effort on the part of the DWE team and it was a well resourced undertaking. Despite this, it was beset with a number of serious problems from the beginning which may have affected its operation as a public involvement mechanism. These problems included concerns about how the members of the group were chosen, disagreements over terms of reference, a lack of clarity about how information would be disseminated to the greater community, members resigning from the group, confusion among stakeholders as to the level of public involvement intended and confusion about the impact the members of the group could expect to have on the final decisions about the incinerator.

Setting up the CIG proved to be difficult as many members of the community seemed to be reluctant or disinterested in sitting on the body. Some stakeholders interviewed claimed that this was because both the group itself and its functioning were ill-defined. Some DWE interviewees, on the other hand, claimed that community members did not wish to be seen to be supporting the incineration proposal and felt participation would indicate co-option:

> *"There was good reason for people not engaging because they'd be seen to be supporting, either tacitly or otherwise, the project by engaging in any initiative."* Terry, DWE 4

Finally, the group was brought together, but although the initial idea had been to have people volunteer themselves and then the CIG would be chosen by an independent panel, two members of the CIG interviewed for this thesis received letter invitations to sit on the group without having put their names forward:

> *"Anyway, those who wished to be on this committee to be consulted on this consultation committee would put forward their names and they would dwindle them down by the various different profiles, you know, age profile and so on ... and this committee would pick the names. And my name was chosen, but I didn't even*

> *put my name forward to go into it because [CRAI] had decided we wouldn't put names forward. So I was chosen even though my name hadn't gone forward."* Meryl, Community 1

> David, Community 7: *"I saw there was to be a meeting that evening at Ringsend, but it was too late for me to go... so I wrote to them and asked them when the next meeting would they give me notice and they asked me would I like to be on this committee. So I volunteered to that extent."*
> Interviewer: *"Did they explain what the committee was about?"*
> David, Community 7: *"Not really, I got a letter to say that this community-whatever it was- committee, and I never had anything to do with anything like that, but I was quite happy to go along."* David, Community 7

Edelenbos and Klijn (2006) claim that invitation processes for public participation mechanisms using open invitation methods are often combined with direct approaches to certain stakeholders to ensure a good range of stakeholders. Other researchers stress the importance of having a broad range of stakeholders and perspectives in public participatory and deliberative processes (Aldred and Jacobs, 2000; Rauschmayer and Wittmer, 2006). Therefore although the recruiting method for the CIG was not unique, the underlying trust issues meant that the appointment of people who had not expressed an interest in being on the committee was likely to be perceived as a method of control and possibly manipulation of the group.

The group was composed mainly of local Ringsend and Sandymount people and many of these were opposed to the incinerator. A small number of CIG members were from other areas of the city which caused a good deal of consternation both within the group itself and in the local community, as explained by community member, Stephen (Community 10):

> *"I believe they packed the committee. I looked at the members of the committee, and I know half a dozen of them, they're lovely people, but there are three or four members of that committee who are not local representatives whatsoever, they came from distant parts, their backgrounds are ex-employees of state agencies and state departments. ... There's an American term called a shill, they're members of an audience at an auction making bids that are not true. I think there are people present in this project like that."* Stephen, Community 10

The belief that the CIG selection was somehow rigged was expressed by a number of interviewees. This constituted a significant lack of transparency in the operation of

the CIG and seems to have affected the work of the group, as it caused a great deal of mistrust between particular members of the CIG as well as between the anti-incinerator activists and DWE.

The importance of the relationship between place and people in environmental risk debates and the importance of spatial context in siting controversies has been noted by researchers (Bayliss-Smith and Owens, 1994; Simmons and Walker, 2004), so it is perhaps no surprise that there was a strong reaction among those opposing the incinerator when their concept of who constituted the community seemed to be challenged by the make-up of the CIG. What is more, the definition of the term 'community' in 'Community Interest Group' quickly became an issue within the CIG process, as one community member and CIG member recalled:

> *"There was a nurse there from somewhere else as well and there were various people who wouldn't be actually part of our community... Definition of community. I know it's an awkward one to define, but you'd think if you were dealing with an issue that will affect [people] locally that it would be the local community or you can extend the local community, but they say the greater Dublin area, the four local authorities were all part of the same community .. But we couldn't even get that defined"* Meryl, Community 1

There was also some confusion over how the CIG related to the community. The group was unelected and therefore had no representative role for the community. However, it was intended that the group would make decisions about the sorts of information the community would need in relation to the incinerator proposal and also that it would disseminate information and report back to the community. At the same time the members of the CIG were clear that they were sitting on the body as individuals and not representing the community. One of the experts interviewed for this thesis expressed some scepticism with regard to the CIG process:

> *"It was a farce, the whole thing. It was not a democratic, representative structure. Therefore it had no value. ... It has no character of representation. It has no character of negotiation. And people made it very clear, for those who were involved, that they were not there on behalf of the community, they were there in their personal rights. End of story. The people who were on the CIG never claimed... They always made it very explicit, that they were not representatives of the community".* Declan, Expert 3

In the end, the group declined to produce a report since they became frustrated with the lack of a mechanism by which to disseminate such a report and so, a marketing company was commissioned to author a final report. In this respect the CIG mechanism differed significantly from the BAN waste group described by Dodds and Hopwood (2006), since crucial to the success of BAN waste in preventing the development of an incinerator in the Byker area of Newcastle, was the group's preparation and wide dissemination of a number of reports relating to the deliberative process.

Throughout the CIG process there were a number of resignations, usually by anti-incineration activists such as members of CRAI. The rate of decline in CIG members was not clear from the notes however since, apart from one meeting, oddly neither resignations nor number of members attending were noted. As with most aspects of the CIG, there was disagreement in the interview data between those in favour of the incinerator and those against as to why these resignations occurred. Those who left the group profess that they were frustrated by the lack of proper terms of reference for the group and by the impression that it was a meaningless exercise. Similar stresses were noted by Dodds and Hopwood (2006) in their studies of the public participation processes set up in response to opposition to the incinerator in the Byker area of Newcastle.

Conversely, DWE personnel suggested that the resignations were more likely to be due to lack of time on the part of some group members and that pressure was applied on local residents by persons suggesting that participation was akin to tacit acceptance, as Mark commented:

> *"Some just genuinely just didn't have the time to devote to the thing, and there were certain, I don't want to use the word... I have to be careful ... were got at by people who were in positions of influence. They were pressurised... 'look at your consent to this by continuing to engage in it'."* Mark, DWE 5

One member of the CIG who was in favour of the incinerator claimed that there were a number of pro-incinerator members who left because of the severely argumentative nature of the meetings:

> David, Community 7: *"On the committee, most people were just totally against it from the start, from the very, very start. One or two people weren't and they tended not to show up after a while. When they found it was just a war-zone, like, and that. But I kept coming back anyway."*
> Interviewer: *"Do you mean people who weren't totally against the incinerator left?"*
> David, Community 7: *"I'd say so yes."* David, Community 7

The issues explored above tended to upset the CIG process and further eroded certain publics' confidence in the DWE project. The discontent filtered into the general discourse and the anti-incinerator activists used the CIG confusion to underline mistrust in the authorities, as shown in the following newspaper quote from CRAI:

> *"The consultation process which took place between the Community Interest Group and Dublin City Council was a sham," according to a statement from [CRAI]"*
> From Irish Times 17 August 2002[62]

Willis and Wilsdon (2003) contend public participation mechanisms are more effective if participants know that their involvement will have an impact on the final decisions while Bier (2001) asserts that the type of public participation intended and the extent to which publics' views will influence the final decision should be made clear very early in the process. A further confusion that arose with the CIG process was to what was meant by consultation, that is, whether the process was merely an elaborate scoping exercise and what impact, if any, it would have on the final planning outcome.

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[62] See Flynn (2002)

For their part, DWE stakeholders described the consultation process as one where community members' views and concerns would be expressed and that they would be provided with information.

For example, the following excerpt from the Waste Wise newsletter explains the role of the CIG:

> *"The CIG process was set up by Dublin City Council last September. The role of the Community Interest Group is to reflect the views and concerns that their community has about thermal treatment. The statutory consultation process will not start until 2004, when the necessary planning and licensing applications will be prepared. The local authority feels that the proposal is too important to wait until 2004 for the community to have access to valid, up to date information".* From Waste Wise April 2002

In accordance with Bier's (2001) recommendation that the extent of public participation should be indicated early in the process, one DWE employee explained that it was made clear to the participants which issues were not considered as negotiable, but that the residents found this difficult to accept:

> Sarah, DWE 1: *"We were very clear about what was not up for negotiation; the use of incineration was not for negotiation, the site was not up for negotiation*
> Interviewer: *"Did people understand what was up for discussion and that you were looking at their concerns, but not necessarily their participation in the various substantive decisions?"*
> Sarah, DWE 1: *"They understood it but they didn't accept it."* Sarah, DWE 1

While it may have been clear what the non-negotiable facets of the incinerator development were, the level of participation, and how the concerns and views garnered could be used, seems to have been a matter of consternation and uncertainty for anti-incineration stakeholders, as explained by Julia, Community 5:

> *"A number of those [on the CIG] said: It will be claimed that I, as an individual, or the group that I usually belong to, has been consulted. You say this is not consultation, at the same time you're saying it is, you're saying it's not scoping, at the same time it is.."* Julia, Community 5

Blowers (1980) contends that public participation processes, while allowing for the expression of interests and preferences by publics, are often used by local or national

governments, or indeed by officials to back up or legitimise the decisions and views of the planning authority. While there is no evidence from this study that that is what happened in the case of the DWE information programme, some stakeholders believed it was a possibility, which again highlights the mistrust that some community stakeholders felt for the DWE process.

As noted in Chapter 3, public participation processes are played out against a background of inequitable power relations (Fischler, 2000; Sidaway, 2005). From the quotes above, it is apparent that while there may have been a consultative aspect to the CIG process, the general parameters set by the DWE information programme rendered it a rather limited public engagement exercise. In addition, the above quote highlights the disparity in power relations involved between the Dublin City Council management on one hand and the community stakeholders on the other. Those running the communication process then have the power to dictate from the outset which issues can be negotiated, which is reminiscent of Lukes's (2005) latent power. Indeed, some members of the CIG group described the feelings of being controlled and of being guided to a particular pre-ordained conclusion. One anti-incinerator activist explained:

> *"Again, going back to 2001, when we were sitting around these round table discussions, it was very much about being facilitated and controlled. The one thing about facilitation is that the facilitator .. has an end point to bring you to. And again we had a number people in the community who would be.. trained as facilitators so we knew we were being brought to the point that we didn't want to go to. And that was part of why we had to ensure, you know, that they couldn't say they had completed a proper consultation."* Meryl, Community 1

The perception that the CIG was a consultative process, but one that was tightly controlled, as in Coote and Franklin's (1999: 190), 'theatre for the rehearsal of fixed positions', meant that the anti-incinerator activists sitting on the CIG feared that they may be pushed towards a tacit acceptance of the decision to develop an incinerator. There was a strong belief among community stakeholders that the communication programme amounted to containment. The lack of power they felt prompted them to

purposely disrupt the CIG process. As one community stakeholder who sat on the CIG explained:

> Meryl, Community 1: *"I suppose, on our behalf, there was a deliberate effort to disrupt it anyway."*
> Interviewer: *"Why did you do that?"*
> Meryl, Community 1: *"Because we didn't see it as consultation .., if it had been consultation we should have been in at the early stages in 1997 and '96 when they were making the decisions and on the siting criteria and all that, and we weren't."*
> Meryl, Community 1

Here Meryl, Community 1, underlines the necessity for consultation early in the development process, prior to the major substantive decisions being made. The use of early engagement of publics as being a crucial requirement of risk communication processes has being articulated by a number of researchers (Petts, 1992; O'Brien, 2000; Ishizata and Tanaka, 2003; Frewer, 2004; Renn, 2004). Indeed, Kasperson (2005) has concluded that a failure to engage publics early can threaten the overall success of a public participation process.

The belief that the public involvement elements of the DWE campaign did not constitute 'proper' consultation was a common theme in the interviews. It was also raised during the CIG meetings as evidenced by the following excerpt from the February, 2002 CIG report:

> *"Questions were raised by members of the group regarding a sense of dissatisfaction that the consultation process at present was not what would normally be defined legally as public consultation, and that the mandate of previous meetings was information rather than consultation."* Extract from the notes of the CIG meeting 12 Feb 2002

Similar comments regarding a lack of consultation were made in relation to Open Days which were designed to give publics a chance to ask questions, and in relation to the DWE information programme as a whole. In the quotes below the speakers explain what they understand consultation to be and why they believe the DWE information programme was not consultative enough:

> *"I felt the information wasn't being fully given, and gradually got drawn in and started to realise that the people were not actually involved in a consultation...I'm not saying that the information wasn't good enough. I'm saying that there was no consultation. Because consultation is a two way process, you say what you're*

> *thinking of doing, the community says what it wants, or what it feels about it and then you have a debate and you end up with a compromise."* Robert, Community 9

> *"I don't think it was a consultation process as such. I mean, a consultation process means that people articulate their points of view and those points of view are taken into account in the formulation of it. If their points of view had been taken fully into account, I think it would have been a very different outcome. Instead I felt this consultation process ..was more an exercise in going through the consultation for consultation's sake, because there wasn't any realistic expectation of changing anything."* Martin, Expert 6

References here to 'compromise' and to a 'realistic expectation of changing things', coincides with Willis and Wilsdon's (2003) assertion that public participation processes become meaningless if the views and concerns expressed during consultation mechanisms are not incorporated into decisions. The above comment by Martin that the DWE process was 'consultation for consultations sake' implies that some stakeholders felt that it was meaningless. The main contribution of the CIG process was the defining of information required by publics who could be potentially affected by the incinerator. While employees of DWE pointed out that some of the issues raised were incorporated into the EIS, such as the need for a traffic mitigation plan and an extension of the time given for objections in the planning process, the key decisions about using incineration and siting the incinerator would never be influenced by the CIG process. By admission of one member of the DWE team, the consultative element of the programme was minor:

> Interviewer: *"When you were doing the information programme, how much of that was consultation?"*
> Sarah, DWE 1: *"A very small amount of it, a very small amount of it."* Sarah, DWE 1

Stakeholders who expressed approval for the DWE information programme included business spokespeople interviewed and some of the experts who spoke at events arranged as part of the information programme. For instance, one technical consultant commented:

> Alan, Expert 4: *"It was very good, it was very novel, it was very, I suppose, innovative in the sense that there is a lot of literature on this whole idea of citizens' panels and public participation, well, it goes beyond public participation, it's really*

> *citizens panels and juries and auctions, and this whole concept of having a local community decide, essentially, whether something is acceptable. Not in an adversarial way where they get an opportunity to comment on a proposal, but more in a consensus basis that they are discussing amongst themselves. That was the idea."*
> Interviewer: *"Do you think it got to that consensus level?"*
> Alan, Expert 4: *"It was certainly meant to do that."* Alan, Expert 4

The most notable aspect of the above quote is that the speaker, who spoke as an expert as part of the information programme, considered the information programme to have been aiming for consensus and to have had allowed the local community to make decisions about the acceptability of the incinerator, even though the stated aims as expressed by DWE personnel fall far short of that.

As discussed in Chapter 3, Arnstein (1969) defines consultation as inviting the opinions of stakeholders. This certainly seems to have been accomplished in the case of the CIG process. Issues raised at the CIG meetings formed the basis for the Open Day information meetings provided for the community, so arguably the criteria for consultation, as defined by Arnstein (1969) have been met. Nevertheless, Arnstein (1969) does provide the caveat that, although consultation is a move towards meaningful negotiation, unless it is accompanied by other participation methods the process becomes a façade as the concerns expressed cannot be acted upon. In terms of Arnstein's (1969) typology of public participation, this is still tokenism.

When viewed in light of work by Willis and Wilsdon (2003), it seems that for all its innovation (in relative terms in the Irish context), the DWE information programme closely resembles the traditional information provision approach to risk management. Bickerstaff *et al.* (2002) observe in the UK that, notwithstanding the stated commitment of central government to public participation, local authorities generally use tokenistic types of participation where ideas that do not conform to the interest of the local authority can be dismissed. The same could be said to be true in the case study for this thesis.

As stated at the outset, the DWE programme was an information provision programme rather than an attempt to foster a public-civil society partnership in waste management planning. Therefore it is unfair to criticise its failure to facilitate public input into the substantive decisions about Dublin's waste management solutions or indeed about the incinerator itself. Nonetheless, it is important to point out that the failure of the DWE information programme to maintain an engagement with the members of CRAI, and other Poolbeg incinerator opponents, amounts to a wasted opportunity. As one expert, Declan, Expert 3, commented:

> *"[The DWE information programme] wasn't relevant in any way. It was an information programme, or a partial information programme, it was not what the whole thing was about – of actually two legitimate, different communities, i.e. an overall community and a specific community sitting together or finding a way forward.. Ultimately there should be consultation, then a negotiation and a settled outcome, which is also enforceable on both sides.. The Poolbeg area could have become the pilot, or the example by which conflict resolution in environmental facility siting, The Poolbeg example could have been the prima-facie case by which to establish the new way of how to go about things ..So, it was a wasted opportunity not to go down a different way."* Declan, Expert 3.

In other words, the process could have been used to build a partnership between the residents of an area of the city where trust in the local authority had been damaged over the years. Turning then to the issue of trust, the following section examines how the DWE information programme acted in relation to (re)building trust in the area.

6.4.4 The DWE information programme as trust-building

At the outset of this section, it is important to note that establishing causal links between public engagement and trust or trust-building is not a viable aim of this research as the complexities of trust make such analysis problematic (Petts, 2008). However, the aim of the analysis in this section is to use the interview data to explore the various stakeholders' perceptions of whether or not the DWE information programme increased confidence in the DWE project specifically and in Dublin City Council generally.

The interview data suggest strongly that historically the residents of Ringsend and Sandymount had a deep mistrust of the local authority management. This is

examined in greater detail in Chapter 8, but its existence is relevant to the question of whether or not the DWE information programme helped to build trust in the DWE project. While some DWE stakeholders interviewed acknowledged that trust was a significant factor in the resistance to the plant and seemed to understand that rebuilding confidence would take some time, other DWE stakeholders denied that trust was an issue at all:

> *"They did not trust Dublin City Council because they felt, and again, it's just my impression and recollection at the time, that whenever that wastewater treatment facility was built, that they failed to do a good job. And it's the once bitten, twice shy; 'if you screwed that up, why should we think that you can do this one any better'."* Ray, DWE 6

> *"There is no trust issue, that's a tactic used by environmentalists all over the world. There are several reasons why we know that people trust us. We deliver drinking water and the general public accept it. People complain about the odour [from the waste water treatment plant], they still flush the loo. There's a sort of split personality among the public. They demand services, such as water and waste treatment, but they won't give us the tools."* Tony, DWE 2

Tony, DWE 2's, reference to publics' 'split personality' shows the frustration that those charged with providing services consistent with modern living tend to express about lay publics' risk perception. While publics may accept drinking water from the local authority or use the toilet, this in itself is less evidence that they trust the authorities than an example of people's dependency on those who present them with risk. Wynne (1996), for instance, contends that publics who are dependent on expert institutions tend to have an ambiguous relationship with those institutions and being aware of both their dependency and lack of agency tend not to display overt mistrust, even though privately mistrust may exist. Besides, in recent years large-scale drinking water contamination instances in Ireland, which were particularly problematic in Galway and Mayo, are likely to have affected public confidence in local authorities to provide drinking water (Siggins, 2007).

While two-way communication processes and public participation mechanisms have been identified as being influential in building trust in environmental controversies (Mythen *et al.*, 2000; Ishizaka and Tanaka, 2003; Leiss, 2004), as noted in Chapter 2,

research by Petts (2008) suggests that public participation may not always build trust among publics. Indeed Beder and Shortland (1992) have shown that such processes can damage trust if conducted badly. From the beginning of the CIG process, a lack of trust in the CIG process and in the information provision campaign was evident. Notes from the first CIG meeting on Oct 9, 2001 record that:

> *"The CIG group were of the opinion that the process they are currently participating in is a public relations exercise. They believe this is the case as .... Dublin Corporation cannot be trusted...[and as] the process to date lacked transparency"* CIG meeting, October 2001

Likewise, a lack of trust is indicated in notes taken at the Open Day information meetings. For example, the following quote from an attendee was recorded in the notes from the Open Day on traffic:

> *"We have to talk about trust. Somebody said that some development had started. How can you do this and expect people to believe what they are told? The Sewage Treatment Works is a disaster. RTE said the other day that waste is still being dumped into Dublin Bay. How can we trust these figures? We have to be aware that figures on paper don't really matter. We have to live with the mess."* Unidentified community member, Open Day, April 3, 2004

There are a number of observations to be made in this excerpt from the Open Day. The historical nature of the mistrust is hinted at with the mention of the problems with the 'sewage treatment plant'. The mention of the media as a source of information coincides with assertions from researchers that the media is an important source of information in relation to environmental issues (Burgess and Gold, 1985; McCallum, Hammond and Corvello, 1991; Mythen *et al.*, 2000; Wakefield and Elliot, 2003). In addition the quote suggests that the media is a more trusted source than the DWE campaign, according to this speaker at least. While authors such as Douglas (1992), Sandman (1994) and Covello and Sandman (2001), speak about the lack of salience that figures often hold for publics, here the issue of numbers is presented in relation to trust. The mistrust of the DWE programme leads to a dismissal of the figures used. Lastly, the juxtaposition of the 'figures on paper' with 'the mess' that residents felt they will have to live with, is reminiscent of Beck's

(1992) notions of technical rationality versus social rationality, in other words, when the (traffic) figures are translated into real life, they may not be as workable as they seem 'on paper'.

The data from the interviews, conducted in 2008, show that the mistrust in the DWE information programme was still present in the community among anti-incinerator stakeholders seven years after the information programme began. As evidenced by the following comments:

> *"I mean it's a PR job, you know, it's just private consultants doing the job, they're employed to sell the incinerator. ..They're going to sell this concept".* Hugh, Politician 6

> *"It is a public management, a public relations management, but it is a management of public perceptions and opinion. Sometimes, of course, there is a need for some of that because public opinion can be formed rationally and irrationally on very little information. So of course it is useful that they have more information. But who's giving it to them and with what purpose and within what context. So I wouldn't think that information sessions, run by consultants, hired by the council who are in favour of the incinerator, is a very democratic exercise."* Adam, NGO 1

From the sentiments expressed in the above quotes from Hugh, Politician 6 and Adam, NGO 1, it appears that the dual role of RPS Ltd.[63] as the environmental consultants in both overseeing the development of the incinerator and executing the communication programme undermined confidence in the DWE information programme. It is clear here that some stakeholders dismissed the information programme on the basis that those conducting it were 'employed to sell' the incineration project by the City Council management whom they saw as having a vested interest. According to Frewer (1996), sources of risk information which are perceived as having a vested interest are less likely to be effective disseminators of risk information. In addition, the above quotes reflect Peuhkuri's (2002) assertion that during environmental conflicts, mistrust between actors is dependent on how they view or assess each others motives and values. The implication here is that the motivation behind the information programme is to sell the incinerator and the value

[63] RPS, formerly MC O'Sullivan, the private consultancy firm involved in the DWE project

is one of monetary gain. In his examination of the communication process around an incinerator siting controversy in Hampshire, UK, Snary (2002) finds that purveyors or interpreters of risk information who are connected to the developers of incineration facilities may be perceived as untrustworthy on that basis. When s*et al*ongside these findings, the above quote suggests that the consultants who have recommended the use of MSW incineration, and who have been hired by Dublin City Council management may not be the perceived by publics as an appropriate organisation to disseminate objective information about the project. Indeed, Snary (2002) recommends that use of independent communicators during such controversies may increase the credibility of the information provision process. However, Petts (2008) stresses the importance of stakeholders having direct access to those making decisions about a contentious project. This would suggest then that while those making the decisions should be involved in the communication provision, there should also be a source of expertise that publics perceive as being independent.

The earlier Open Day meetings garnered a fair level of interest among local residents but attendance levels decreased as time went on. Many of the later sessions were not as well attended averaging at about fifty per session, according to one DWE employee. From these responses it would seem that some community members, particularly those who were active in opposing the incinerator considered the Open Days to be expensive promotional exercises and that their true purpose was to allow DWE to claim that the community had been consulted and informed:

> *"Well, we didn't go to [the Open Days] because as I say, from the start, they were picking our brains, .., looking to see what we were doing. So we decided to boycott it, because they were saying that they had given information to the communities, that they had the information meetings all the time. But they didn't, because there couldn't have been ten people at them. So how could you call them information meetings?"* Sadie, Community 4

The speaker above implies that some members of the community declined to attend the Open Days due as they distrusted the DWE's intentions in carrying out the information sessions. At the same time, a DWE stakeholder interviewed interpreted

the decline in attendance numbers as a vote of confidence in the DWE project and as an indication that the DWE information programme did manage to build trust:

> Mark, DWE 5: *"I think we did earn the trust of most of the people locally, so that the numbers of people at public meetings kept on dropping".*
> Interviewer: *"Did you see that as a good thing or a bad thing?"*
> Mark, DWE 5: *"Well a bit of both really. A good thing in the sense that people weren't so concerned that they wanted to give up an hour of their Saturday, and then on the other hand we always had new, and we thought, exciting, things to tell them about, you know, how we were bringing forward the district heating and some of the community gain aspects of the project that we would have liked to give to a wider audience."* Mark, DWE 5

Not all stakeholders shared the view that the DWE information programme earned publics' trust. Those opposing the incinerator did not believe that the information provision increased trust. One community stakeholder commented:

> *"I don't think [the DWE information programme] had any effect at all. It certainly didn't increase trust, because we couldn't get a straight answer. Certain questions you could ask and you could get a straight answer to. The majority of questions you couldn't."* Julia, Community 5

In this quote, Julia, Community 5, links the failure of the DWE communication campaign to build trust directly with the information gaps and the suppression of particular topics.

Many of those working on the information programme did not believe that it increased trust either. However, the following quote claims that the information programme did help build relationships, presumably a basis from which trust may eventually grow:

> *"I suppose over time what we did manage to do was build relationships with key individuals. And you don't do that overnight, you do it over time. And we were given the time and the space to do it – years and years and years and years. And, I mean, the most hard-chaw protesters sent me presents when I had my first child. So it puts it all in a very different context. So it means that you can actually talk and communicate with people. People aren't angry .. they're actually talking and they're listening. They might not trust us exactly, but they know that you're there and you're still there, and you've been there for 8 years, and you're still saying the same message"* Sarah, DWE 1

The assertion in the above comment that the communication programme helped to build relationships with key individuals and the realisation that this is not done

overnight, is important in the light of Zinn's (2004) contention that trust is built up slowly and on an individual basis.

However, there were other factors outside of the information programme which impacted on the trust of both the City Council management and consequently on the information programme. The quote below shows that even where some of the information was accepted, for instance the health information, mistrust of the City Council management prevented some stakeholders from being reassured with regards to the DWE project:

> *"I think there has been a substantial amount of research carried out about the health implications of incinerators. .. So the health issues aren't of major concern to me, per say, but I would have a concern just about the City Council's capacity and ability to ensure that everything works the way it should and that all of the health and safety precautions are taken in the plant..."* Sally, Politician 7

The above quote suggests that there were trust issues apparent in the incinerator discussion that were too deeply ingrained for the DWE information programme to tackle. It is possible therefore that had these issues of mistrust been addressed in the years prior to the DWE project, that the information programme would have been more successful in garnering acceptance. For example, Hartley (2006) stresses the importance of trust building during non-crises time. Another factor affecting trust which was outside of the control of the information programme was the considerable uncertainty with regards to the private partner in the public-private partnership formed to develop the Poolbeg incinerator. The company originally awarded the tender was the subject of a business take-over and then the contract to build the Poolbeg incinerator was sold on to another company, so for a time, information about who exactly would build and operate the incinerator was unavailable. The depth of the mistrust became evident during discussions about the reputation of Covanta, the United States (US) company that eventually emerged as the possible operator. The comment below from James, Expert 1 during the interviews shows the depth of suspicion that surrounded the issue:

> *"I mean, at this time nobody knows who's going to operate the plant. There is an American company based in New Jersey, a waste management company in New Jersey. You say 'waste management', 'New Jersey' to an American, the first thing they will say to you is 'mafia'. .... So waste management in the United States, particularly the East coast of the United States, particularly New Jersey is dominated by the mafia and this American firm suddenly turns up."* James, Expert 1

> *"I don't know how popular 'The Sopranos'[64] was over here, because that must have been where it's from. I mean great TV show, but it really has nothing to do with our industry. You know what, my guess is that that TV show was accurate for a certain period in time, I'm going to guess, more like twenty years ago, in the waste hauling industry... We as a company have never, ever been involved in trucking and hauling"* Ray, DWE 6

The sentiments expressed by James, Expert 1, may have bemused Ray, DWE 6; however, they serve to underline the level of mistrust and concern that arose during the debate. James's comment also emphasises the problems the DWE information programme had for a period of time while there was little information about the identity the operating company. Powell and Leiss (1997) describe a communications vacuum as being a serious lack in communication about a risk, whereby rumours, half-facts and unsubstantiated messages fill the gap and the risk becomes amplified. The absence of information about the private partner in the development of the Poolbeg incinerator fuelled the mistrust about the project and opened up a communication vacuum which allowed worries about possible private partners to flourish.

In summary, the research uncovered a number of trust issues in relation to the DWE information programme. Firstly, trust in the local authority management among the local Ringsend, Irishtown and Sandymount communities was low to begin with and so the DWE project, by extension, garnered little confidence in the local community. Secondly, a number of things happened both internal and external to the information programme which acted to, at the very least, reaffirm the mistrust and possibly further damage it. These things included the lack of transparency in the CIG selection process, the incomplete levels of information and perceived misinformation, the uncertainty about the identity of the private operator and the use of a communications team who were perceived to have a vested interest in the

[64] US drama about the Mafia, based in New Jersey

project. While it is possible that the information programme did build relationships with certain individuals who would listen, the interviews show that in 2008, almost a decade after the possibility of the Poolbeg incinerator was first mooted in 1999, there is still a deep anger and mistrust within the Ringsend and Sandymount communities towards the DWE project in particular and Dublin City Council in general. Therefore while individual relationships might have been forged as a result of the information programme, these do not amount to the building of institutional trust in this case.

6.5 Conclusions

The DWE information programme was well resourced and, in terms of what had been done before in Ireland in relation to facility siting, it was innovative. Unsurprisingly, most of the messages emanating from the one-way communication mechanisms (such as the newsletters and website) were pro-incinerator, while the public participation mechanisms displayed a mixture of pro- and anti-incinerator arguments. Overall, the information programme appears to have provided some assurance for publics and it offered a good deal of information. However, its overriding aims would seem to have been the delivery of the incineration project and the assuaging public fears about the project. That the programme aimed to soothe fears about incineration points to an underlying attitude of condescension by the DWE project and Dublin City Council management towards publics involved in the Poolbeg incinerator debate.

While much information was provided, there were serious information gaps, the reasons for which were sometimes out of the DWE communications team's control, and this created information vacuums where uncertainty, concern and mistrust were allowed to thrive. Many community stakeholders interviewed for this research felt that although the information was there, obtaining it often depended on asking particular questions. Therefore, although there did appear to be substantial information, the details that remained unknown to the DWE team and the feeling that some information was given only if requested created an impression among those concerned about the incinerator that some information was been purposely obscured.

That the information programme was being carried out by consultants RPS, who were employed by Dublin City Council and who had prepared the waste strategy recommending incineration, meant that many stakeholders considered the purveyors of the risk communication as having a vested interest in the project. The use of a third party likely to be perceived as an independent source of information, rather than as an extension of the PPP developing the project, may have been a better choice to manage the information provision.

The public participation element of the information programme appears to have been tokenistic and particularly restricted in terms of what could be discussed or altered, with the result that many stakeholders saw the communication process as meaningless. Although the DWE stakeholders interviewed claimed that the limited extent of the consultative nature of the programme was made clear from the outset of the communication process, the interviews data suggest that there was confusion about this among at least some members of the CIG group. The CIG process, which was the pivotal part of the public involvement aspect of the DWE information programme, had a number of difficulties from the outset and its overall contribution to the incinerator development process would seem to be limited to the identification of particular topics for the subsequent Open Day sessions. On a more political level, the group was ill-defined in terms of how it related to the community and what its function was and this served to further alienate and aggravate the anti-incinerator activists involved, leading to their eventual withdrawal.

The DWE information programme began subsequent to the substantive decisions, that is, the provisional decision to site the incinerator in Poolbeg and the decision to use thermal treatment. From the literature (for example, Kasperson, 2005), excluding publics from such policy and strategy decisions can threaten the success of public involvement processes, as publics do not feel that their participation is meaningful. A number of stakeholders interviewed in this research lamented the failure of Dublin City Council management to begin the consultative process earlier.

For a variety of reasons, including historical mistrust in the local authority and events within and outside of the DWE information programme, trust-building was not a major or even minor outcome of the information programme, although some relationship building may have occurred. Some stakeholders suggested that the process may even have further damaged trust between the communities in Ringsend and Sandymount on one hand and the local authority on the other. Ultimately, the DWE information programme was a wasted opportunity. If consultation with publics had begun earlier in the process, if the information had been provided by an entity that was not viewed as having a vested interest in the incineration project and if publics had been afforded a more meaningful say in the waste strategy and in the technology decisions, there may have been a real opportunity to build trust in the local authority in the area and perhaps, to develop an understanding between those proposing and those opposing the incinerator. Had such an outcome been achieved, it could have acted as a blueprint for managing and reducing conflict in similar infrastructural developments in Ireland and beyond.

Chapter 7: Understanding the Risk Messages

The previous chapters have detailed the findings from the content analysis of, firstly, the media coverage of the debate around the Poolbeg incinerator and, secondly, the documents and materials from the Dublin Waste to Energy (DWE) information programme. This chapter addresses a central research question for this PhD: to ascertain the rationales behind the various arguments expressed in the Poolbeg incinerator debate. It discusses the following tangible concerns that emerged in the Poolbeg incinerator debate: sustainability, economics, health, traffic and ecological concerns. Within each discussion, the views of the proponents and opponents are presented separately to allow for ease of analysis.

7.1 Sustainability

Arguments about whether or not incineration could be part of a sustainable and viable strategy to manage municipal waste featured strongly in the discussion about the Poolbeg incinerator. Indeed, the issue of sustainability was used by both proponents and opponents of the incinerator to bolster their respective cases. Both groups claimed their own views to be underpinned by environmental values and concern for the greater good while attributing more self-interested values to their opponents. According to Burningham (1995), this polarising approach is a common tendency in environmental disputes. As noted in Chapter 3, the concept of sustainability tends to be ambiguous and there exists a spectrum of sustainability from weak to strong, thus allowing all positions to claim sustainability as an underpinning rationale (Irwin, 2001; Barry, 2005).

7.1.1 Sustainability: Incinerator proponents

Proponents of the incinerator, such as council officials, members of the Dublin Waste to Energy (DWE) PPP and business spokespeople, claimed that the use of incineration as part of an integrated waste management solution was necessary to manage Dublin's waste crisis. Moreover, those involved in the DWE project asserted that incineration was an environmentally sound method of waste management since

it reduces waste volume considerably and can be used to generate heat. As members of the DWE team put it:

> *"When you look at the multi-discipline aspects of sustainability, when you look at renewable energy, climate change, water management, land management, when you look at that on a lifecycle basis, whatever waste is not recycled, the most sustainable option is waste-to-energy... So it's a pretty nice package."* Ray, DWE 6

> *"The model we used has 59% recycling, 25% thermal treatment and the balance of 16% going to landfill. There'll always be a requirement for landfill. EU directives are saying we must radically reduce the amount going for landfill, you know, on a phased increasing basis or whatever."* Terry, DWE 4

The quote from the DWE employee Ray, DWE 6, implies that the choice to use MSW incineration is made on the basis of a wide range of environmental criteria. A number of studies have shown incineration with energy recovery to be preferable from an environmental point of view to either landfill or incineration without energy recovery (Mendes *et al.*, 2004; Eriksson *et al.*, 2005). The comment from Terry (DWE 4) suggests that the impetus behind the decision to use incineration in the Irish context was an urgency to comply with EU legislation, a foundational tenet of which is the sustainability concept (for example EU, 1997).

The 2010 Landfill Directive deadline and decreasing landfill capacity, in particular, were mentioned by DWE stakeholders as being instrumental in the decision to develop MSW incineration in Ireland. The argument here is that the inclusion of incineration was the only certain way of achieving landfill diversion targets quickly. While this was undoubtedly a factor, the EU legislation does not stipulate the use of incineration. As Laffan and O'Mahony (2008) note, such framework legislation provides a degree of latitude to EU member states to decide on ways of implementing the aims and objectives set down in directives.

The EU Waste Framework Directive stipulated that the waste management plan for a region should be integrated[65] and that the guiding principle of proximity[66] should be

[65] All types of waste should be taken into consideration in the plan.

observed. An argument articulated by most DWE stakeholders was that the Poolbeg incinerator would be utilised as part of an integrated waste strategy for Dublin and that it would be compatible with high levels of recycling, as evidenced in other countries. As one DWE employee explained:

> *"We went and looked at the Dutch situation, where they were moving completely away from landfill, they have great levels of recycling, but they couldn't achieve what they have achieved without incineration. And they have a lot of very large facilities. They have eleven plants and they are all over a million tonnes each, so they are huge facilities. But they're very proud of them and they operate very well and the local community has no issue with them and their recycling levels are very high."* Sarah, DWE 1

The implication of this comment from DWE employee Sarah, DWE 1, is that incineration does not act as a disincentive to recycling, but it may actually enhance it and therefore promote sustainability. While correlations do exist between incineration and 'environmentally friendly' societies or between incineration and high levels of recycling (see EEA, 2007; Psomopoulos *et al.*, 2009), these do not necessarily amount to evidence that incineration does not detract from minimisation, reuse and recycling. FoEE (2007), for example, would claim that they simply show that countries that abandoned landfill earlier have both more incineration and more recycling than those that did not.

Nevertheless, the link between incineration and high recycling was heavily drawn by the proponents of the incinerator, who claimed that incineration was necessary to ensure sustainable waste management. A number of DWE and business stakeholders also claimed that waste volumes produced were too high to rely on recycling and reuse alone, that not all materials could be recycled or that materials could only be recycled a finite number of times[67]. Other technologies and strategies, including zero waste and mechanical biological treatment (MBT), which are routinely suggested by opponents to incineration, were deemed to be unsustainable and unworkable:

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[66] One of the four guiding principles of EU waste strategies, which states that each waste region (or member state) must take responsibility for the disposal of its waste within its own region and desist from exporting it elsewhere.

[67] Research suggests that some materials, for example paper, cannot be recycled indefinitely (Miranda and Hale, 1997).

> *"Ideally, of course, we would eliminate waste, but that simply doesn't....That can't happen. I mean, as a society we generate waste. And people talk about zero waste societies and they talk to you about Canberra, and what they've achieved there, but the reality is they haven't. The waste is being stored up until somebody else can do something else with it at some future time."* Charlie, Business 3

> Mark, DWE 5: *"Well, MBT is the political answer to incineration in Europe, or at least it was."*
> Interviewer: *"Can you explain what you mean by the political answer?"*
> Mark, DWE 5: *"Indeed I can. It's anything but incineration. But if you look at the countries that have taken a shine to it, they're countries where the Green Party are quite strong. 50 % of what comes out of an MBT plant has to be either landfilled or incinerated. Not only that, but it's even more expensive than landfill or incineration."*

There is a further implication here that zero waste policies are disingenuous since the 'waste is being stored up'. As noted in Chapter 3, the Brundtland Commission's definition of sustainability refers specifically to the avoidance of compromising future generations environmentally (Brundtland, 1987). Interestingly, by referring to waste being stored in the hope that it can be dealt with in the future, business spokesperson Charlie, Business 3, intimates that zero waste strategies are unsustainable, according to the Brundtland definition. Likewise, by pointing out that the end product of MBT has to be either landfilled or incinerated[68] and by claiming that the process is expensive, Tony, DWE 2, is denigrating MBT as being unsustainable. The comment about MBT being a political solution is particularly striking in light of work by researchers which suggests that the formulation of policy to use MSW incineration in Ireland is highly political (Boyle, 2002, 2003; Doyle, 2003; Fagan, 2004).

The heat recovery capabilities of the Poolbeg incinerator were presented by its proponents as an essential component of its sustainability credentials. In other incineration debates, energy production from waste was presented as a possible economic benefit to the local population and so it became part of an economic discussion (see for example, Dodds and Hopwood, 2006; Shevory, 2007). In the case of the Poolbeg incinerator, the heat recovery issue was part of the sustainability

[68] Although MBT end products do have to be disposed of, proponents of MBT would dispute the 50% figure mentioned here.

discussion. This may have been partially due to the heating being destined for new residential and office developments planned for the other side of Dublin Bay rather than for the local community, so an argument about economic benefit for the community could not be made. A further reason may have been the stipulation in EU waste legislation that incineration must have a high level of energy efficiency (EU, 2008). The heat recovery aspect was generally stressed as the defining factor that rendered waste-to-energy as being superior to and more acceptable than landfill.

7.1.2 Sustainability: Incinerator opponents

In the interview data, two main sustainability issues were voiced by those opposing the incinerator: whether or not there was a need for an incinerator of the size proposed, or even at all, and whether the introduction of incineration would be a disincentive both to local authorities and publics to develop a viable minimisation, reuse and recycling system. There was also an attempt to deflect an accusation of NIMBYism by suggesting alternative technologies and strategies.

There were nuanced differences among the anti-incinerator activists when discussing their views on waste management. Some professed to be opposed to incineration in principle and were committed to zero-waste strategies. Others were not anti-incineration in principle but believed that minimisation, reuse and recycling should be optimised before incineration was considered and that this was not the case with the Dublin waste strategy. Both of these opinions were underpinned by a belief that the proposed incinerator would take away from recycling efforts. For example, the following stakeholders commented:

> *"I'm not opposed to [incineration] as such, but I don't believe it should be a substitute for an active policy of the 3 Rs... we haven't reached all our targets in terms of reduction, in terms of all the different alternatives, the more environmentally friendly alternatives, we'll say, and so by promoting a policy of incineration ahead of and before all of the other things have occurred then you are incentivising incineration, particularly in the model put forward here - PPP, you are incentivising the production of waste and the burning of waste. And I have major concerns about that".* Sally, Politician 7

> *"We feel [incineration] undermines the shift towards, the slow shift in Ireland towards recycling and the still unmet challenge of waste prevention. That it reverses*

> *the incentive structure for local authorities. And that totally means that they will take their foot off the pedal in terms of recycling and in terms of other initiatives. We described [incinerators] as 'monsters that had to be fed' once you build them, so it would lock us in to a bad use of resources."* Adam, NGO 1

The underlying argument between the opponents and proponents was whether or not incineration is compatible with recycling. This was a fundamental point on which the sustainability discussion centred. Boyle's (2003) contention that the composition of Ireland's waste regions favours incineration over waste minimisation, reuse and recycling lends weight to this argument. Other incinerator debates have shown a similar pattern (Walsh *et al.*, 1997; Davies, 2006; Dodds and Hopwood, 2006). There is some research evidence to suggest that incineration and recycling are not compatible and that the use of incineration does act as a disincentive, since recyclables and combustibles are often the same materials, for example plastics and paper (Wenisch *et al.*, 2004). In this debate about the compatibility or otherwise between incineration and recycling, clearly all participants claimed to be speaking from a sustainability perspective, illustrating how the concept of sustainability is open to broad interpretation (Irwin, 2001).

Another argument that incinerator opponents often related to the above argument was that business was permitted to use too much packaging. This was reiterated by many community and politician stakeholders who opposed the incinerator. The focus of the anti-incineration sustainability argument on over-packaging is an example of publics occupying a double role of 'consumer and conscience' in relation to business (Beck, 1998: 159). As one politician and one community stakeholder explained:

> *"I think there is one real gap and that is in the reduce element. We allow far too much packaging and far too much waste to get into the system and then we try and recycle or reuse. We should be actually reducing the amount that comes into the stream. And for a 600,000 tonne incinerator, we're buying into a process where we would have to generate nearly 600,000 tonnes to keep it operating for 25 years."* Sean, Politician 4

> *"[Business has] externalised the cost ... of handling returns of giving that problem to the consumer...to the community, so the municipality now has to pick it up. You do need a structured resolution... to handle the returning waste and classify it. And if you identify that all this came from manufacturer, from Jones Engineering, or*

> *whoever, you say, 'Jones, come down, see all the stuff that you made, and that you sold to all these people, here's the bill.' Jones would cop on real quick then."* Stephen, Community 10

The discussion about business's role in the acceleration of waste production on one hand and the failure to deal with that acceleration on the other is an illustration of Douglas's (1992) theory about how different cultural biases blame one another for environmental risks, with business being cast as individualistic while the speakers are presenting egalitarian sensitivities. The opinions expressed here about a lack of emphasis on minimisation concur with findings by researchers who claim that EU waste policies work to optimise disposal and recycling while hindering waste management options at the highest levels of the EU waste hierarchy (Fahy, 2003; Mazzanti and Zoboli, 2008). Further, Davies (2005: 382) attributes difficulties establishing processes to reduce 'waste at source' in Ireland to the use of waste regions within the country.

An examination of the ways in which the sustainability argument is defined by both proponents and opponents of the Poolbeg incinerator reveal important differences. While the proponents argue that incineration is preferable to landfill, opponents argue that reduce-reuse-recycle is preferable to incineration. This demonstrates a struggle to define the problem and so direct the solution (Flyvbjerg, 1999), but it also frames the respective arguments in particular values. The opponents of the Poolbeg incinerator tended to use the language of sustainability to rid themselves of the NIMBY accusations sometimes directed at them:

> *"My memory was, 'look, we don't want an incinerator here', the subtext was: there are alternatives to incineration. I don't think it was very often expressed as, 'put the incinerator somewhere else'. I think the campaigning groups were pretty strong on suggesting that alternative waste management [methods] were preferable and I don't remember to what degree they got that message out there."* Daniel, Politician 10

Similar strategies of suggesting alternative waste management methods have been used by anti-incinerator groups in other incinerator debates (for example Dodds and Hopwood, 2006). In the above quote, Daniel, Politician 10, suggests that the

underlying motivation for the anti-incineration campaign was not simply to have the incinerator sited in another location but to rethink the waste management technology being used. The comment in the above quote about whether or not that message emerged during the debate raises an interesting question. The interview data suggest that sustainability and waste management arguments were important in the anti-incinerator campaign, but the data from the newspaper content analysis indicate that the sustainability arguments from the anti-incinerator campaign were not reported in the media to any great extent. Reasons for this are unclear, but the interview data suggest that the newspapers tended to steer away from stories that required a good deal of explanation. In addition, perhaps 'sustainable development' was thought to be too unfamiliar or vague as a public concept and therefore was not considered as newsworthy as other topics in the incinerator debate, such as health.

7.2 Economics

As discussed in Chapter 3, concepts of sustainability, which underlie both EU and Irish waste management policy and legislation (Doyle, 2003; Laffan and O'Mahony, 2008), generally involve attempts to balance economic and environmental priorities (Irwin, 2001; Boyle, 2002). However, as already noted, some researchers claim that such attempts usually result in the prioritisation of economic concerns over environmental or ecological ones (Boyle, 2003). It is perhaps no surprise then that issues of sustainability and waste management were interlinked with the discussion about economic issues in relation to the Poolbeg incinerator and that both pro- and anti-incinerator stakeholders related economic concerns during the interviews.

7.2.1 Economics: Incinerator proponents

The qualitative data indicate that proponents of the incinerator, such as business organisations, DWE employees and some experts, spoke in terms of the economic risks of failing to develop the incinerator within a particular time frame. Spokespeople for business organisations claimed that failure to develop the facility or a delay in that development would result in higher waste charges for business or in a loss of competitiveness in the Irish economy. DWE employees and experts, on the

other hand, were concerned with EU fines being imposed on Ireland for non-compliance with EU waste legislation.

The business organisations that were interviewed criticised the government's delay in the development of incineration as part of the waste management infrastructure, saying that this failure posed economic and environmental risks. Of the three business organisations, two were speaking about incineration in general, and would not comment on a specific project, while the remaining business organisation was clear in its support for the Poolbeg facility. Of particular concern to all three organisations were both the burden to businesses of rising gate charges at landfills and the possibility that inadequate waste infrastructure would affect the overall competitiveness of the Irish economy. As these interviewees explained:

> *"One of the things that we would have seen in the area of waste management is the fact that [landfill] gate costs in the Dublin area are extremely high into the landfills. And one thing we identified early is that fact that this will probably go up, particularly in the context of EU directives, so with no infrastructure in place and only a reliance on this one outlet we needed a solution."* Liam, Business 1

> *"We've recognised for quite a long time that infrastructural constraints are one of the biggest threats to economic growth....We can't compete in an international marketplace if we don't have good transportation, if we don't have good environmental standards, if we don't have proper waste management facilities."* Charlie, Business 3

The emphasis here on how environmental infrastructure facilitates economic sustainability is interesting since it implies that environmental protection is important not in itself but for the benefit it affords to economic development. This indicates that, broadly speaking, the values behind the contribution of business organisations to the discussion about incineration in Ireland is one of ecological modernisation whereby environmental initiatives are expected to enhance and facilitate economic growth rather than avoid being a threat to the economy (Hawken *et al.*, 2005; Dryzek, 2005). This finding resonates with Taylor's (2001) assertion that environmental protection in Ireland is implemented in such a way as to reduce financial burdens on business. Interestingly, more recently, similar arguments about improved waste infrastructure and the use of incineration being necessary for

Ireland's economic competitiveness have been put forward by Forfás, Ireland's national policy advisory body for enterprise and science (Forfás, 2009).

From the qualitative data it is clear that business spokespeople were of the view that recycling and waste minimisation are important. However, in contrast to the anti-incinerator stakeholders who believed Ireland has the potential to become a zero waste society, the view among the business organisations was that this was an unrealistic expectation. One business spokesperson was sceptical about the level of recycling already achieved in Ireland:

> *"We're doing reasonably well, but not as well as people believe we are doing in recycling... And we've heard figures that are being quoted, you know, Galway is doing well, it's 40% recycling and Dublin is doing really well, it's 22%. Well those figures, the 40% and 22%, these are really figures for segregating waste. Because they've been segregated into their various factions doesn't necessarily mean that the waste has been recycled. Now, what we know for certain that there are no, or virtually no recycling facilities in Ireland. Glass is gone, paper is gone, timber – well, perhaps there is, steel is gone, metals are gone"* Charlie, Business 3

The quote here makes two salient points: firstly, that the statistics being given for recycling in Ireland actually refer to segregation of waste rather than recycling and, secondly, that there is a dearth of national recycling industries. While there is merit in these observations, it is interesting that the business spokesperson Charlie, Business 3, went on to say that the lack of adequate recycling infrastructure is due to opposition from publics:

> *"We all subscribe to that idea, to reuse, to recycle, and the whole sort of environmental hierarchy was fairly well defined. The problem is though that local communities, for whatever reason, will oppose anything to do with waste. And in order to landfill, or whether it's an incinerator – now incinerators are particularly emotive and I'll come to that – but whether it's a material recovery facility, whether it's a simple bottle bank, you'll have local opposition really because people don't want anything to do with waste in their area."* Charlie, Business 3

The implication here is that public opposition to waste facilities is the principal barrier to the creation of a reuse and recycling culture. However, it is clear from the political power relations evidenced by the Poolbeg incinerator controversy (and other

such controversies in Ireland) that grassroots opposition to a utility is unlikely to override political will and governmental policy. The view expressed by Charlie here is contradicted by Boyle's (2003) work, which suggests that the options at the upper levels of the EU waste hierarchy were, if not discouraged, then at least neglected in the implementation of waste policy in Ireland, as a focus on the options at the top of the waste hierarchy would have created a threat to the 'Celtic Tiger' economy.

Although the emphasis on economic motivations of business is hardly surprising, what is interesting is that while all business spokespeople interviewed endeavoured to express environmental motivations, these came with an economic slant. For example, a spokesperson from one business organisation commented:

> *"I don't just mean economically efficient, I mean environmentally efficient....Recycling, everybody agrees that we need to recycle as much as possible, but it comes to a point where things become economically or often environmentally ... you're unable from an economic or environmental point of view to recycle anymore"* Philip, Business 2

The values implied by the above quote would seem to be more economic in nature than environmental, giving credence to Beck's (1998a) contention that the propensity of business to subscribe to mainstream environmentalism may signal repackaging rather than real intent.

7.2.2 Economics: Incinerator opponents

Opponents of the incinerator related a number of economic issues during the interviews including that incineration was a poor use of resources, that the PPP contractual agreement may result in a financial burden on the tax-payer and that the decision to use incineration was profit-driven rather than a truly environmental choice. In addition, although loss of property value has been shown to be a concern in other facility and incinerator siting conflicts, this was not expressed as a significant motivation in the anti-incinerator arguments. A number of anti-incinerator stakeholders considered the use of waste, some of which may be recyclable, as fuel was a poor use of resources that could result in a loss of material

and financial opportunity to communities. As one expert explained his opposition to incineration:

> *"I oppose [incineration] because for every three tonnes you burn it produces one tonne of ash, so basically a three to one ratio that needs to be landfilled. Proper reduce-reuse-recycle reduces waste by the same ratios. That also produces one unit for every three originally of inert waste, for landfill. But you haven't burnt the stuff in the meantime you have reused it, you have sold it, you've created wealth with it, you've created jobs with it. But if you just burn it there's nothing you can do with it except bury the ash."* Ben, Expert 5

The three-to-one ratio here contrasts with the one-in-ten ratio quoted by some of the proponents of the incinerator. The exact volume of waste left after incineration is variable, but the use (and dogmatic use) of these ratios in the discussion by both pro- and anti-incinerator stakeholders is an example of how technical 'facts' are socially selected and used within such debates by lay publics to bolster a particular point of view (Taylor, 2001). Hence, the figures may well be meaningless and the question always political, as Douglas (1992) contends. The validity of the above quote is dependent, to an extent, on how much of the waste to be burned is recyclable.

As already noted earlier in this chapter, the intended destination of the energy to be produced by the Poolbeg incinerator was uncertain throughout much of the debate and it emerged that district heating for the local community was not an option. One community member commented:

> *"Waste-to-energy for who, who's getting the energy? The energy is being sold at a market rate, there's a profit in this for the developers, a profit for the operators of the plant and for the people who are going to get it."* Scott, Community 2

This suggests that anti-incinerator stakeholders considered the incinerator to be a profit-making venture that would garner monetary benefit for the PPP operating it, while the residents of Ringsend, Irishtown and Sandymount would be expected to take the burden of environmental risk. There is an implication here of environmental injustice (Bullard, 2005), where the community are being presented with risks from the environmental 'bad' of the incinerator while being denied the 'good' of the

energy (Beck, 1992). However, it should be noted that some community stakeholders claimed that there was little interest in possible heat provision in any case, as such benefit in kind would not compensate for the possible health effects.

Economic concerns about the incinerator included unease about the contractual terms of the PPP and concerns about a cost-benefit analysis of incineration contained in the waste management plan for Dublin. Some anti-incineration stakeholders believed that the PPP contract for the incinerator would lock Dublin City Council, and therefore the tax payer, into an agreement to produce large volumes of waste or else pay compensation to the incinerator operators. In other words, there was a fear that the public sector would be financially penalised if recycling decreased the waste volumes going to the incinerator. One politician explained this concern:

> *"..the way the City Council's tender and their contract with the incinerator operator were constructed was that they had to guarantee it. And I put down quite a few questions to the Council, finding out what the financial arrangements were, because it appeared to me that the contract would have the Council either guaranteeing a certain quantity of waste to be supplied to the incinerator or they would bear the financial cost of it, so essentially we're underwriting it."* Anne, Politician 8

The disquiet among local politicians about the contractual arrangements and their inability to take action on foot of these concerns echoes Beck's (1998a) assertion that politicians often have little power over business and industry.

There was also anxiety among stakeholders that the costings drawn up for the option of incineration in the original waste management plan were incorrect and the real price of the development of the facility was much higher than had been claimed by DWE:

> *"... a mathematical study of waste arisings and costs and how to treat them in different treatments... came down, on a scientific basis, to the conclusion that the most economical technique for managing waste ... was incineration. But the sums were wrong. They didn't include the correct cost of money. It was far too expensive... They didn't include the cost of ash, they didn't include the cost of*

> *transport, they didn't include the cost of disposal of hazardous ash; they left out a whole pile of things from their analysis."* Stephen, Community 10

It is clear from the above quotes that suspicions about the integrity of the costings in the waste management plan further damaged trust in Dublin City Council and the PPP among anti-incinerator publics. Whether the costings mentioned by Stephen were incorrect and whether this was deliberate are questions that lie outside the scope of this analysis. Flyvbjerg (2007), though, concludes that such misrepresentations in costings for large infrastructural projects are often deliberate and are generally explained by political-economic factors.

Studies of risk communication and risk perception in other incinerator conflicts show loss of property value being articulated as an economic risk (Ishizaka and Tanaka, 2003). This did not seem to be a prominent motivation in the Poolbeg incinerator debate. As one politician remarked:

> *"... okay I think property prices may be an issue, but if you were to put it... it would be a very small issue, it wouldn't have been the main concern. One of the biggest concerns was... not that we don't want it in our back garden, but that our back garden is full...it was a case of saying, 'now look at the area, it is full, it can't take any more'."* Sean, Politician 4

> *"You see, I don't think [loss of property value] is significant. I mean, on top of the three arguments that I have, the 'anti-incineration' argument was probably the strongest point put forward, and the alleged effects on health and so forth."* Michael, Politician 2

There may be a number of reasons why property value loss was not a prominent feature of the Poolbeg incinerator controversy. The steady rise of house prices during Ireland's economic boom may have negated such worries. Concerns about property prices may well have been there, but there may have been a reluctance to articulate a materialistic concern over health or social concerns. Alternatively, those objecting to the incinerator may have been genuinely more concerned about health and traffic risks than falling house prices. While some Dublin City Council officials and business spokespeople claimed that the principal, if hidden, motivation behind

opposition to the incinerator was the fear of property value decrease, the interview data seemed to suggest otherwise. According to one DWE stakeholder:

> *"It's simply Not In My Back Yard, because at the end of the day, we all know that really what concerns people is the devaluation of their property, because the area might get that name."* Mark, DWE 5

The claim that economic risks are 'what people are really concerned about' is an unwarranted simplification of the psychological and cultural processes that shape publics' perceptions and opinions of risk. Nonetheless, it is an argument often used by industry, government and other proponents of unwanted facilities (Boholm and Löfstedt, 2004). One community stakeholder stated that property value decreases was mentioned as an issue a small number of times but that this was always in terms of residents wanting to move from what they see as an unsafe location:

> Interviewer: *"Do you think people were worried about property prices at all?"*
> Sadie, Community 4: *"Well, I think it's more health. But they are saying that if property prices drop, they won't be able to sell their houses...because nobody will want to buy a house down here... if they hear an incinerator is going in. They are saying that. They are worried about their health, but they're also worried about if it is going to affect their health, can they move out of here?"* Sadie, Community 4

The suggestion here is that the incinerator will stigmatise the area to such an extent that it will prevent families from moving. This resonates with Slovic *et al.*'s (1994) work on stigma and property prices. It also implies that families in this situation are somehow trapped in what they perceive as a stigmatised and unsafe area, which according to Wester-Herber (2004) may have psychological effects on communities and individuals. While there may possibly have been a covert worry about property prices, there is little doubt that most of the residents interviewed had lived in the area a long time and wanted to stay there. Also, it was clear that they were genuinely worried about health or traffic issues, as these were the two most prominent discourses about the potential physical impacts of the planned incinerator.

7.3 Health

Public health concerns are a common feature of incinerator controversies (Snary, 2002; Ishizaka and Tanaka, 2003; Dodds and Hopwood, 2006). Leonard (2005) indicates that health was a key concern in the incineration controversy in Galway and the debate about the Poolbeg incinerator points to this being the case in Dublin also. As a consequence, those in favour of the incinerator, both within and outside of the DWE project, as well as certain anti-incinerator stakeholders, argued against claims and beliefs that incineration poses a problem to health.

7.3.1 Health: Incinerator proponents

The DWE information campaign presented experts who vouched for the safety of incineration and experts who expressed some concern about the health implications from incinerator emissions. Stakeholders in favour of the incinerator argued that experts from organisations such as the World Health Organisation (WHO) contended that there was no health risk associated with incineration. The argument was that there was no scientifically proven link between incineration emissions and illnesses such as cancers or asthma, for instance. The notes from one of the Open Day information sessions record what was said by a WHO professor of toxicology, one of the experts given most credence by the DWE employees:

> *"There are a few studies... published that suggest a correlation between incinerators and these diseases. However it is not scientific to claim that these studies prove a relationship. The linkage between incineration and any health impacts is extremely weak.... A good scientist would not draw conclusions on a study of that type. ... If there is asthma, how do you know it is the incinerator that is causing the disease when there is also a power plant, traffic, and other industries around? The contribution of an incinerator to the overall load is negligible."*
> Professor Dieter Schrenk, in excerpt of notes from DWE Open Day, Health Information Session, Group 2, February 2004

This excerpt exemplifies the approach of the incinerator proponents to the health concerns and arguments put forward by some community members. The way in which the scientific research is presented here highlights the use of positivistic science in environmental debate (Taylor, 2001). The professor states that

scientifically sound conclusions cannot be reached because it is not certain that emissions from an incinerator cause health problems, but the possibility that they might cause them is dismissed. According to this line of thought, the blame for illnesses cannot be placed on incineration since there is a lack of hard scientific proof. This approach could be argued to contravene, or at least subvert, the Precautionary Principle[69], a key principle in EU waste management strategies (Boyle, 2003). However, Taylor (2005) contends that EU waste legislation, and by proxy Irish waste legislation, functions to safeguard economic development first and foremost.

The above quote reflects Douglas's (1992) position that science refines blame within risk discourses by evidencing it. Except in this case, the expert suggests blame can be cast off due to lack of evidence. Interestingly, a recent report of a WHO workshop on waste health effects stresses the difficulties in measuring and interpreting scientific data in relation to the possible health effects of incineration. In addition, it states that, while the indirect effects of incineration on the environment or on public health have not yet been evaluated, '[i]n particular waste incineration, may be a non-negligible contributor of greenhouse gases and persistent pollutants on a global scale' (WHO, 2007: 19). This would suggest that the WHO takes a somewhat less positivistic approach than the above quote from the information session would imply.

Two further separate, but related, arguments were put forward by proponents of the incinerator about health risks. Firstly, while old incinerators were probably detrimental to public health, new technologies have advanced scrubbing technologies to remove pollutants and, secondly, legislation and emission standards are stringent enough to prevent problems occurring. As one DWE employee stated:

> *"Waste incineration has very stringent limits .... This facility will have strict conditions. People talk about dioxins and furans, but the limit is 0.1 of a nanogram and modern gas cleaning equipment can achieve better limits than that. If you look*

[69] When scientific evidence about environmental risk associated with the transportation, processing or disposal of waste is contested, the member state must err on the side of caution (Boyle, 2003)

> *at studies carried out by the EPA and the European EPA, it's concluded that if all the incinerators that we have planned for in Ireland are built, incineration will only contribute 1% of the annual dioxin emissions produced."* Tony, DWE 2

While the emissions may be controlled, this alone may not result in publics perceiving incineration risk as tolerable, according to Hood *et al.* (1992), who posit that in order to be tolerable, a risky technology must also afford some benefit to the affected publics. What is significant about this quote is that it reveals hierarchic values, after the typology of cultural biases of Douglas (1992) and Schwartz and Thompson (1990). This is evident in the suggestion that nature can withstand a certain amount of contamination and that once the experts have made decisions about acceptable levels, workable policy and legislation can be formulated. Some authors, however, describe such regulatory acceptable levels of risk as being a 'phony trick' (Beck, 1992: 64) that facilitates business and economic growth, often at the expense of the environment.

In the discussion about the potential health effects of the Poolbeg incinerator, some anti-incinerator stakeholders dismissed health concern arguments as being unproven and framed their opposition in terms of other concerns, as evidenced by these quotes:

> *"Modern technology is well capable of scrubbing those emissions out, modern technology is well capable of monitoring what's coming out, so I think it's a spurious argument to say that we're all going to be poisoned to death by what's coming out of a chimney. Any decent engineer worth his salt would prove to you that that's not so."*
> Roger, Politician 9

> *"[W]e don't go out of our way to oppose incinerators on the basis of health. I'm sure and I'm not up to speed, but I know there is mixed evidence ... and certainly I don't think the evidence of health risks is proved, so we wouldn't be launching a campaign on that basis. ... we don't campaign against incineration on a not-in-my-backyard basis, we campaign against incineration on the basis that it doesn't make sense for Ireland or for waste management."* Adam, NGO 1

That anti-incinerator stakeholders would not necessarily share the same concerns is hardly surprising since risk decisions can be affected by factors such as gender, personality type, education level and age (Tanaka, 1998; Slovic, 1999; Finucane *et*

al., 2000). However, the above quote does demonstrate that some anti-incinerator stakeholders did have trust in the regulatory capability of the local authority and the government agencies that would eventually be responsible for policing the incinerator.

During the DWE information programme there was a strong emphasis on discussing dioxins, since these are particularly dreaded emissions and can be an emotive concern for publics (Powell and Leiss, 1997). When discussing dioxins during the interviews, many proponents of the Poolbeg incinerator claimed that the amount of dioxins and furans emitted from modern incinerators is so small that it is relatively harmless, that levels of dioxins and furans are generally falling in nature and that Ireland has a low background level of these chemicals. Such arguments reflect Taylor's (2001) assertion that environmental standards and legislation in the EU and Ireland are formulated not to prevent pollution but to set down an acceptable level of pollution.

During the interviews, a number of DWE and business pro-incinerator stakeholders commented on the tendency of anti-incinerator stakeholders to be concerned about small amounts of dioxins in incinerator emissions and yet to be unaware or unexercised by the considerable higher levels of dioxins produced from cigarettes and bonfires. This disconnect, which is illustrative of how voluntariness affects risk acceptability (Starr, 1969; Slovic, 1987), is difficult to address from a risk communication perspective. One DWE employee related the following anecdote:

> *"People in the community forget that dioxin levels peak on bonfire night. I have a good story. One night when we were in Ringsend for a meeting, we came out [from the meeting] and there was a children's football match going on and I was asked to come over and speak to the kids. Some of the mothers were there and I was introduced by one of them as 'the man who is going to poison you with the incinerator'. Then, I noticed that the mother who spoke had her hand behind her back, and when I looked down to see what was in her hand, it was a cigarette."*
> Tony, DWE 2

This story includes a number of issues pertinent to this thesis. Firstly, as discussed in Chapter 5, the presence of mothers and children and the image of children being

potentially 'poison[ed]' was utilised to dramatic effect a number of times in the newspaper coverage. Moreover, the notion of future generations being affected by risks produced in the present is a characteristic of risks of modernity, according to Beck (1992). Of course, while the cigarette is a voluntary risk for the mother smoking, it is an involuntary risk for the children present. So comments about the possible toxicity of the incinerator do seem disingenuous in these circumstances.

During the interviews, a number of interpretations were offered as to the motivations for arguments about health concerns. Both pro- and anti-incinerator stakeholders who considered that the risk to health from incineration was negligible were generally of the opinion that those who were worried about health were too uninformed to understand, which resonates with the deficit model of risk communication (Hilgartner, 1990), and that health arguments were simply illogical and emotive. One pro-incinerator community member commented:

> *"If somebody showed me that this was going to be spewing out poisonous gases over the city of Dublin I would certainly be objecting to it. But people get whipped up into a frenzy...People just behaved as a herd, totally irrationally, and then they're whipped into it.... I mean, 'Dioxins Kill', isn't that marvellous! I mean, that's a great line. I mean, how could you rationally explain that there is a background level of dioxins caused by our general level of activity and this will make no change to that?"* Keith, Community 8

This quote echoes Powell and Leiss's (1997: 41) commentary on dioxins when they ask 'Where are the Bodies?', positing that if dioxins were as dangerous as suggested they would be responsible for (rapid) fatalities. Indeed, they remark that there is an irony whereby concerns about dioxins appear to be growing among publics while at the same time the actual concentrations of dioxins in nature are falling. However, the anti-incinerator activists claimed that the discussion about dioxins was mainly one-sided, as they discounted the threat from dioxins early on in their campaign against the incinerator. This is discussed in the following section.

Some stakeholders who were in favour of the incinerator were empathetic to those in local communities who had worries about health and acknowledged that there may be a deep-rooted fear of incineration. As DWE team member Geraldine commented:

> *"[W]hen you think of incineration, I suppose the first thing that people thought about was, .. things like nuclear plants and Sellafield, so we have a natural fear towards that because it's not something which we are really familiar with here. And anything we are familiar with are kind of bad media stories from the UK."* Geraldine, DWE 3

Here, Geraldine, DWE 3, points to two risk characteristics which psychometric researchers have identified as significant in how risks are perceived by lay publics. Firstly, there is the 'dread' factor (Bennett, 1999) that makes people, rightly or wrongly, equate incineration with nuclear power plants. Secondly, there is a lack of familiarly with incineration in Ireland that, according to authors Starr (1969) and Slovic (1987), leaves publics feeling less prepared to deal with the risk. In addition, Geraldine, DWE 3, attributes the fear people in Ireland have about incineration to unfavourable press coverage in the UK of incineration plants. Drawing on Petts (1992) review of UK attitudes to hazardous incineration, it is clear that incineration was seen as a disreputable technology by some publics in the UK at that time and this would have contributed to its receiving negative press.

While some stakeholders favouring the incinerator agreed that a deep-rooted fear about incineration played a role in the Poolbeg incinerator debate, a few suggested that health arguments were being utilised as a scaremongering technique in order to bolster resistance to the incinerator. For example, the following stakeholders gave their impressions of the health arguments as follows:

> *"There are sort of deep-rooted fears, I suppose, at this stage, of dioxins and other wastes from incinerators, and certainly, there was evidence, and there is evidence, there are always some dioxins, but I think that the risk to society posed by dioxins, and particularly the dioxin emissions of modern incinerators was used by people who have an ideological objection to incineration, to buoy up, if you like, a case for their argument and the facts didn't support their case."* Charlie, Business 3

> *"John Gormley[70] said to me that he understood that there was no problem with toxins, he understood that that was just not an issue, but his reason for objecting to it, which wasn't clear to me in his public statements, was that if we allowed incineration it would reduce the incentive to recycle. ... He should have stood up and he should have said, 'Look, toxins are not an issue here, the dioxins will be*

[70] TD for Dublin South East constituency, resident of Ringsend and long-term activist against the siting of an incinerator on the Poolbeg peninsula, was appointed Minister for the Environment, Heritage and Local Government in 2007.

> *removed from the system and there will be more dioxins from a bonfire at Halloween than there will be from [the incinerator].*" Keith, Community 8

The quotes above indicate that there was a belief among some pro-incinerator stakeholders that some anti-incinerator stakeholders expressed false concern about health, or were publicly ambivalent about health concerns, while being less than honest about their real motivations and beliefs. The implication is that health concerns were used as a socially acceptable reason for opposing the incinerator while the real motives for some anti-incinerator activists were political or ideological.

7.3.2 Health: Incinerator opponents

The health fears expressed around the proposed incinerator were partially rooted in the historical experiences of the area. During the 1990s a commercially-run medical incinerator was situated in the Ringsend area. From the mid to late 1990s, the local community, supported by local politicians, had successfully fought a proposal to relocate a medical incinerator (Bioburn) to what was to later become the preferred site for the Solid Municipal Waste (SMW) incinerator. Many of the individuals involved in the campaign against the Poolbeg incinerator had been active in the campaign against this earlier incinerator. The memory of the pollution caused by the Bioburn incinerator was still vivid for the community members interviewed:

> *"God! It was filthy, there was raw ... you could see the shape of bandages and dressings lying in the streets, half-burned, like cindered, and they spread from right down Pearse St. and down through Ringsend there .. It was large, large pieces that were coming out on the street and it was stinking. It should never have been allowed operate. But because the whole area was totally run-down, and there was no re-generation going on, there was no interest in it. No-one had an interest in us as a community.*" Meryl, Community 1

The neglect of the area expressed in the above quote is strongly suggestive of a peripheralised area (Blowers and Leroy, 1994). An interesting aspect of this quote is that here the 'emissions' from the Bioburn incinerator are clearly visible and malodorous, unlike Beck's (1992) portrayal of modern risks as being imperceptible to the senses but detectable by science. Yet the tangibility of the emissions clearly

helps form the resistance of the anti-incinerator activists. It is easy to see why, in the face of such 'situated experiential knowledge' (Petts, 2005: 398), Dublin City Council's claims of safety in relation to incineration may not reassure publics.

Furthermore, many residents believe that the area has been beset with bad health for generations because it is traditionally an area of heavy industry and many interviewees made anecdotal claims about cancer clusters in the area. According to one community member:

> *"...we haven't identified whether there's a [cancer] cluster or not, but they're dying like flies ... young women, and when I say young women, I'm talking about women under 45, brain tumours and cancers, and men as well, all from down Ringsend, Ringsend, Irishtown and parts of Sandymount and around here, in particular."* Meryl, Community 1

This quote from community member Meryl, Community 1, demonstrates the use of experiential evidence in the absence of scientific evidence to inform decisions about risk. The implication being that science is not necessarily needed to 'identify' the cluster when residents are 'dying like flies'. Potential intergenerational health impacts from controversial industrial processes are a feature of environmental justice and environmental equity discussions (Bullard, 2005; Petts, 2005). Many community members were fearful for the health of future generations and, for many, this was the motivation behind their opposition. As Sadie, a resident, explained:

> *"What's worrying me more than anything is what kind of health issues will it affect? You know, will it have on us and nobody seems to care about that. And it's not my generation or the next generation, it's the generation that's coming up behind us that's going to be very much affected by it."* Sadie, Community 4

It is clear from this quote that concern about health risks was a significant motivation for some of the incinerator opponents, contrary to the assertion by some incinerator proponents that economic values are the 'real' motivations. The concern expressed above about generational health effects and the indication that Sadie sees her community to be in a negative risk position, where past and future generations are continually being subjected to environmental 'bads', reflects Beck's (1992) claims

that economic stratification is giving way to risk positions as a means of differentiating strata within society.

Dioxins are often touted as the 'dread' (Slovic, 1987) factor with regard to incineration. Their infamous potency has played a significant part in framing opposition to MSW incinerators in Galway, Meath and Cork (Leonard, 2006). Interestingly, those involved in the opposition to the Poolbeg incinerator, including the Combined Residents against Incineration (CRAI) and other individual opponents, deliberately steered away from voicing concerns about dioxins, in the first instance, and later about health impacts in general. There were a few reasons for this: concerns about dioxins could be easily countered, there were more potent toxins to be worried about in incinerator emissions and planning issues became prioritised in the later stages of the campaign. Robert, a community stakeholder, explained:

> *"At the beginning we made a decision we weren't going to play up the dioxin thing too hard. One of the reasons for that is that cigarette smoke is full of dioxins, we have Moneypoint power station, which produces half the dioxin load of Ireland and squirts it up the Golden Vale. Anybody who burns stuff in their backyard produces dioxins, so it's an easily countered argument. They keep countering it. They do. Because it's a scare word: it's like 'nuclear'."* Robert, Community 9

This quote is interesting, as it shows an awareness of the complexities and paradoxes that sometimes exist in risk perception. The speaker implies that there is a disconnect between how voluntary risk (such as dioxins from smoking or backyard burning) and involuntary risk (such as dioxins from incineration) are regarded by publics (Starr, 1969; Frewer, 2004). This serves to impair claims about the passive ignorance of publics (Cross, 1998) and reinforces claims that publics do understand risks but just do not necessarily accept them (Renn, 2004). Far from displaying a passive ignorance in relation to potential health risks from incineration, those opposing the Poolbeg incinerator strived to inform themselves about such risks. Beck (1992) claims that this is often the case where publics are concerned with technological risk. For some activists in the Poolbeg incinerator debate, synthesising the available information on health resulted in the focus of the health concern moving from dioxins to particulate matter. As these community members explained:

> *"We looked at it from the point of view of those aspects which we could understand and which we could analyse and we focused on the science of combustion and the toxins produced, like dioxins. It turns out that dioxins, per se, are not particularly worrying, but it's the particulates, ultra-fine particulates, very small dust, we identified those, within a week or two of beginning to study incineration, as being a concern...And these [Dublin Waste to Energy] guys wouldn't study it. They would not study nanoparticles, and we asked them exclusively to study nanoparticles and to tell us about the pathology of it. They said, 'ah sure, nobody knows anything about it'."* Stephen, Community 10

> *".... there's a huge debate about what they call nanoparticles. That has only really arisen in the last three years or so because the science on this is very, very new and I can't tell you, I can't tell you how damaging nanoparticles are."* Robert, Community 9

The above quotes indicate the concern created by the inability of the DWE experts to communicate, or indeed science generally to determine, exactly how hazardous these particular incineration emissions are. The knowledge around nanoparticles is still developing and, as Hinchliffe *et al.* (2003) notes, in such situations, risk assessment processes are beleaguered with unknowns, uncertainties and indeterminacies. The apparent dismissal of the issue by the DWE project personnel seems to be an example of indeterminacy being used to skim over possible valid effects (Wynne, 1992). Here, there is an evident struggle between the incinerator's proponents and opponents to define the risks involved (Slovic, 1999).

Issues about the acquisition of knowledge and the social construction of knowledge often lie at the heart of environmental controversies, according to Garvin (2001). Both of these aspects of knowledge became influential in the health debate around the Poolbeg incinerator controversy when worries about nanoparticles helped fuel a clash between experts about the possible health impacts of the Poolbeg incinerator. The fact that experts were disagreeing on the magnitude of the potential health risks from incineration seemed to heighten the concern about health among some of the community members interviewed. The source of the disagreement came from fundamental differences between epidemiological information on one hand and toxicological information, which the proponents of the incinerator were more inclined to use, on the other.

As one epidemiological expert explained:

> *"The council employed an expert, a German toxicologist, Dieter Schrenk. Dieter is a toxicologist and toxicologists study the impact of individual chemicals on animals and cells, basically, so that is what they're experts on. Only in the last four or five years has it begun to dawn on them that multiple chemicals can have more complicated exposures than individual chemicals...[Synergistic effect] has been taboo in toxicology for 20 years.. So Schrenk is an old-school toxicologist and he ... did a very naïve review of the epidemiological literature and he didn't like it."* James, Expert 1

The quote above illustrates that battles around the science of health risk are not confined to experts versus lay people, but may, as in this case, feature one discipline versus another. The use of the word 'taboo' in the above quote is very interesting, since Douglas (1992) explains how taboos are promoted as risk in primitive cultures by those in power as a means to protect society. Perhaps the argument here amounts to opposing cultures within science clashing over risk definitions. A further comment from James, the epidemiologist interviewee, throws some light on probable reasons for this:

> *"I think Schrenk's problem was he was looking for the kind of results you see in toxicological studies where you see very definite, very large scale results which are the same from study to study to study and that's because they use very high doses in very tightly controlled experimental situations. I don't think he had any understanding of the problems of studying the effects of exposure in human populations, which is what epidemiologists do. They're much, much harder to study."* James, Expert 1

Clearly, from the above quote, the acceptance criteria for evidence in these disciplines differ from each other. The argument, therefore, is less about the results and more about the production of the knowledge (Irwin, 2001; Latour, 2004). This coincides with Douglas' (1992) attestation that risk conflicts are often a clash of values and interests rather than disagreements over facts and figures. The anti-incinerator activists were therefore in the position of having to make sense of information that experts were unable to come to a consensus about.

Those interviewees with concerns about health felt that their fears were being dismissed or ignored. One expert pointed out that the limited space given to health

effects in the EIS for the Poolbeg incinerator was indicative of a dismissive attitude on behalf of DWE with regard to publics' health concerns:

> *"...what they wanted me to do was to examine the documents, provided in the EIS, with regard to health and critique them. And it didn't take very long because the EIS is about two thousand pages but there's only about fourteen pages that even mention health. In the scale of the document, one of the things was a dead giveaway to the community that the [City Council] didn't take them seriously, was the scale of what they produced; I mean it was a joke."* James, Expert 1

This quote from expert, James, resonates with O'Brien's (2000) argument that risk assessments rarely protect those they are supposed to protect the most. Environmental Impact Statements (EISs) generally include only the briefest consideration of health risk assessment (Demidova and Cherp, 2005) and in the case of the EIS for the proposed Poolbeg incinerator, the limited space dedicated to potential health impacts signalled to the local population that the issue was not considered as a valid concern. In addition, a refusal by Dublin City Council to carry out a formal health impact assessment acted as an unintentional message (Beder and Shortland, 1992) that further inflamed the suspicion and mistrust around the incinerator. As one community member commented:

> *"You know that no health assessment was ever done, there are a lot of health problems around the houses that were built on top of the reclaimed land on Sean Moore Rd. Well, they say there are now. I don't know whether that's true or not. Without a health assessment, you can't know. The fact that they won't do a health assessment is either because the thing is being done on the cheap, or because they're afraid of what they're going to find."* Robert, Community 9

Paradoxically, one particularly revealing aspect of the health discussion about the Poolbeg incinerator was its removal from the forefront of the debate. As discussed in Chapter 5, the media content analysis shows that health was a major focus of the anti-incinerator campaign from its inception in 2000 up until 2003, when the health risk messages peaked in newspaper reportage around the incinerator. From 2003 onwards, the focus of the anti-incinerator campaign, and hence the newspaper coverage, moved on to planning issues, such as increased traffic volumes. The switch in focus from health to planning was considered by the DWE information

programme personnel as an indication that health was no longer an issue. One DWE employee explained it thus:

> *"I remember health was dropped as an issue in one night when this guy came in and said, 'I've no issue with waste, do what you like with it, but if you're going to be concerned about health, there are other things you should be looking at'. And there was another participant in that process, Conor Skehan[71], and he basically said to them, and put another spin on the health issues, he said, 'if you want to stop this project, you won't stop it on the grounds of health, because everybody, every reputable scientist will tell you there's no worry about health, so if you really want to stop it, stop talking about health, look at planning, look at traffic, look at appropriate development, look at visual impact, look at really how this plant is going to impact you and then you have a chance', and it was sort of wake-up call for the people and the issue moved on."* Sarah, DWE 1

The shift from health issues to planning issues reveals the *realpolitik* (Flyvbjerg, 1998), or the 'dark side' (Flyvbjerg and Richardson, 2002: 44) of the planning process. The anti-incinerator activists realised that those with power dictate the criteria on which decisions are made and the terms upon which planning battles can be fought. They acted accordingly, in a pragmatic fashion, by shifting their articulated or expressed opposition to an issue that had currency in terms of the planning process. This is reminiscent of Flyvbjerg's (1998) treatise of the workings of *realpolitik* in a transport planning project in Aalborg, The Netherlands. The *realpolitik* of the Poolbeg incinerator conflict was that while health was a major concern for many residents, it had little or no currency in planning terms and it was more useful to the anti-incineration campaign to disseminate the risk messages that were most expedient in terms of the planning process.

From a power relations perspective, this situation resonates with Blowers's (1980) assertion that although power is concentrated at a planning policy level, it becomes more diffuse during implementation. In other words, drawing again from Slovic (1999), by defining the risk in a way that is more acceptable and meaningful in terms of the planning process, the anti-incineration campaign managed to empower itself in the debate. Thus the articulation of anti-incinerator messages was influenced by the

[71] Conor Skehan is currently Head of the Environmental and Planning Dept. in the School of Spatial Planning at the Dublin Institute of Technology

accepted values imbued in the planning system, where 'appropriate development' was an acceptable issue and health was not.

However, rather than the issue moving cleanly from health to traffic, the anti-incineration activists' concerns about particulate matter meant that the increased traffic volume now became a health issue as well as a planning issue, since increased traffic would mean increased air-borne particulates in the area. So, whereas health may not have been an issue voiced in the latter part of the debate through the media or at public hearings, it was still very much a live issue in the minds of local people.

7.4 Traffic

7.4.1 Traffic: Incinerator proponents

The shift in emphasis from health effects to traffic in discussions about the Poolbeg incinerator precipitated a traffic mitigation plan from Dublin City Council and their consultants. As well as the issues covered in the previous section, such as the significance of the traffic issue to the planning process and the potential of adding more potential health hazards to the area, the traffic discussion centred on the extent of the potential traffic increases and the efficacy or otherwise of the traffic management plan to lessen the traffic impact on the surrounding areas. Incinerator proponents claimed that the traffic mitigation plan was likely to be effective, as Sarah, a DWE employee, explained:

> *"Well the main concern when we started was definitely health, the main concern when we finished was traffic, and I think that remains a concern for everyone. Now there's a very clever traffic management plan, it was in the EIS, and now it's imposed as a planning condition, in terms of minimising traffic in and out, and I think that will help."* Sarah, DWE 1

In the above quote, DWE consultant, Sarah, emphasised how traffic was and remains 'a concern for everyone'. Thus the incinerator debate was brought within the boundaries of the planning process, making it a bounded discussion focused on an issue that could be dealt with within the planning system. This is reminiscent of

Davies's (2001) findings, in her study of planning in Luton, UK, that accepted planning criteria rather than real concerns were routinely used in planning processes as an expedient way to conserve open spaces for the local community. It would seem that the shifting of the debate focus from health to planning, and more specifically to traffic, was an example of the operation of latent power, described by Lukes (2005) as the suppression of some issues and opening up of others by the more powerful actor in a conflict. Such a suppression of conflict could be interpreted, according to Flyvbjerg (1998), as an oppressive act that is detrimental to rational planning. Interestingly, in this case, it is embedded in the planning system.

During the interviews, reference was made to the traffic plan as an example of how the views of publics involved in the CIG process and attending the Open Days were taken into account and integrated into the decision-making process. In other words, this was an example of the consultative nature of the information programme as Mark, an employee of DWE, claimed:

> *"We listened to the traffic debate very avidly, and what did we do? We re-engineered the whole packaging of the waste going to Ringsend, to bring it along the M50 and through the Port Tunnel to try and reduce the burden on local roads."*
> Mark, DWE 5

While the issue of increased traffic may have been taken into consideration on foot of community concerns, members of the community did not take part in finding a solution to the traffic problem. This is a key point, as many of those for whom traffic was the main issue did not believe there were any health risks. Therefore, if they had viewed the traffic mitigation plan as being workable or if the Eastern Bypass road had been developed for instance, then they may have been open to the siting of the incinerator at Poolbeg. A more participatory approach to traffic mitigation may have been beneficial to the project at this stage. While publics were heeded in relation to traffic concerns, the power to make decisions to solve the issue was retained by DWE and so this could be interpreted as a low level of participation, or according to Arnstein (1969), placation participation. The problem with this approach in the Poolbeg incinerator conflict was that while the solution may have satisfied the

planning process, it was dismissed by many of the anti-incinerator stakeholders. The implications of this are discussed in the following section.

7.4.2 Traffic: Incinerator opponents

Traffic was a particularly strong issue for both opposition and government politicians of the area, all of whom opposed the incinerator. Many (although not all) of the politicians maintained that there were no significant health issues, being 'convinced by the science' (Michael, Politician 2), and that traffic was one of their biggest concerns about the incinerator. Also, a number of stakeholders mentioned that planning permission for the Bioburn incinerator was turned down a decade previously on traffic grounds and they now found it difficult to believe that this would not be an issue with the DWE incinerator. One politician explained why traffic was of particular concern to publics in respect of the Poolbeg incinerator:

> *"Because traffic is something you can see and smell already, and it's crazy there. So either you have the current infrastructure that can't handle the traffic or you build new roads into the area to handle the trucks. Either/or goes down like a lead balloon, either option. In '94, An Bord Pleanála turned down the whole idea of the incinerator on the whole issue of traffic, nothing has changed. It's the same infrastructure now as it was then, so why are they trying to bring in this incinerator?"* Hugh, Politician 6

Traffic is a particularly interesting concern if considered in light of risk acceptability. The comment about traffic being something 'you can smell and see already' is telling here. One of Beck's (1992) criteria for risks of modernity is that they are imperceptible through the senses, which traffic clearly is not. Of course, traffic problems are both imaginable and familiar. According to Kahneman's (1981) availability heuristic, imaginable risks are considered more likely to happen. According to Slovic (1987), familiar risks are seen by publics as being easier to deal with providing those affected feel in control of the risk. All this would suggest that traffic concerns in the incinerator debate would be relatively straightforward to overcome. The following stakeholders suggested that there should have been a way to negotiate and resolve the traffic issue:

> *"Well, the traffic is a very obvious thing. They would rely on being able schedule their lorries coming in to stop them building up and they are coming around the M50 through the Port Tunnel, and up Sean Moore Rd. I mean, you drive it! You know what it's like. It's absolute nonsense. They keep producing surveys that say there are no problems in the area. That's not reasoned debate. Reasoned debate is you look at the problem and find a way around it."* Robert, Community 9
>
> *"I mean, the whole discussion around the traffic issue was the most farcical discussion from both sides ... parallel to that whole discussion there was the whole discussion about the cordon being placed around the city for heavy goods vehicles...The council could have gone to the community ... and said we guarantee you that by ... extending Sean Moore Rd. into the cordon, that even if there was an incinerator that you would have a reduction of 20% or 30% of trucks"* Declan, Expert 3

Clearly, agreement did not happen. This may have been due to the strong potential of the traffic argument for the anti-incinerator campaign. Another possible reason is the low level of trust or belief among anti-incinerator stakeholders with regard to both the traffic figures given and the traffic mitigation measures set out by the Dublin Waste to Energy project team. The strength of the traffic argument in planning was acknowledged by a number of different stakeholders. As one NGO stakeholder explained:

> *"I know that one of the most effective ways of opposing any large scale project like that from a local perspective, given the way our planning system works, is on unsustainable traffic grounds, as in you know, it isn't either fair or possible or feasible for all this traffic to come through a small little neighbourhood to serve a big thing that is serving not the neighbourhood but the whole county or the whole country or whatever."* Adam, NGO 1

The unfairness of the smaller community taking the burden for the benefit of the larger community, mentioned here by Adam, NGO 1, suggests concepts of environmental justice (Bullard, 2005; Walker and Bulkeley, 2006). This is noted here but will be examined in greater detail in the following chapter.

In examining the possibility that mistrust in the proposed mitigation measures may have sustained concerns about traffic; it is worth noting that trust in governmental institutions plays a crucial part in the acceptability of risk (Slovic, 2000). In the interviews, anti-incinerator stakeholders expressed mistrust both in the traffic figures produced by the DWE project and in the potential effectiveness of the traffic mitigation measures, which they claimed may smooth the traffic volumes but would

not reduce them. In any case, as a politician, Roger, suggested in the following quote, smoothing traffic volumes would not necessarily solve residents' problems with traffic:

> *"Well. I'm sure that every parent in Cambridge Rd. is delighted to hear that those big heavy trucks are going to run day and night. Myself and [Anne, Politician 8] fought very hard for a HGV ban in this area, a full ban. It's not just the street's narrowness, it's the noise. .... So I think that the traffic mitigation smoothes the traffic over the day, but it doesn't reduce it in any way."* Roger, Politician 9

Competing traffic figures were produced by both the proponents and the opponents of the incinerator. In the interview data, proponents and opponents both presented their own figures as being the correct 'facts' while denigrating the arguments of their counterparts as being driven by self-interest (Burningham, 1995). While the proposers of the incinerator spoke of the traffic issue as being used by the anti-incinerator campaign as a way to court publicity, anti-incineration stakeholders accused the proposers of having a hidden agenda. Politician Roger elaborated:

> *"Traffic wasn't an issue, until the people from the audience said, well these are the volumes you're talking about, these are the numbers of trucks and ...They came back out with a mitigation that they were happy would get through the process, never mind if it would satisfy us, so it was almost as though they were looking for what our objections would be when they put their application in so that they could answer them up front."* Roger, Politician 9

The quote above from Roger, Politician 9, suggests that the public participation phase of the DWE information programme was used to pinpoint issues of concern, such as traffic, and to develop solutions to those issues that would comply with planning criteria. This, then, presented the opportunity to the DWE to overcome planning objections regarding traffic. Whether or not this level of manipulation existed on the part of DWE is difficult to ascertain. However, as Plough and Krimsky (1987: 4) contend, "In the final analysis, those who control the discourse on risk will most likely control the political battles as well."

According to some of the incinerator's opponents, the control exerted in the traffic discussion, or battle, illustrated the triumph of political interests over common sense

with regard to the incinerator project. One community stakeholder Robert explained it as follows:

> *"There is no access at the moment, that's obvious to everybody. And when the [Eastern By-pass] was dropped, we felt that the thing would be re-examined, but it wasn't, it kept on and on and on and as we said at the various hearings, this is a project which was set out politically in 1997 and has been reverse engineered so that every problem that comes up, a piece of sticking plaster has been put over it."*
> Robert, Community 9

The traffic discussion illustrates 'prescribed responses to predefined problems' (Owens, 2000: 1144) being brought to the fore of the Poolbeg controversy. A response prescribed by criteria set out in the planning process could be now produced by DWE to the traffic problem (Coote and Franklin, 1999). At the same time, discussions of other issues, such as health, could be downgraded.

7.5 Ecological Risks

Ecological risks were a principal concern for just a few stakeholders and so the discussion about ecological risks is a minor one compared with the other potential impacts analysed in this chapter. However, it is worthy of examination since, as Beck (1992) states, society and nature are intimately linked, and the intricate relationship between society, technology and nature shapes the way in which environmental risk is interpreted (Irwin, 1997). Moreover, Douglas and Wildavsky (1982) posit that the way in which communities view nature or the natural is reflective of their world views, so an examination of the ecological discussion, such as it was, may reveal particular insights into the conflict around the Poolbeg incinerator. A particular significance of the ecological discussion is that it brought a number of key actors into the anti-incinerator stakeholder group. Anti-incineration stakeholders whose primary concerns involved impacts to wildlife were driven and passionate in their opposition and constituted an important part of the anti-incinerator campaign, so, while the ecological discussion of the debate may not have been as prominent as others, it contributed a great deal to the overall incinerator conflict.

7.5.1 Ecological risks: Incinerator proponents

As with the health discussion, the principal message of the incinerator proponents was that the incinerator construction or operation was not expected to pose a significant ecological risk. Experts speaking at the ecology Open Day information session of the DWE information programme related that a baseline study of the flora and fauna of the area had been carried out, that a risk assessment in relation to ecological impacts could not be carried out until particular details of the technology were decided upon and that a similar modern Dutch waste-to-energy facility was shown to have had no effect on the surrounding ecology. The notes from the ecology Open Day recount:

> *"A question was asked as to how risk minimisation is determined.*
> *Erling[72] responded: In order to minimise the risk of something, there is a need to know what processes there are. This information will not be known until the EIS is carried out and that will be when the developer is appointed."* Excerpt from Open Day, ecology information session, 12 November 2003

The subsequent Environmental Impact Survey (EIS) in respect of the Poolbeg incinerator concluded that a baseline study had revealed that there were no species of conservation value in the area and that there would be no significant effect on the ecology of the area and therefore no mitigation was necessary. The EIS states:

> *"The impact of site clearance is not considered of significance as the existing habitats are not of conservation importance. Overall, the replacement of existing habitats with further, highly modified habitats is rated as a neutral impact. The construction activities could have a disturbance effect on the Brent geese, which feed during winter on the grassland to the south-east of the site. However, the geese in Dublin Bay are well used to high levels of disturbance and are unlikely to be much affected by construction activities.*
> *Even if disturbed, which would be temporarily, they have many other sites in the Dublin*
> *Bay area to retreat to... Owing to the low ecological significance of this site, and considering that there are no significant adverse impacts, specific mitigation measures are not considered necessary."* Excerpt from non-technical summary of the EIS

[72] Erling Poelsin, from environmental consultancy firm COWI, an expert speaker at the DWE Open Day on Ecology.

Therefore, from the point of view of the technical risk assessment of the incinerator impacts, the ecological risks were negligible. From the excerpt above it is clear that the notion of 'nature' here is equated with ecologically valuable organisms or habitats as decided by technical and legislative processes. So species that are not protected or recognised by regulations are not considered. Drawing from the principal cultural biases or rationalities (Schwartz and Thompson, 1990; Douglas, 1992), the above excerpt reveals a hierarchist view of nature, which is what would be expected of a report which is rooted in legislative processes. However, as Irwin (1997) points out, environmental knowledge is a contested area and scientific risk statements, such as the EIS quoted here, may fail to achieve public legitimacy.

An interesting contribution to this debate came from a community member who was involved in number of environmental and nature conservation organisations but was not opposed to the incinerator. Instead, he was sceptical about the ecological arguments being used by those opposing the incinerator:

> *"I have been involved for years in the Irish Wildlife Trust. We campaigned on...Special Areas of Conservation, and we had absolutely no public support on any of these issues. I was really offended then that we'd have people coming out claiming that... Poolbeg is a Special Protection Area for birds. So I made the point very, very forcibly that the site of the incinerator was zoned Z7 - heavy industrial use. It is not a Special Area of Conservation. It is of no environmental value."*
> Keith, Community 8

The statement here is interesting in that the speaker, in a similar fashion to the EIS risk assessment, sees ecological value in the areas set out, under legislation, as conservation areas. It is also implied here that nature is something to be bounded, evaluated and labelled, which again intimates a hierarchist point of view which relies of technical and political definitions of ecological import (Schwartz and Thompson, 1990; Douglas, 1992).

It would seem that ecological risk was defined by the incinerator proponents in a narrow manner, with little consideration given to the notion that the value publics place on natural or semi-natural areas may not equate with technical assessments of

ecological value. As Davies's (2001) focus group work in Luton shows, publics tend to have a multi-contextual notion of 'nature' and these often include intangible values that are irrelevant to planning processes.

7.5.2 Ecological risks: Incinerator opponents

The potential impact of the incinerator on the ecology of the Sandymount, Ringsend and Irishtown areas was mentioned by just a few stakeholders and did not appear to be as much of a concern to the community members as health, traffic or sustainability. The reason for this may have been simply that the other issues, particularly health, were seen as being more salient to many of the stakeholders interviewed. As one expert noted:

> *"The population don't give a toss about marine invertebrates, they really don't, they are not very interested in marauding sea birds, they are very interested in their grannies and their children and their husbands and their wives. And they felt that the potential health impact of the facility was not seriously considered, was not seriously assessed and that at every turn it was down-played."* James, Expert 1

Notwithstanding James's, Expert 1, comment above, a number of stakeholders' primary motivation in the incinerator debate was the protection of the area's terrestrial, marine and estuarine ecology. These included, among others, members of the Sandymount and Merrion Residents Association (SAMRA), one of whose main objectives is to protect the Sandymount beach both for use by the community and as a habitat in its own right. Dublin Bay itself is legally protected under the EU Habitats and EU Birds Directives as an area of high conservation importance. This designation includes the river estuaries that skirt the bay. However, it should be noted that Ireland has a history of non-compliance with EU law particularly in the area of nature conservation and protection (European Commission, 2010), so it is probably not surprising that these community stakeholders had long-term concerns about the local ecology.

Stakeholders concerned about ecological risks mentioned specifically the salmon in the River Liffey[73], estuarine invertebrates and the Brent Geese population of Irishtown Nature Park. One community member, Robert, explained his specific concerns:

> *"They are going to take Liffey water in, pump it through the condenser and put it out again. That water is going to be hotter and it's going to have biocide or chlorine of some kind in it. That can affect the fish population; the Liffey is a salmonid river. .. [the incinerator] is certainly going to impact on the geese and the wild birds because the birds are using a site at the moment that they are going to use as a construction compound"* Robert, Community 9

In discussing the possible impacts of the incinerator, the value of the area as a recreational resource was recounted by some stakeholders, who accused the DWE project of a lack of interest in this aspect of the area. Also, the connection between the social, technological and the natural was a feature of the opponent's ecological discussion. As one community member explained:

> *"It isn't just the quality of life, but you do need a quality of life. That's why people come down and walk of the beach on a Saturday or Sunday, why else would you go down on to the beach? Because the kids enjoy it and you enjoy it ... it's not just part of your physical health, it's part of your mental health, without a shadow of doubt. But these were things that were never discussed. Well, they were discussed, we tried to get answers but we couldn't."* Julia, Community 5

> *"Dioxins generally aren't soluble, but there are certain creatures on the beach that will assimilate them, bioaccumulate, so then when you have wild birds eating and bioaccumulating them, who's to say a child doesn't do the same thing when playing, you know by sticking his fingers in his mouth, as they do. And they all pick up little bits of things, and if they find a lugworm, of course, they'll say, 'look Daddy what I found, or 'look Mammy what I found' , and that's fine because they are all learning at the same time, and at the moment it's clean dirt, but it mightn't be if you had an incinerator there."* Julia, Community 5

In her comments, Julia emphasises the importance of the social meaning of the relationship between humankind and the natural environment, which Bayliss-Smith and Owens (1994) have claimed is a central focus of geography. In addition, the significance to everyday life bestowed on the natural environment in the quote above

[73] Major waterway flowing through Dublin City and entering the sea at Dublin Bay close to the Poolbeg peninsula

echoes Irwin's (2001) attestation that nature cannot be disentangled from social and cultural settings. The contrast between Julia's quote here and the technical understanding of the ecology displayed by the official account of the ecological impacts set out in the previous section bears out Irwin's (1997) observation that while sociological analysis recognises the overlapping nature of society and nature, technical and official discourses of 'nature' tend to adopt a separatist perspective, seeing these two entities as disparate.

Stakeholders who took a particular interest in the ecological aspects of the debate were well-informed and about the species and habitats in the area. They were interested in and critical of how the ecological survey work was carried out. As community member Julia, explained:

> *"This person was produced as an expert, and this person was produced as an expert, and this other person was produced as an expert, and they'd say 'oh, we've done the environmental studies' and they didn't tell you that the environmental studies were actually so superficial, that they were not a baseline study at all. And when it came down to it and you finally got them pushed into a corner and asked the right question, you suddenly discovered, 'yes, well what was your brief?', The brief was the site itself, in actual fact, the actual little bit that we are actually going to build the incinerator on, not the bit beside it. If it's a foot away, it wasn't necessary to do a full environmental survey, or ecological survey or baseline study because that was outside the site. Their terms of reference were very limited, very narrow."*
> Julia, Community 5

This is an interesting quote, as Julia, Community 5, presents a critical analysis of the baseline survey methods used. Firstly, the scientist-philosopher (Latour, 2004) notion of the expert is rejected by the speaker. Following this is the criticism of the reductionist approach used by the base line survey, which was restricted to the very site of the incinerator, according to this speaker. It is also illustrative of ecological discourse as a politicised activity (Hajer, 1995).

As with the traffic issue, the interview data strongly suggested that some activists would have been less likely to be such ardent opponents of the incinerator had they believed that their concerns about ecological impacts were being taken seriously by the DWE project. One community member, Robert, opined:

> *"There are a couple of formidable ladies down there, you've probably seen them in action, they are very enthusiastic about wildlife and they certainly made a song and dance about the whole thing. ... They certainly stirred up a lot of opposition. They would like to keep their vista of Dublin Bay. So a few concessions to wildlife would have shut them up, that's a terrible thing to say, but it would, petting a few geese, and nobody listened to that."* Robert, Community 9

The key points raised by Robert (Community 9) here are that firstly community stakeholders were not listened to and secondly that the failure on the part of DWE to placate two particular stakeholders about ecological issues resulted in more opposition to the incinerator than there would otherwise have been because these stakeholders managed to generate opposition.

7.6 Conclusions

In this chapter, the debate about the Poolbeg incinerator was examined in depth in order to ascertain the motivations or rationales behind arguments used by both the proponents and opponents of the incinerator. The tangible issues articulated within the debate were gathered into five risk discussions: sustainability, economics, health, traffic and ecological impacts.

Each discussion involved different combinations of the stakeholder groupings and revealed different motivations. Overall, arguments in favour of the incinerator were strongly influenced by EU legislation and waste policy and possibly, because of this, leaned heavily towards ecological modernisation concepts, where economic competitiveness featured strongly as a motivation. Arguments against the incinerator tended to be more diverse. For example, the sustainability discussion allowed those opposing the incinerator to avoid accusations of NIMBYism and place their arguments in the wider context of waste management policy while they rooted health arguments partially in concern for future generations, partially in mistrust of the regulatory bodies and partially in a belief that the highly industrialised nature of the area had already resulted in health problems for residents.

A key finding of this chapter is that there were differing degrees of opposition to the plant and many different reasons for that opposition. Such multiplicities of voices with different but overlapping motivations have been noted before, particularly in civil society environmental campaigning (see Bullard and Smith, 2005; Tovey, 2007). However, this has not being previously explored in such depth in relation to incinerator conflict. While some of those opposing the incinerator were ideologically opposed to all incineration, others had specific concerns about the Poolbeg plant and had these been addressed, some of those opponents may have ceased to oppose the plant.

It would seem, however, that there was a failure on the part of DWE to recognise or perhaps appreciate the dynamics within opposition campaign groupings. This meant that opportunities where risk communication could have been used to reach consensus on peripheral matters that were not fully decided, such as traffic management or carrying out a health audit or more extensive ecological baseline survey, were lost. In contrast, the measures developed to address objections to the plant, such as the traffic mitigation plan, were perceived by some incinerator proponents as evidence that the information programme was designed to identify possible grounds for planning objections so that solutions that would ease the passage of the project through planning could be formulated.

It is also worth noting that, in some cases, stakeholders opposing the incinerator entered the debate on the basis of one particular concern but developed other concerns and became involved in other discussions. Moreover, while discussions of some issues such as health and traffic were more high profile than others, such as contractual and ecological concerns, the results here show that lower profile discussions often brought dynamic and passionate individuals into the ranks of the incinerator opponents, a development that was important to the overall debate. This underlines the difficulties in deciding which risk discussions bear more overall effect on incinerator conflicts.

A further key finding of this chapter is the interesting revelation that the shift in focus of Poolbeg incinerator debate from health issues to traffic issues was precipitated by the realisation that the project could not be challenged in the planning process on the basis of health concerns but that traffic issues had currency in terms of what was considered to be valid grounds for planning objections. While Davies (2001: 97) recounts how planning professionals may 'manipulate, rather than challenge' the planning system, this thesis shows that publics may act in a similarly pragmatic fashion. However, it should be acknowledged that although the anti-incinerator activists were advised by experts to shift the discussion from health to issues such as traffic, in the end the shift proved futile in terms of trying to halt the development of the incinerator. However, it did benefit the incinerator proponents in restricting the debate to particular arguments that were acceptable within the planning process.

A final key finding was that issues which emerged strongly during the interviews, such as the concern about the PPP contract financial arrangements and the sustainability arguments made by anti-incinerator stakeholders, did not feature to any significant in the media coverage during the timeframe for this thesis (2001 – 2006)[74]. This indicates that while the media is deemed an important source of information for publics about environmental conflicts (Wakefield and Elliot, 2003), it cannot be relied on to faithfully reflect environmental debate. On a methodological level, this highlights the usefulness of the semi-structured interviews, since this particularly important discussion would have been missed out had the thesis relied solely on media content analysis to identify the main arguments.

Finally, this analysis of the various arguments in the Poolbeg incinerator debate and the motivations and values that underpinned those arguments suggests that risk

[74] However, recent media coverage has focused on concerns that the PPP contractual agreement for the Poolbeg incinerator means that the state is liable to pay financial compensation to the operating company if adequate volumes of waste cannot be produced for the waste-to-energy plant. See Kelly (2009).

communicators need to be aware of the values of their target audience, and their own values, when communicating with publics in discussions about risk.

Chapter 8: Contexts of Risk Communication: Place, Equity and Trust

The importance of risk communicators understanding the contexts surrounding risk debates has been underlined by Pidgeon *et al.* (1992). Furthermore, the experiential context of risk (Plough and Krimsky, 1987) and the social, political and cultural contexts within which risk communications are produced, transmitted and received have been emphasised as influential in how risk messages are interpreted (Krimsky and Plough, 1988; Renn and Levine, 1991; Langford *et al.*, 1999). Indeed, Swyngedouw and Heyden (2003) contend that geographical and historical insights are key to untangling the constantly shifting power-relations between actors involved in changing and evolving urban landscapes. During analysis of the qualitative data for this thesis it became clear that the explicit risk discourses were often underpinned by other more foundational themes including place, justice, knowledge and trust. Such issues have been highlighted by other researchers as being of significance in debates around environmental risk and facility siting (Boholm and Löfstedt, 2004; Simmons and Walker, 2004; Wester-Herber, 2004; Day, 2007).

This chapter examines these themes as local contexts of the Poolbeg incinerator within which the DWE information was received. The chapter is arranged in three sections. The first section examines the context of place and explores the perception of the stigmatisation, marginalisation and peripheralisation of the area. In the second section, the Poolbeg incinerator conflict is examined through notions of distributional and procedural environmental justice with particular attention focused on the beginnings of awakening of a discourse of environmental justice in Irish waste conflict and issues of procedural justice which were discussed during the Poolbeg incinerator conflict. Following this, the third section considers how the historical context of the mistrust in the area and how this impacted on how the information programme and in particular the expert information was received by anti-incineration stakeholders involved in the Poolbeg incinerator debate.

8.1 Place in the Poolbeg Incinerator Debate: Stigmatisation, Peripheralisation and Marginalisation

8.1.1 Stigmatisation

The Poolbeg/Ringsend area of Dublin has been associated with dirty industry and waste disposal for the city for a number of decades. As discussed in Chapter 3, areas that have a history of being burdened with dirty industry may become stigmatised leaving them vulnerable to particular economic and social risks (Slovic *et al.*, 1991; Slovic *et al.*, 1994; Wester-Herber, 2004). According to Gregory *et al.* (1996), there are five conditions which denote environmental stigmatisation: a hazard perceived as high risk, the violation of what is right or natural, inequitable distribution of risk, unbounded possible outcomes and the management of the risk is questionable. While these conditions are highly subjective, all five conditions can be easily met if viewed from the perspective of those opposed to the Poolbeg incinerator.

As shown in Chapter 7, the emissions, particularly the particulate matter which are believed to be a possible cause of cancer, are certainly regarded by some community stakeholders as being highly hazardous. In addition, it is clear from the ecological risk discussion outlined in Chapter 7, that there were concerns that the flora and fauna of the estuary, river and local nature reserve were under threat of violation from the incinerator emissions and cooling waters. Here, the remaining three conditions will be examined.

The siting of the incinerator in an area that was already heavily industrialised constituted an inequitable distribution of risk according to anti-incinerator stakeholders interviewed. As one stakeholder put it:

> *"Definitely the incinerator was one piece of infrastructure too much.. The general sense from public meetings, from talking to residents down there is, 'we've had too much, our health, you know the industry', there's very poor health down there. So this was an area that was really surrounded by heavy industry and there's no doubt residents feel that this is just another thing being dumped on them."* Scott, Community 2

As has been explained in Chapter 2, there is a significant degree of uncertainty about the geographical and temporal effects of some incinerator emissions in the scientific research to date. Therefore the risks associated with incineration could be described as having unbounded, or unrestrained possible outcomes (Gregory *et al.*, 1996) and so this facet of stigmatisation is met by incineration as a technology. In addition, there were concerns among community stakeholders that specific details about how waste incinerator products, such as fly ash and bottom ash, would be disposed of had not been properly determined by the DWE project:

> *"[DWE] haven't planned for [the bottom ash] at all. They are saying,.. 'That'll be done by the Port, it's nothing to do with us, so we haven't done any engineering on it'. That's crazy; they're talking of taking it down in lorries and using a grab-crane. They say it's not dusty, but after it's been stored for a month in a huge bunker, the moisture is going to sink down to the bottom. The bottom will be slurry, the top will be dust. It's going to be hugely dusty; nobody has done any engineering on it."* Robert, Community 9

With regards to questionable management of the risk, anti-incinerator stakeholders had little confidence in the ability or willingness of the City Council or the agencies responsible for policing the incinerator to exert sufficient control over the plant to make it safe. For example, one expert put it as follows:

> *"There's a lot of concern about [the EPA's] ability to enforce [licenses] and there really is no trust in their ability to enforce their licenses. Their enforcement regime.. , well, it used to be non-existent; it's much better than it was, but it's gone from being non-existent to being pathetic. I would say. Now that's progress; it might go from being pathetic to being weak in a few years."* James, Expert 1

From the evidence provided by the qualitative data, it would seem that the incinerator has potential to stigmatise the Ringsend/Poolbeg area. However, when community stakeholders and politician stakeholders were asked whether or not they thought the residents of the area felt that the presence of an incinerator would result in stigma to the locality, all respondents replied that this would not be the case. This contrasts with work by Bullard (2005) on disadvantaged areas of Houston, Texas which are utilised for the siting of municipal waste facilities and where residents tended to express concern about stigmatisation. Many of the stakeholders

interviewed for this thesis cited the strong sense of pride of place that residents, particularly Ringsend residents have about their area as a reason for this. As one politician explained:

> Michael, Politician 2: *"So people feel sore about what's happening in their area, and they see all sorts of new developments that they're not really gaining from and then they see this incinerator with all the negative overtones of that being planted in amongst them. And I think that's what's happening. I think one of the unique things about Ringsend is the extraordinary pride that Ringsenders would have in being from Ringsend.. So they wouldn't feel... they wouldn't have a negative view of their area, they might have a negative view of what's happening to their area."*
> Interviewer: "*Would they be afraid that other people would have a negative view of the area?"*
> Michael, Politician 2: *"No. Not in this context, I don't think."* Michael, Politician 2

A further possible explanation for this lies in the language of stigmatisation. In her study of the discourses used in the incinerator siting controversy in Galway, Davies (2006) concluded that there was a reluctance to use an explicit language of environmental justice as activists believed that this would cast them as victims, that they would be unrealistically expecting fair treatment or that they may be labeled as NIMBYs. So then, the rejection of a label of stigma in the Poolbeg incinerator debate may have been more to do with a dislike of the word and its connotations than a belief that stigmatisation of the area was not a concern.

While the evidence of stigmatisation in the area surrounding the Poolbeg incinerator site is relatively unambiguous, the evidence of peripheralisation of the area is equivocal. Peripheralisation describes a process whereby the social, political and economic characteristics of marginal areas render them susceptible to environmental inequalities particularly in relation to the siting of LULUs (Blowers and Leroy, 1994).

8.1.2 Peripheralisation and marginalisation

As discussed in Chapter 3, Blowers and Leroy (1994) contend that peripheral communities exhibit a number of characteristics. These include remoteness, economic marginality, a culture of acceptance, environmental degradation and powerlessness. Although the Ringsend/Irishtown area is located close to Dublin city

centre, its location on the south arm of Dublin Harbour affords it a degree of geographical separation for the city. One politician put it this way:

> *"In Ringsend, they talk about 'over the bridge', there's a bridge that goes into Ringsend and the community in Ringsend say, 'over the bridge'. And 'over the bridge' means 'out there...In one sense it's a very strong feeling, a very defensive mechanism, but on the other hand it also can be seen as insular. So when that community is against something, it doesn't necessarily build links with other communities. ...But here, it's quite an insular campaign, with links to Sandymount. And that's basically it, Ringsend and Sandymount".* Hugh, Politician 6

Here Hugh, Politician 6, intimates that the use of the phrase 'over the bridge' by Ringsend residents, portrays a sense of isolation from the rest of Dublin City. Hugh also described the area as having an 'island feel' due to its proximity to the sea. The proximity of the Poolbeg site to the sea did offer technical and logistical reasons to locate the incinerator there: for example the location provided cooling water and the possibility of transporting through the port, if necessary, both waste to, and bottom and fly ash from the plant.

According to Blowers and Leroy (1994), economic marginalisation exists where an area is dependent on one industry, company or state welfare. Traditionally, the principal residents of the Ringsend area were dependent on sea-faring pursuits, such as working on ships or in the docks, but over the years other industries developed. As one community member explained:

> *"[I] remember in the docks, there'd be coal pouring in. My mother used to say that when she'd put the babies out in the pram outside the door to get air and .. when she'd lift them up, you could see the shape their head because the pillow would be covered in coal dust. But we were reared like that .. so therefore we should have health problems, from that. And then we had the various manufacturing .... bottle manufacturing, was a big thing, cement factories, the general docks industry,.. and then hard work, outdoor work even on the boats or that, so that's why people's health .. and then poverty as well would have added to it."* Meryl, Community 1

As the area has number of different industries, it is not economically marginalised in terms of Blowers and Leroy's (1994) description of a peripheralised community. Yet, it is clearly an area where employment prospects justified an overload of environmental 'bads' (Beck, 1992). The above quote implies that dirty jobs are better

than no jobs. Such economic dependency of the Ringsend community on hazardous industry is reminiscent of Wynne's (1996) findings that the dominant position of the nuclear power plant at Sellafield as a significant employer in Cumbria attenuated local risk perceptions of nuclear power. However, over the years, improved economic conditions and educational opportunities for the Ringsend community seem to have altered the attitude to potentially polluting activities in the area. As Sadie, a community stakeholder commented:

> *"Ringsend .. was a working class area that said; 'well, if there's work for the area, if there's work for the people in the area, then we won't object to it'. And this has happened over the years [with other industrial development]. But people now are not as work-conscious as they were, saying, 'well, if they build that now they might give work to the local boys or girls around the area'. But they're not thinking like that now because they're educated more, because their kids are going to college now. And it's only right, that they should be looking further ahead and not thinking; 'sure, it's alright for us to live down here."* Sadie, Community 4

A further complication in respect of the economic marginality criteria is represented by the socio-economic differences between the Ringsend/Irishtown and Sandymount areas. Despite the changes described by Sadie above, Ringsend and Irishtown remain relatively disadvantaged areas. Sandymount, on the other hand, is far more affluent.[75] However, from the interview data, it would seem that a culture of acceptance (Blowers and Leroy, 1994) was a feature of the both the Ringsend/Irishtown community and the more affluent Sandymount community. A number of community stakeholders attributed the accumulation of polluting facilities in the area, at least partially to this:

> *"I worked on Poolbeg [electricity generating plant]. It's a dirty great industrial plant with no scrubbers on the chimney's spewing out NO2, nitrous oxides, CO2, Carbon Monoxide and everything else and the stacks were built so high so that all that would go to Manchester rather than Dublin. Nobody said a word about it. Irish Glass Bottles was built right smack in the front of nice houses in Sandymount, nobody said a word, because it was a different world."* Robert, Community 9

[75] The Small Area Population Statistics (SAPS) for the 2006 Census of Ireland shows that the Ringsend/Irishtown area had approximately three times as much unemployment as Sandymount, that Sandymount has a greater proportion of higher professionals and residents with higher degree education than Ringsend/Irishtown and that residences in the Sandymount area are considerably bigger than those in the Ringsend/Irishtown area (CSO, 2010).

> *"we have the biggest sewage plant in the whole of Europe which had never worked even though we accepted it and believed what they were saying, you know, that there would be no odour ... the water would be of top quality...So they decided that we didn't object much to the sewage treatment plant so we were an easy target and now they still consider us an easy target"* Meryl, Community 1

Here the reference from Robert, Community 9, to the 'nice houses in Sandymount' is notable because it shows that even though Sandymount is not a disadvantaged area, there was still an acceptance of LULUs in the past, as it was a 'different world'. The second quote relates to a more recent time and suggests a more active acceptance of a facility (a waste water treatment plant) where the potential risks were offset by the potential benefit of good bathing water quality. This resonates with Slovic's (1978) assertion that people are more likely to accept risks they see as having some benefit to them. The final criterion denoting peripheralisation is that communities may be reluctant to resist decisions that affect them as they believe they are without effectual power. While it was made clear from the beginning of the DWE information programme that an incinerator for Dublin would be built, it was also claimed that a number of sites for the facility were being considered, that the Poolbeg site was the 'preferred site', but the final decision was yet to be taken. Despite this, some stakeholders commented that many residents believed it was futile to fight the siting of the incinerator in Poolbeg. The following interviewees explained:

> *"Well, people in Ringsend, not all of them but a majority, an awful lot of the people, think ...because the government says it's going through, 'well, you won't be able to fight that, it's a government thing and you can do nothing about it, they'll get planning permission anyway'."* Sadie, Community 4

> *"But this has gone on for years now so there are stresses and strains for all the people who've been trying to stop this from the beginning. The council have An Bord Pleanála on their side, and [the communities] have no power to stop them."* George, Journalist 3

The belief presented in these quotes, that there was nothing to be achieved in challenging the will of more powerful actors, is an illustration of fatalistic group-grid behaviour, according to cultural theory (Schwartz and Thompson, 1990; Douglas, 1992). However, the notion that the area was politically powerless and significantly

disadvantaged was not a view held by all the stakeholders, and not even by all the anti-incinerator stakeholders. One NGO stakeholder commented:

> *"You know it has had two cabinet ministers at times over the last few years, you know it's not the most disadvantaged community in the country."* Shane, NGO 2

The apparent political advantage implied by the above quote did not, however, materialise into significant benefit for the community in the resistance to the incinerator[76]. Indeed, despite such apparent political weight and the economic affluence of Sandymount, the communities were powerless politically to prevent the siting of an incinerator in their area. Therefore although the area may not display economic peripheralisation, there is an argument to be made that it is subject to political marginalisation, as neither the population nor the political representatives for the area had the ability or power to alter the plans for the siting of the waste-to-energy plant. It would seem that even ministerial politicians representing the area were unable to influence the incinerator siting decision.

As argued in Chapter 3, Blowers and Leroy's (1994) highly prescriptive concept of peripheralisation is somewhat problematic for use as an analytical tool and the concept marginality (Cullen and Pretes, 2000) is being used here to augment the notion of peripheralisation to achieve a more workable analysis of the case study area. There are many interpretations of marginality, but for this thesis the concept of marginality being used is a social constructionist view whereby 'power becomes the central determinant of marginality' and whereby an area is seen as being marginal or as 'the other' by more powerful actors (Cullen and Pretes, 2000: 217). The interview data from some community stakeholders suggested that that they felt that the City

[76]During the incinerator conflict, there were a total of two TDs from the Dublin South East constituency, which includes the case study area, who served as government ministers; Michael McDowell, Minister for Justice from 2002 - 2007 and John Gormley, Minister for the Environment, Heritage and Local Government from 2007 to present. Although both these politicians strongly opposed the siting of an incinerator in Poolbeg and both were active in opposing the incinerator for many years, neither seemed to be able to influence government policy regarding the incinerator at Poolbeg.

Council, and indeed other areas of the city, regarded the Ringsend area as being 'the other'. One community member commented:

> *"God forgive me for saying ... please don't misunderstand me, but they're a less desirable area, they're the working groups and the corporation flats. Because why would people in say, Terenure or Rathgar be bothered about what's happening down in Ringsend. So it's much easier to say, 'it's in Ringsend', and it was equally easy to say, 'well, dump it down there, 'cause that's a dump anyway', and in Dublin City Council's mind, that is still a dump. And then they come along and say they're going to clean up the dump, which means they'll build high rise developments on top of it. In the meantime, we'll put all the cement plants down there. (Laughs) That was the mentality"* Julia, Community 5

The sentiment expressed in the quote from Julia, Community 5, above that the Ringsend community was being 'dumped on', while wealthier areas were unlikely to be subject to such treatment, was mentioned frequently in the interviews and resonates with Beck's (1992) notions of risk positions overlapping somewhat with social class.

It would seem that there are degrees and aspects of both peripheralisation and stigmatisation about the area, while the area does not technically meet the theoretical stipulations for either. In addition, the area, and Ringsend/Irishtown in particular, is arguably marginalised. As illustrated by the comment from Julia above, many community stakeholders believed that this may have been a factor, at a political level, in the decision to site the incinerator there. Since many community stakeholders also believed that the area was chosen as it was already over-burdened with LULUs, this was a significant context within which the discourse of risk was conducted and within which the DWE information programme operated.

The social injustice implied in such practices is often articulated through a discourse of environmental justice (Bullard, 2005). The environmental justice framework encompasses a broad spectrum of aspects and circumstances of resistance to environmental 'bads'. Two particular aspects of the environmental justice framework which emerged in thesis data are discussed here. Firstly, the qualitative data are examined for any signs of environmental justice concepts in Irish incinerator debates

(Davies, 2006). Secondly, two particular procedural injustice issues that impinged on the way in which the incinerator risk information was received by publics are examined: concerns about a lack of democracy (Agyeman and Evans, 2004; Watson and Bulkeley, 2005) and concerns about inequitable access to knowledge resources during the conflict (Brown *et al.*, 2003).

8.2 Environmental Justice

8.2.1 A discourse of Environmental Justice awakes

In the Poolbeg incinerator debate, what might be called an awakening of an environmental justice discourse was evident. Although just a few of the stakeholders were familiar with the term environmental justice, the language and arguments used sometimes evoked environmental justice concepts. The perceived lack of fairness, over-burdening and the probable cumulative impact of the numerous facilities sited in the area over the years were all raised in the debate. In addition, perceived flaws in the information and consultation processes and inequities of resources, particularly of information and technical expertise, between those proposing the incinerator and those opposing it were all significant issues raised in the debate and in the interview data for this research. The unfairness of siting a planned incinerator in an area perceived as already over-burdened with 'dirty' industries, utilities and traffic was a prominent discourse in the incinerator debate. As the following interviewees commented:

> *"..the unfairness, the sense of unfairness of been dumped with this."* Scott, Community 2

> *"Well, I mean first of all you've got all the traffic to the port, and then you have this other traffic, you know cement companies, Hammond Lane, you know there's the ESB etcetera, so there's an awful lot of port related traffic in that area. And this proposal is going to add hundreds of trucks to the roads that are already congested in and around the area. And I said, you know, basically the back yard is full, they just can't take anymore."* Lewis, Politician 3

The quote above illustrates how the theme of environmental justice permeated through the Poolbeg incinerator debate. Bullard (2005) attests that considerations of

health impacts of environmental degradation, particularly cumulative health effects, play an integral part in environmental justice discourses and so it proved to be the case in this research. For example, the following community stakeholder links the long-term over-burdening of the area with health impacts and expresses a belief that there is no concern for the welfare of the population in the area among political decision-makers:

> *"So then the people who thought about it said, 'well, we really don't want anything else down there. All these years we've had ESB stations, we've had the sewerage station, so why should we have an incinerator?' Yeah, that's what they were saying, 'we've done our thing, we've done our bit down here', and we have, well, they're talking about an incinerator.. They didn't care about the people's lives or their health or anything else, and they're still not caring about their health."* Sadie, Community 4

The notion of justice was certainly part of the vocabulary of the anti-incinerator campaign, and was linked with concerns about overburdening the area with LULUs and about the concerns about health exacerbated by this. For example, in the following excerpt from an objection lodged to the waste license application to the EPA for the Poolbeg incinerator, the author contends that the incinerator should be placed elsewhere in the interests of, what he terms, 'common justice':

> *"It is strongly argued that the people of the receptor communities have already taken more than their share of the ugly and polluting side of the infrastructure that serves the Dublin Region, and that common justice would demand that any new facility would be located elsewhere. The base level of health in the Ringsend area must also suggest that this area is poorly able to tolerate any more industrial emissions with hazardous potential."* Excerpt of a submission by one anti-incinerator activist with respect to the Poolbeg incinerator license application, 30 October 2006

The use of the phrase 'common justice' here as a validation for placing the incinerator in another location rather than in Ringsend, is an interesting demonstration of how a justice discourse politicises the debate and in doing so helps it to transcend reactive NIMBYism (Davies, 2006). Although there was an awareness of the concept of environmental justice among some stakeholders, usually experts, politicians and NGOs, there was a lack of agreement as to whether or not the concept could be applied to the Poolbeg situation, as the following comments illustrate:

> *"Well, I think there is always a tendency for incinerators to gravitate into industrial areas ..Those sorts of areas are also the areas that tend to be inhabited by those in lower income groups. So there is an environmental justice issue here, I don't think it's a deliberate sort of planning strategy to place these in these less-off communities, I think that's just the way it happens, but it shouldn't be happening that way. I think it's fairly inconceivable actually, that this sort of installation would go in, in a well-heeled area, shall we say".* Martin, Expert 6

> *"But definitely there is an environmental injustice in putting everything on top of one community. But on the other hand, it is the second most middle-class or the third most middle-class constituency in the country after Dublin South and along with Dun Laoghaire..."* Shane, NGO 2

These two quotes contradict each other considerably and it is difficult to believe they are referring to the same area of the city. The economic status of Sandymount is clearly conflicting Shane, NGO 2. However, some researchers contend that environmental justice concepts reach beyond economic considerations (Agyeman and Evans, 2004; Watson and Bulkeley, 2005; Walker, 2009) while Bullard (2005: 61) comments that 'the question of environmental justice can hardly be reduced to a 'poverty' issue'. From this thesis, and other incinerator studies such as those of Davies (2005, 2006, 2008) and Leonard (2005), it could be argued that, in the context of waste conflicts in Ireland, environmental injustice cannot be reduced solely to an economic or social issue. The point may not be the present day economic status of communities affected, but rather the peripheralisation and marginalisation processes that the area has been subject to in past decades.

An important discussion within the Poolbeg incineration conflict was the manner in which the siting decision was taken. There was a strong belief among those who opposed the incinerator that there was a lack of accountability in the decision to site it on the Poolbeg peninsula. Despite many reassurances from the DWE information programme that the siting decision was valid, and a broadly favourable review of the siting study by an independent planning expert, Henk van der Kamp[77], it did not appear to have satisfied the stakeholders. Many anti-incinerator stakeholders believed that DWE had privately assigned the incinerator to the Poolbeg site long before the decision was officially taken:

[77] Head of Planning at the Dublin Institute of Technology (DIT)

> *"In my view, it was a decision in reverse. It was, 'ok, this is where we want it, now let's figure out how we prove that this is the right place'. The process they went through, allegedly a public and independent process, to choose a location, was a farce. .. done over a long period of time by independent consultants who always work for Dublin City Council and continue to depend on Dublin City Council for their income. So what else were they going to come up with? I think they were going to come up with the answer they were told to come up with."* Roger, Politician 9

The suggestion here that the Poolbeg site was chosen prior to the selection process and that the decision was subsequently justified is reminiscent of Flyvbjerg's (1998) reading of the political nature of planning decisions taken in his seminal study of how power overrode rationality in a traffic planning project in Aalborg, Denmark.

Proponents of the incinerator argued that there are practical reasons for gathering utilities into the same area. One planning expert explained that such an approach means lower environmental impacts overall:

> *"So .. to use the analogy of a dwelling house, the utility room, where you put your dryer and your washing machine and all the stuff that you need and the heating for the house etcetera, a lot of that municipal stuff is on the peninsula. Now that makes a lot of planning sense that you have less negative environmental impacts if you cluster those kind[s] of industries or infrastructures together."* Alan, Expert 4

The quote here prompts the question; 'less negative environmental impacts' for where and for whom? As Swyngedouw and Heyden (2003: 901) observe of cities, 'there are a series of urban and environmental processes that negatively affect some social groups while benefiting others'. Alan (Expert 4) however, went on to acknowledge that clustering utilities, while making 'planning sense' may not seem beneficial from the local community's perspective:

> *"Unfortunately, from the community aspect you can argue the opposite because they get to suffer things in addition, you know, there's a cumulative impact. ... And, I suppose, this is an age old question, is it appropriate to locate those land uses in a small area together, or should it be spread out so that everybody gets a bit?"* Alan, Expert 4

This 'age old question', which lies at the heart of both risk acceptability and risk distribution discussions, resonates with Beck's (1992) line of argument that since competing views, interests and values abound within risk discussions, technical

rationality loses its monopoly on legitimate argument. When social movements or civil society ask questions such as, how much risk is too much risk or who will benefit and who will make sacrifices, a social rationality is apparent and according to Beck (1992) this has as much legitimacy as scientific rationality.

It is also worth noting Blowers's (1980) contention that although it is typically claimed that planning is a rational decision-making process, it is influenced heavily by political values and reflects the existing patterns of political power. Those working from an environmental justice perspective believe that the inequities of distribution cannot be tackled without confronting the power differentials and procedural injustices which underlie decision making processes about unwanted land uses (Bullard, 2005).

Two further issues which resonate with the concept of procedural justice emerged strongly in the interview data; firstly, issues of democracy and waste governance (Davies, 2005) and secondly the access to expertise and scientific information (Blowers, 1980; Peuhkuri, 2002).

8.2.2 Democracy and waste governance

Tensions between national and local democracy, and between representational and indirect democracy became a focus of the discourse around the Poolbeg incinerator. While regional waste management plans were drawn up under the auspices of national and EU waste policies and legislations, the implementation of the waste strategy 'hit home at local level' (Laffan and O'Mahoney, 2008: 147). Therefore there was a clash of national and local democracies. As the following stakeholders commented:

> *Democratically as a nation, we decide we want two incinerators in the country and we're going to put them somewhere. That is, democratic decisions that can be legitimately taken by government on our behalf and therefore you have to find some other way of implementing that has maximum public participation, but isn't the case of every county having a veto. .. If there's a democratic decision taken nationally, well, at some point the national government has a right to impose it somewhere.* Adam, NGO 1

> *"There is a genuine problem, democratic problem as to what you do about critical infrastructure that has to get put somewhere.., and that no-one would want to be put near them."* Declan, Expert 3

Interestingly, both quotes here are from stakeholders who held anti-incinerator stances elsewhere in their interviews. Adam, NGO 1, is clear that national democracy should, at some stage, have precedence over local democracy. Declan, Expert 3, indicates that there are no ready solutions to the democratic dilemma between national need and local community democracy. Both quotes sketch out the conflicting agendas between providing required (waste) facilities and the problematique of siting such facilities (Agyeman and Evans, 2004).

However, many anti-incineration stakeholders, particularly activists, valued direct democracy over representational democracy, and particularly over national representational democracy. Community stakeholder, Scott, explained his understanding of democracy as follows:

> *"I believe in democracy, genuine democracy, that is local people having control over their own lives, and for me, pushing this piece of infrastructure on the people of this area and on the people of Dublin when they don't want it, for me is wrong and for that reason alone is the reason I'm opposing [the incinerator]".* Scott, Community 2

According to Andersson (2008), direct democracy, such as that described here by Scott (Community 2), requires government to have accountability to publics. Day and Klein (1995: 203) contend that information is the 'life blood' of accountability. However, for a number of years there was a reluctance or inability on the part of the DWE information programme to articulate whether or not Poolbeg was definitely the proposed site for the incinerator. This denigrated accountability, and exacerbated procedural injustice. As community member, Meryl explained:

> *"They wouldn't tell us from day one where the site was. I think it wasn't until 2000 or 2001 that they actually identified [Poolbeg] as the preferred site. The argument from the very first was, 'if it's the preferred site, are you carrying out this sort of consultation in other areas? Why aren't you doing this out on the Belgard Rd. or wherever else the [other possible] sites were?' And they never answered that. So we*

> *knew from then that it was the site, but they wouldn't tell us. And as long as it was the preferred site, we couldn't take any action against them. We couldn't initiate anything in Europe for matching funding, because it was the preferred site only, it wasn't the site."* Meryl, Community 1

Here Meryl suggests that referring to Poolbeg as the 'preferred site' rather than actual site was dishonest since an information programme was being conducted for, and only for, the communities in the locale of the Poolbeg peninsula. In addition, the use of the term 'preferred site' acted to prevent the anti-incineration stakeholders from accessing funding for resources to mount a resistance to the incinerator, which Meryl clearly perceives as an instance of procedural injustice (Bullard, 2005; Watson and Bulkeley, 2005).

DWE stakeholders suggested that since the Dublin waste management plan, which included an option for incineration, had been approved by Dublin City Council in the first instance the decision to use incineration was democratically legitimate:

> *"The local authority had adopted a waste management plan, the elected representatives had adopted a waste management plan, one of the few areas where they had done, and you know, the democratically elected local representatives adopted the waste management plan, and in fact the records of the council show they adopted it twice. They adopted it first of all, and then a Green councillor put forward a motion to remove incineration from the plan, and it was rejected. So we were in a position whereby we had an obligation."* Sarah, DWE 1

Sarah's, DWE 1, comment that there was an obligation on the DWE project to implement the waste management plan is important here as it essentially accepts responsibility for the implementation of the waste management plan (WMP) which has been approved by the elected representatives. However, as noted in Chapter 2, most of Ireland's waste management plans, including the Dublin plan, were written by the RPS Engineering Group (Boyle, 2003), the private consultant partner in the DWE project. Therefore, the suggestion here that the DWE project was merely implementing a plan that local politicians were responsible for making is somewhat disingenuous. Echoing Beck's (1992) contention that technological decisions often reach the realm of politics after they have been taken by the private sector, it would

seem that the decision to utilise incineration in the Dublin waste management plan was initially taken by a private company and that the political system was expected to legitimise this decision by delivering the approval of the elected representatives.

The discussion about democracy in the Poolbeg incinerator siting decision unfolded into a broader discussion about waste governance in Ireland. One expert, who did not favour incineration as a means for dealing with municipal waste, opined that the position of local authorities in Ireland was particularly problematic:

> *"If you look at the motto of Dublin city, it's Obedienta Civium Urbis Felicitas .... And that means 'the obedience of the citizens is the happiness of the city'. And, you know, it's an explicitly fascist motto. We have the worst local authorities that I know of in Europe, by far. . because they have very little power, heavy responsibility, very little democratic control, very little political legitimacy".* James, Expert 1

The comments here that local authorities in Ireland have heavy responsibility while having little power and also that the description of the Dublin City motto as being 'explicitly fascist' are particularly salient observations considering how the implementation of waste management legislation process eventually unfolded. In particular, provisions in the Waste Management Act, 2001 and the Protection of the Environment Act, 2003 (see Chapter 2) which transformed reserved powers with respect to waste management plans to executive powers, further inflamed the Poolbeg incinerator conflict. This was because many anti-incinerator stakeholders saw the change in legislation as the use of 'raw power' (Flyvbjerg, 1998:141) to centralise control back to the Minister for the Environment and in the process, undermining local representative democracy. The following comments describe the effect the move at national level had on the local conflict:

> *"Dublin City Council were systematically made impotent and powerless in the process, in the debate and that angered a lot of people and that if actually, if anything, increased the antagonism locally towards the project amongst local councillors and also amongst the community activists and people who took an interest in the matter."* Tom, Politician 1

> *"Changing the law to make the City Manager responsible.. meant that the people who were used to talking to their councillors were suddenly disenfranchised and the*

> *councillors couldn't do anything; that was very damaging to the project."* Robert, Community 9

The disenfranchising of the community referred to by Robert, Community 9, is particularly important as it suggests that the local community felt that power was removed not just from the local politicians, but also by proxy from residents themselves. It could be argued that the exclusion of both the local political representatives and the communities from waste governance in this way is a form of procedural injustice. In addition, according to Blowers and Leroy (1994), this could serve to deepen peripheralisation of the area.

Stern (1991) asserts that risk communication should aim to stimulate a well-informed discourse that will result in democratic choices. However, the Waste Management Act, 2001 acted as an unintended message to the community (Beder and Shortland, 1992) indicating that MSW incineration would be pushed through and that there was no place for local democracy in that decision. This was, of course, at odds with both public participation aspirations in 1998 *Changing Our Ways* policy document and with the aims of the CIG process. While the DWE information programme was purporting to listen to and alleviate publics' fears about the Poolbeg incinerator, legislation enacted to move power upwards conveyed the message that local concerns and sensibilities were of no interest or consequence in waste management decisions or implementation. As a result, to many stakeholders, the DWE information programme appeared as little more than window dressing and any value it may have had was seriously undermined. In light of this, the exclusion of the local authority from waste strategy decisions devalued DWE's attempts to provide information about the incinerator to publics, since it signaled that there was little real interest in the residents' opinions about land usage in their area.

8.2.3 Access to expertise

It is arguable that access to knowledge and expertise for affected publics is crucial to the process of enhancing procedural environmental justice. This aspect of procedural justice has received little research attention to date but is beginning to emerge in the

literature. In their examination of the attempts to include environmental justice into decisions about water management in California, Shilling *et al.* (2009: 702) describe the difficulties community stakeholders had in accessing expertise and the marginalisation of experiential knowledge as an '[u]n-recognised injustice'. The need for trusted sources of expert knowledge was a strong theme in the interviews for this thesis. While issues of mistrust and knowledge are examined later in the chapter, here the inequities of access to information and knowledge in the Poolbeg conflict are considered. One interviewee, Hugh, described the importance of technical expertise to the anti-incinerator stakeholders:

> *"I hadn't a clue [about science], and I'd make no bones about it.. I'm not an expert. Studies, studies about studies. And I wouldn't have a degree. I didn't go to college and do this stuff; I didn't go to college at all, so I'm no harm to any of this academic stuff. So all I know is this, what I have is a mandate I have to fulfill. But it's important to have those people .. They are as crucial as activists on the ground .. trustworthy experts to do battle with your opponents."* Hugh, Politician 6

Here Hugh emphasises his lack of scientific knowledge but goes on to suggest that scientific argument by 'trustworthy experts' is required in order to fulfill his mandate as a public representative. The implication here is that politics and protest requires science and that access to expertise, and in particular trusted expertise, was necessary to engage properly in the incinerator debate. This resonates with Taylor's (2001) assertion that such discussions amount not to an exchange of scientific views, but to political debate supported by scientific argument. Hugh's quote stresses that need for expertise is equal to the need for activists in protest and implies his belief that the 'scientization of protest against science' (Beck, 1992: 161) is necessary for the 'battle' against the incinerator.

According to many anti-incinerator stakeholders interviewed, one of the perceived injustices in the Poolbeg incinerator development process was the inequity in access to expertise between the community and DWE. Speaking about the experts used in the DWE information programme, one politician commented:

> *"Oh, they [the experts] were very competent, you know. Like, you had the best of the best. And this was the whole injustice in the process, because the finance [and] the expertise were all stacked up on one side".* Sean, Politician 4

By declaring that the expertise was 'all stacked up on one side', Sean indicates a belief that experts engaged by the DWE project could not be considered as neutral sources of information in the debate. Although those opposing the incinerator generally did not doubt the competency of the experts involved the DWE project, they recognised that there were social, economic and political contexts within which the experts were working. For example a community stakeholder had this to say about one of the DWE technical staff:

> *"I knew [Sarah] going back to the 90's .. and I said to her, 'what are you doing working with them?', and she said, 'it's a job, they pay me'. And that was the attitude of everyone in RPS, it's a job, they were being paid to do it."* Meryl, Community 1

This resonates with Irwin's (2001) sociology of scientific knowledge where he considers the ways in which contextual aspects, such as experts' values and their source of employment, impact on the production, utilisation and communication of knowledge. The economic context of the availability of knowledge was a strong theme in the interviews with anti-incinerator stakeholders since, as Blowers's (1980) asserts, the powerful can buy expertise. As one community stakeholder put it:

> *"We haven't got the money to fight them, well, not to fight them, to come up with our experts [who will] ask the questions and know .. if [DWE experts] are not giving proper answers... If we don't get the money, we can't fight it, So they're saying to the community.. You want to fight it, so you come up with the money, we're giving you nothing'. So is that democratic?.. Like, the communities can't bring expertise in and fight it on their grounds or anything."* Sadie, Community 4

Many of the anti-incineration activists spoke of the inequity of the financial resources between their anti-incinerator campaign and the DWE project. However, it quickly became apparent that the issue was less about money than about the ability to buy expertise. In Sadie's quote above, the linking of a lack of democracy with the inequity in access to expert knowledge echoes the core principles of procedural

environmental justice whereby citizens should be partners in decision making processes (Bullard, 2005). Again, this linkage suggests the existence of environmental justice notions in this incineration dispute. Further, the quote resonates with Stern's (1991) position that the belief that experts or political elites have the right to determine how publics should perceive their policy choices is an essentially undemocratic view.

Quite apart from the lack of funding to secure expertise, anti-incineration stakeholders found that many of the experts they approached were already associated in some way to the DWE information programme, or to the development of the incinerator. As the following interviewees recounted:

> *"[Anne, Politician 8] rang a lady in UCD to ask her advice and the lady in question said 'I can't advise you, I'm advising RPS', who were advising the City Council. So there was a touch of soaking up the knowledgeable resources in Ireland. Government, by definition, is a monopoly."* Roger, Politician 9

> *"They started giving us lists of experts that they thought could be of interest to us to discuss things with. But the experts they chose were all people that were pro-incineration and they were also people that we would have referred to ourselves maybe in the future in going through the planning process and used them as experts ourselves but we couldn't use them once they'd used them. So in fact anyone who was of any interest throughout the Dublin area that we knew, were used in their process."* Meryl, Community 1

The quotes above would suggest that there may have been a process of co-opting the expertise relevant to the incinerator debate where any expert included in the incinerator development process were seen as aligned to DWE (Dryzek, 1996; Innes, 2004; Bickerstaff and Walker, 2005). In any case, a lack of finance and a dearth of available expertise meant that those involved in the anti-incineration campaign had restricted access to experts they deemed acceptable.

Although the anti-incinerator campaign had a number of technical experts involved as activists, as is usual in many environmental disputes in Ireland (see Leonard, 2006; Tovey, 2007), it did not have the scope of expertise required to deal with the complex and diverse range of disciplines and areas of knowledge involved in the

incinerator debate. This knowledge deficit affected the anti-incinerator groups and exacerbated other resource deficits such as a lack of time and personnel. The efficacy of these 'citizen experts' (Tovey, 2007: 150) involved in the anti-incinerator campaign waned in the face of DWE's range of engineering, legal and financial experts. As one community stakeholder explained:

> *"Well, it was very hard, because we're not educated enough. I mean we have an engineer alright, that's Maurice, on it and he's sitting there talking all the time. But then, you can't pick up everything because, how can we say, we're experts in engineering or we're experts in an incinerator. But then again we didn't have the expertise to ask the proper questions either, but we did as well as we could".* Sadie, Community 4

A number of stakeholders suggested that one solution to the problem was for funding to be provided to the community, so that they could engage their own experts. Further to his examination of a public involvement programme around a UK incinerator, Snary (2002) advocates that independent experts employed on behalf of the local community may help to increase credibility in expert knowledge. However, the question then is whether or not the authorities are likely to agree to the employment of consultants who may not act in their interests, as one politician acknowledged:

> *"So I think there's a reasonable argument that some of the community groups were making that in order to do a proper consultation the local groups needed to be advised by their own technical experts who could interpret the data and find, you know, what the story was, but local authorities or state projects, they feel they're paying for their own set of professionals and environmental consultants and everything else, they don't really want to go and pay for a second set of consultants who would be actually possibly working against a project."* Anne, Politician 8

The key issue at the heart of the concern about expertise recourses in the Poolbeg incinerator debate was, unsurprisingly, one of trust. As Anne, Politician 8, explained:

> *"I think it was and I think there is that imbalance between the expertise level and the knowledge base of the prompters of a scheme like this and the expertise level of a local community and it is a very hard gap to bridge, because, inevitably the non-professionals, the local community, if they have a natural mistrust, well, they're going to feel that somebody is going to swamp them with figures and overwhelm them, you know, with data, and very hard to get that balance to put the information*

in a way that you can convince people without being seen to overwhelm them or ram it down their throats or whatever". Anne, Politician 8

As has been discussed in Chapters 3 and 6, trust in source in environmental debates is a key determinant of how risk communication information is received (Giddens, 1994; Slovic, 2000b; Ishizaka and Tanaka, 2003; Leiss, 2004; Sligo and Massey, 2007) and may ultimately be a significant factor in influencing the success of a communication programme (Snary, 2002). Trust in science and experts became an important theme in the Poolbeg incinerator conflict, as is often the case in environmental risk debates (Slovic, 1999; Peuhkuri, 2002).

8.3 Trust and Knowledge

As noted in Chapter 6, the DWE project employees were aware that there was considerable mistrust among the Ringsend, Irishtown and Sandymount communities towards the local authority and that this was a challenge for the information programme. In this section, mistrust is explored as a context for the risk information provision provided by the DWE information programme. Mistrust in relation to how the anti-incinerator stakeholders received the DWE communications involved two crucial relationships which are examined here. Firstly, the mistrust community stakeholders felt towards Dublin City Council and, in particular, the origins of that mistrust in the historical peripheralisation and marginalisation of the area, is considered. Secondly, mistrust in the information and knowledge provided by experts engaged by the DWE information programme is examined.

8.3.1 Historical mistrust of the local authority

Institutional mistrust, particularly towards the local authority management, was an important theme in the Poolbeg incinerator debate. This mistrust had its origins in the historical relationship between the communities and the City Council both in a general sense and more specifically, due to the numerous unwanted facilities that had been placed in the area. It is arguable that the peripheralisation and marginalisation of the area, as well as the subsequent over-burdening of the area with risk-laden

industry, contributed to the deep-seated mistrust that appears to exist in the local communities. An analysis of the qualitative data certainly seems to support this.

During the interviews conducted for this study the issue of trust was raised by most anti-incinerator stakeholders as being a significant concern. Although questions about trust had been prepared, the stakeholders themselves usually broached the issue early on in the interview without a question prompt. Mistrust in Dublin City Council management was mentioned most often, but other groups and processes seen as less than trustworthy by those who opposed the incinerator included RPS consultants, the PPP process, the service provider company, government institutions and to some extent, politicians. Expressions of a lack of trust in Dublin City Council (management) were often accompanied by historical insights and anecdotes about the treatment of the area by the City Council.

In the following quote, one expert provided a particular perspective on the historical reasons for the loss of trust among the communities close to Poolbeg in Dublin City Council and in the planning strategy for the Poolbeg peninsula:

> *"[Trust] is very low. Let's look at the history of that. When the peninsula was built .. guarantees were given in writing by the then Minister Molloy, and I've seen the letter, guarantees were given that any landfill would be used for only two purposes; either for essential services which were port-related, or for recreational purposes. ... When the master plan for the whole peninsula, the Poolbeg development plan, was put forward, , objections were lodged, over 60% of them were to do with that promise. [But] the city manager said the council reserved the right to redefine it's needs.. Full stop. One has to actually think through what this means. This means that any promise given to any one community can be simply forgotten about the next day"* Declan, Expert 3

In drawing associations between earlier events and the current mistrust of the DWE project, Declan, Expert 3, quote resonates with Sidaway's (2005) assertion that prior relationships between parties can determine whether or not an environmental debate descends into conflict. In the light of the alleged broken promise referred to in Declan's quote above, the reassurances of regulatory competence in respect of the

incinerator, as expressed in the DWE information programme, may have been perceived as being worth very little by the communities.

The peripheralisation and marginalisation (Blowers & Leroy 1994; Cullen and Pretes, 2000) of the area over a number of generations, the use of the area historically for waste disposal and the awkward handling of problems with the new wastewater treatment plant in the area all contributed to a perceived lack of honesty from Dublin City Council. As the following stakeholders explained:

> *"We don't believe anything we're told by Dublin City Council....I don't believe.... I'm working in this community thirty-one years or thirty-two years and I do not believe what they are saying to us, because throughout the years Dublin City Council hasn't been truthful with the community down here at all."* Sadie, Community 4

> *"They did not trust Dublin City Council because they felt, and again it's just my impression and recollection at the time, that whenever that wastewater treatment facility was built, that they failed to do a good job. And it's the once bitten, twice shy; 'if you screwed that up, why should we think that you can do this one any better'"* Ray, DWE 6

The quote from these stakeholders resonate with Irwin's (2001) attestation to the importance of collective local memory in environmental risk situations where he claims that environmental initiatives, including communications campaigns about new potentially risky developments, will be considered in light of earlier environmental performance. Here it is clear that community stakeholders doubted the integrity of the City Council management for quite some time. Earlier researchers have shown that there tends to be a mistrust of both waste industry technologies, such as incineration, and of local authorities (for example, Petts, 1992) or that a crises incident, such as the Seveso, Italy accident or the handling of BSE in the UK precipitates mistrust (Grove-White, 1998; Walker *et al.*, 1999). In contrast, this research suggests that mistrust can be produced incrementally and over long time periods whereby it becomes ingrained in the notions of the identity of the community and the place.

Vivid memories of past negative experiences with Dublin City Council projects helped to galvanise opposition to the DWE project. Community stakeholder, Meryl, commented:

> *"When I got involved [in the anti-incinerator campaign], I didn't have any concerns about incineration because I didn't know anything about incineration. My concerns were allowing the local authority, which we've been dealing with for years, allowing them to be in control of anything which might cause health problems to our community."* Meryl, Community 1

This quote is a powerful statement of how deeply felt the mistrust towards the local authority was. Meryl's use of the phrase 'allowing [Dublin City Council] to be in control of anything which might cause health problems to our community' interestingly suggests that the anti-incinerator activists believed that they were not powerless in the situation. This serves to illustrate Giddens's (1998b) assertion that increased individualisation means that publics have taken on the responsibility of protecting themselves from risky technologies rather than relying on governments. It is also suggestive, in terms of Blowers and Leroy's (1994) concept of peripheralisation, of a community emerging from a peripheralised state.

Trust issues with regard to the local authority were a regular feature of the discussions between local people and the DWE employees during the CIG sessions and the DWE information programme Open Days. As one member of the DWE team explained:

> Sarah, DWE 1 *"[Trust] is always the issue, but particularly with the local authority and particularly with a community like Ringsend, Irishtown Sandymount where people are long-term. They're lifers. They have this huge history that goes way back. And when you start a conversation, it happened so many times in Ringsend, we do the dump, in terms of all the issues we have with the local authority and 'that's fine, that's fine...' and then we move on to what we're here to talk about. You just had to let that happen ..."*
> Interviewer: *"Did they talk about the sewage treatment plant?"*
> Sarah, DWE 1 *"Oh, don't even go there."* Sarah, DWE 1

While Sarah, DWE 1, recognises that historical mistrust affects the information provision, there seems to be a lack of awareness as to how central this mistrust and

its historical roots are to the communication process. From the above quote, the speaker seems to imply that the discussion about mistrust was something that had to be endured and then pushed aside before talking about the issue of the incinerator. However, clearly the historical context was crucial in how publics interpreted risk messages and information during the Poolbeg incinerator conflict (Pidgeon *et al.*, 1992).

8.3.2 Trust and mistrust in experts

The analysis of the interview data indicates that most stakeholders in the Poolbeg incinerator debate appeared to place a relatively high value on scientific knowledge and information, in principal. However, many stakeholders, particularly those who opposed the incinerator, were quite discriminatory with regards to the experts whose opinions and information they valued.

The science used in the Poolbeg incinerator debate covered a broad range of disciplines and at times was complicated, according to many pro- and anti-incinerator stakeholders. Some stakeholders, such as Keith, a community stakeholder who was not opposed to the incinerator, felt that the scientific knowledge disseminated during the DWE information programme was convincing:

> *"It's a very technical issue... Well, there's scientific, there's engineering and there's medical. The big issue at the start was medical and they brought the guys over from around .. you know, they brought these specialists over, these guys came over and they were very, very convincing. I mean I couldn't see them as having a vested interest, they came out and said this was the way to go."* Keith, Community 8

In the above quote it is clear that the confidence in the scientific information, is dependent on Keith's belief that the experts or 'specialists' did not have vested interests. This view was an interesting contrast to the views of most of the anti-incinerator stakeholders who saw many of the experts in the DWE campaign as having vested interests. As one local resident, Stephen, commented:

> *"Anne Butler*[78] *came and spoke, who has now shown her true colours, she is an applicant for the incinerator application on the Naas Rd. She was there at the time to make sure the material being put in the public domain was appropriate from the environmental planning view."* Stephen, Community 10

Here Stephen is clearly unimpressed that an environmental engineering expert, who spoke in the DWE information programme as a neutral source of information, later became part of a consortium to develop another MSW incinerator.

Some anti-incinerator stakeholders shied away from trying to fully understand the science looked towards trust as a means to evaluate the incinerator plan. Here politician Tom explained the difficulties of unraveling and evaluating different scientific opinions:

> *"You had one specialist speaking, you know, three dimensional geometry in hieroglyphics, and there's a counter-specialist on behalf of the objectors, you know, replying in three dimensional geometry in hieroglyphics with knobs on. .. you're just into a point [of] well, who do you trust most, because you don't understand either, or you don't fully understand the implications of either. And then you're back to, 'well, do I trust the establishment or do I not?'"* Tom, Politician 1

This speaker's comment clearly articulates an example of Giddens's (1994) assertion that whenever uncertainty exists in the scientific discourse around risk, the only option publics have is to make decisions based on their perceived trustworthiness of the sources of the information. Others involved in the anti-incineration campaign had professional technical qualifications which afforded a basis from which to assimilate much of the scientific information. There was a further group of anti-incineration activists who read and learned as much as they could and had the confidence to critically assess the information they were receiving. In the interview data for this thesis, it was never apparent that those opposing the Poolbeg incinerator were mistrustful of science itself. Instead, many of those opposing the Poolbeg incinerator showed a sophisticated awareness of the political dimensions of the scientific discussions about the incinerator and its possible impacts. For example, the

[78] Environmental Consultant, former President of the Institution of Engineers of Ireland and former Director of the EPA

following community stakeholders discussed information they were told by DWE about ecological and health effects, respectively:

> *"No studies had been done of the salmonid system that includes the Liffey, the Dodder and the smaller streams that come into [Dublin] Bay. There is no study. So, the information isn't there. So when they were saying 'oh, it will have no effect on the fish', it wasn't accurate. It was just a statement. It had no basis. ...[The DWE ecology experts] were misleading and deliberately so."* Julia, Community 5

> *"They produced a toxicologist .. and he kept saying, 'There is no problem, nobody has ever proved there is a problem'. Now, there's a case going on in Italy right now where an eleven year old girl with cancer is suing the local incinerator because they have been able to prove that the particle from the cancer in her lung came from the incinerator, they can do this now with electron microscopy and that changes the whole ball game. If that case succeeds, it's a very different world."* Robert, Community 9

In both of the quotes above, the speakers show their awareness of the uses and limitations of science. Beck (1992) and Giddens (1998b) contend that publics believe science can no longer be relied on to answer questions about risk. However, the quotes above from Julia and Robert suggest something different; that some publics remain reliant on science in confronting risk and that science itself is not the issue, but rather, scientists' agendas and the context in which scientific information is given. The data suggest that some stakeholders do not place unconditional trust in scientists or the authorities to provide a reading of the scientific data. Instead, they prefer to interpret it themselves, taking into account socio-political contexts. Perhaps the point is that publics see the interactions between science and society and factor those into their decisions about what data and which experts to believe.

There were differences among the stakeholders about who was deemed to be an expert and which experts were most valued. Proponents of the incinerator were, broadly speaking, supportive of those used as experts by the DWE information programme. Incinerator opponents however, displayed more discernment about who should be considered an expert as well as the values and interests of the various experts used. For example, these community stakeholders commented as follows:

> *"[Professor Schrenk] is your classic captive or tamed consultant toxicologist, who'll talk on your behalf. Classic! He appears on all sorts of things. He would insist on his academic independence, which I'm sure he has, but if you dig through his underlying sources of funds you'll find that they're all coming from one side of the equation, like he doesn't get many commissions from Greenpeace, for instance.. He's a toxicologist. He's not an expert on incineration at all."* Stephen, Community 10

> *"I mean, people like Frank McDonald[79]! Frank McDonald's a journalist, I mean that's part of the reason why we weren't willing to accept it. They were all people that would have been known for their writings and they would have been very vocal on radio and television, but they weren't really experts. They weren't experts, they were pushing their opinions and a lot of them would be connected to political agendas of some form or some shape."* Meryl, Community 1

The quotes here indicate that these stakeholders are taking the positionality of the presented expert into account and factoring in the possible interests of the scientists into the evaluation of the information they were providing. This approach is reminiscent of Irwin's (2001) sociology of scientific knowledge (SSK) perspective since stakeholders are acknowledging and taking into account the contexts, such as the views of the particular experts about the environment or their source of employment, wherein the experts' opinions were formed. In Meryl's comment above, she disagrees with the DWE concept of who constitutes an expert. To her mind, a journalist, albeit a knowledgeable and specialised one such as Frank McDonald, is not a proper expert.

Although many of the experts used in the CIG process were agreed upon by community members of the CIG, there was still some dissatisfaction with the way these choices were made. One reason for this may have been that there was a good deal of control exerted over the experts used by the DWE information programme personnel.

The following quotes illustrate different perspectives about the process used for selecting expert speakers:

> Interviewer: *"In the CIG, were you allowed pick experts?"*
> Meryl, Community 1: *"No. We were given a choice of a list on names and we were allowed pick one or two off it."*

[79] Environment editor with the *Irish Times*

Interviewer: *"Off that list only? So you couldn't say 'We want to bring in X, Y and Z'?"*
Meryl, Community 1: *"No, no. And even if we did want to bring in people it was at a very early stage and we didn't have enough information to bring them in, because you need to know what you're going to argue about before you can ... and they wouldn't give us the information."* Meryl, Community 1

"We agreed, say, on a health expert, we agreed on the criteria between us what that health expert would have to be reputable, would have to be a peer reviewed scientist, would have to live in a country that has incineration, would have to have an interest in human health. So on that basis, whoever fitted that description was going to be acceptable to all of us. So then we went and said, 'ok, we've found five potential people who fitted this bill... you tell us which one you want'... So they had control over the person who came in set to agreed criteria." Sarah, DWE 1

The above quote resonates with concepts of power in relation to knowledge, whereby the powerful actors in a debate can dictate what is considered as knowledge and who is considered as an expert (Blowers, 1980; Flyvbjerg, 1998; Peuhkuri, 2002). In the quote above from Meryl, Community 1, references to both the alleged control of the expertise and the lack of information available imply a frustration among the community stakeholders in respect of accessing information. According to Sarah, DWE 1, both the community and the DWE personnel had control over which experts were used according to particular agreed criteria set down. Although the DWE stakeholders defended the independence of the experts they presented, scientists or technical professionals featuring in the CIG process or the Open Day information sessions were regarded with suspicion. Douglas (1992: 19) asserts that:

"News that is going to be accepted as true information has to be wearing a badge of loyalty to the particular political regime which a person supports; the rest is suspect deliberately censored or unconsciously ignored." Douglas (1992: 19)

Even though DWE used both pro- and anti-incinerator experts in their information programme many anti-incineration stakeholders considered any association by experts with the DWE information programme as an alignment with a pro-incinerator stance. As the aim of the information programme was to allay fears about incineration, it is easy to see that such a perception is logical. One anti-incineration expert, who spoke at a CIG meeting, expressed a degree of regret in relation to his

involvement while another was reluctant to get involved at all as it would affect her perceived impartiality. As experts, Martin and Audrey explained:

> *"I didn't really feel entirely comfortable that the full spectrum of issues was being represented, or I felt very much as though my presence was a bit tokenistic in some ways. I felt that I was there merely to make it... to give the impression that environmental groups were represented. And as I say, it was not a universally popular move on my part. If I'd known it was going to be like that I'd have kind of thought a little more deeply about it. But having said that, you know, it was obviously an attempt by the developers.. to try and articulate a balanced view."* Martin, Expert 6

> *"I think I remember being approached at some stage, not that I wanted to distance myself from the decision making, because I can't do that, but I couldn't be seen to be part of the pro-incineration group, because I had to step back from that because I have to be totally impartial and I have to be protecting public health ...so I didn't want to be part of Dublin City Council's drive to put in an incinerator in Poolbeg (laughs), if you know what I mean, but I wanted to be part of the process so that my opinion would be heard."* Audrey, Expert 2

From Martin's, Expert 6, quote above, it is clear that he considered his presence to be a veneer used to convey balance in the information being disseminated, while Audrey, Expert 2, stresses the need to not just be impartial, but to be seen to be impartial, so that her opinion about the DWE project would be taken on its merit. Of course, the concept of impartiality in scientific information is considered to be a myth by authors such as Beck (1992), Wynne (1996) and Latour (2004). But nonetheless, Audrey suggests that participation in the information programme would restrict her in the articulation of her own opinions highlights the highly political nature of the debate and risk communication processes around the Poolbeg incinerator.

Information imparted by experts associated with the DWE information programme was subject to critical appraisal by, in particular, those stakeholders who opposed the incinerator. Whereas proponents of the incinerator were largely unquestioning of the DWE project's characterisation of an expert, those opposing the incinerator were more discriminatory in this regard. Similarly, those who opposed the incinerator were reluctant to place trust in experts associated with the DWE project and so were disinclined to believe the messages of reassurance they were receiving about the

incinerator or about the reliability of the regulation and management of specific risks.

This coincides somewhat with O'Neill's (2002) assertion that people tend to trust information that they can trace to a reliable source and that they are prepared to actively explore the information in this way. Publics in the Poolbeg incinerator debate were willing to query and consider the scientific information being given. This type of educated and active engagement with the information implies that the conditions existed whereby a type of active and qualified trust or critical trust might have been fostered (Pidgeon *et al.*, 2003; Taylor-Gooby, 2006). However, it would seem that any association with the DWE information project rendered an expert as a somewhat unreliable source of scientific information, at least to those who opposed the incinerator. As a result, no matter how balanced, accurate and salient the information from the DWE project may have been, it simply did not have, what Douglas (1992: 19) terms 'a badge of loyalty' and so many stakeholders were unwilling to listen to or incorporate the information into their view of the incinerator. Hence, trust in the DWE project was damaged further.

8.4 Conclusions

This chapter explores the contexts in the risk debate around the Poolbeg incinerator. The main contexts underpinning publics' interpretation of the risk messages during the debate were those of inequity, justice, trust and knowledge. Historically, the Poolbeg peninsula has been utilised by the City Council for waste disposal of various kinds and for heavy and polluting industries. Using a broad reading of peripheralisation combined with concepts of marginalisation, the analysis here indicates that there are degrees or pockets of marginalisation and peripheralisation among the residential areas adjacent to the Poolbeg peninsula.

The findings of this thesis indicate the existence of concepts of environmental justice in the incineration debate in Ireland. Many stakeholders intimated that the area had had its share of polluting activities over the years, that the addition of another LULU

was unfair and that the area was treated by the City Council as a repository for unwanted facilities. There were injustices perceived in relation to procedural issues also. These included concerns that local democracy was undermined and frustration about inadequate access to expertise for the communities. Legislative changes which stripped local government of its power in relation to waste management plans served to inflame the debate by generating unintended messages to publics about the attitude of government towards communities. This analysis shows that the amendments to section 22 of the Waste Management Act 1996, although external to the DWE project, undermined the credibility of the information programme.

Both the historical peripheralisation of the area and the politics (with a small 'p') of the incinerator planning and development procedure heightened the lack of trust felt by many community members towards the local authority and as a consequence, towards the DWE project and the information it disseminated. In short, many community members were reluctant to believe that the local authority had the interests of the Ringsend, Irishtown and Sandymount residents at heart. This research highlights the need for environmental risk communication practitioners to be familiar with the contexts surrounding environmental controversies and to understand the consequences of such contexts for information provision and public engagement.

Trust in science and sources of scientific information were important themes in the Poolbeg incinerator debate. While most stakeholders seemed to harbour a respect for science in general, those who were favourable towards the incinerator tended to accept information given by the DWE information programme. Conversely, opponents of the incinerator had a tendency to either question the information or disregard it because they lacked confidence in Dublin City Council or because they did not have the expertise to confidently question it. Generally speaking though, many stakeholders in the debate had a rather sophisticated view of science and anti-incinerator activists, in particular, were mindful of the political and social context of the information they received. In the eyes of some stakeholders though, an

association with the DWE information programme, however nominal, appeared to impair the trustworthiness of any given expert.

Chapter 9: Conclusions

This PhD thesis has examined and evaluated the ways in which risk messages are produced, communicated and received in MSW incineration conflicts in Ireland.
This concluding chapter begins by summarising the justification, aims and methodology of this research. Following this the key findings are discussed and policy implications of the research are suggested.

9.1 Overview of the Research

Despite reassurances of regulators, politicians and industry, publics continue to harbour concerns about health and environmental risks associated with incineration. The gap between technical risk assessments and 'lay' perceptions of incineration risks means that effective risk communication is crucial to incinerator siting decisions. Furthermore, the receipt of risk communication is shaped by factors such as trust and transparency. Thus, the role of institutional politics and issues of environmental justice have become important facets of the development of controversial facilities. Despite this, on an international stage research in respect of incineration is dominated by technical risk assessments and there are few studies of the risk discourses associated with incineration siting conflicts.

Although commonly used for the disposal of residual municipal waste in the EU for many years, MSW incineration yet to be employed in Ireland. However, years of inadequate waste management, growing volumes of waste and a need to comply with EU waste regulation have prompted the planning of a number of MSW incinerators in Ireland in the last decade. This includes a large (approximately 600,000 tonne) incinerator for the greater Dublin area which is currently being built on the Poolbeg peninsula in Dublin Bay. Dublin City Council conducted an information programme about the Poolbeg incinerator for potentially affected publics. As similar initiatives had not been taken in respect of other planned MSW incinerator sitings in Ireland and as MSW incineration looks set to become a reality in Ireland for the first time, it

is timely and apposite to examine and reflect upon the communication of incineration risk in Ireland.

The overall aim of the research is to provide critical analysis of communication of environmental risk in incineration conflict in Ireland. In respect of this thesis, environmental risk was afforded a broad definition and included health risk, ecological risk, economic and social risk and sustainability risk. Procedural issues pertaining to waste management planning were also considered in this research.

9.2 Thesis Contributions and Key Findings

This thesis makes a number of contributions to academic scholarship as well as providing some useful findings in the area of environmental risk communication. This section details these contributions and findings and, in doing so, expands on the theoretical positioning of the work in this research.

9.2.1 Impact of contexts on risk communication

As this research proceeded, it became clear that the risk debate about the Poolbeg incinerator debate was influenced by contexts of place, trust, justice and knowledge. The findings in respect of the contextual influences on risk communication are perhaps where this thesis makes its most important contribution to the extensive body of research pertaining to risk communication. In particular, it highlights the importance of geographic context in understanding environmental risk controversies and the ways in which risk communication is disseminated and received. The use of the Poolbeg peninsula as a repository for LULUs over many decades contributed to a deep-seated mistrust in Dublin City Council among local communities. This historical mistrust and the perceived unfairness of yet another undesirable utility in the area were constant and pervasive themes in the incinerator debate, colouring as they did the receipt of the information programme by the local communities and other stakeholders. Hence, a key finding of this thesis is that the geographical and historical backdrop to the incinerator controversy impacted significantly on how risk was constructed and on how the risk information within the debate was

communicated and received. In examining the geographic and historical contexts of the Poolbeg incineration controversy in depth, this thesis makes a further important contribution to the scholarship in this area in emphasizing how institutional trust is socially and geographically constructed and in allowing the dynamics and conditionalities of trust within risk controversies to be better understood. The empirical data provides convincing evidence that considerable historical mistrust exists in the area and that the reasons for this lack of trust involve processes of stigmatisation, peripheralisation and marginalisation of the area. In addition, particular points and events were identified both within and outside of the incinerator development process and the incinerator debate. These events further deepened institutional mistrust among the affected communities to the extent that mistrust became a contagion, spreading, to some degree, to everybody involved in presenting information as part of the DWE information provision programme.

While those involved in the DWE information programme were aware of this mistrust and purported to understand the challenge it presented to the information programme, the findings of this thesis point to a lack of appreciation of the depth, origins and impacts of institutional mistrust in the incinerator debate. The data shows that DWE stakeholders believed that the information programme had managed to increase confidence in the project and that the mistrust decreased. This view is in contrast to the findings of this thesis which suggest that the shortcomings of the DWE information programme, as described in Chapter 6, further damaged trust in the local authority. While DWE stakeholders felt they had built relationships with some local community stakeholders and anti-incinerator activists, this study shows that this did not equate to increased trust in the supposedly benign nature of the incinerator project.

In illustrating the importance of contexts in environmental risk controversy, this work can be situated within the socio-cultural literature on risk management and risk communication. In highlighting place as an important context within which risk debates occur, it resonates particularly with the work of Karen Bickerstaff *et al.*

(2006), Peter Simmons and Gordon Walker (2004) on the localization of risk and on how concepts of place help to construct concepts of risk. Furthermore, it builds on literature examining the contested nature of waste management by examining the role that contexts of local democracy and inequities play in conflicts around waste facilities. The qualitative data in this thesis adds strength to arguments that public participation in and of itself should not be seen as a panacea for dealing with a lack of trust. In highlighting the ways in which trust may be socially and geographically constructed, the data in the thesis resonates with theories from Onora O'Neill (2002) and work by Judith Petts (2008) on the possibilities offered by aiming for a more qualified and active trust, rather than viewing trust and mistrust as dichotomous concepts, which is how it is portrayed much existing incineration risk communication research, such as that of Snary (2002) and Ishizaka and Tanaka (2003), for instance. Finally, arguments made in this thesis in about the significance of context in environmental risk debate and communication are supported by Yin's (2003) and Flyvbjerg's (2006) assertions about the importance of context in research that lends itself to case study work, particularly where the context and the phenomenon being studied cannot be readily untangled as was the situation here.

9.2.2 Inside the debate: The values and motivations that underpin risk arguments

Although the major contribution this thesis makes is in relation to the impact of contexts on environmental risk communication, there were also a number of more minor, but notable findings in relation to the motivations of the various stakeholders in the incineration debate in Ireland. The two main findings that stand out as having significant implications for risk communication in this respect are firstly, that there were various degrees of opposition to and of support for the incinerator across different actors and secondly, that the Poolbeg incineration debate seems to signal an emergence of environmental justice concepts in environmental discussions in Ireland.

A second key finding of this thesis is that within both pro and anti-incineration points of view there were many nuances and different degrees of conviction. Linked

to this, there was a tendency for some individuals to change or refine their concerns and interests as the conflict progressed. The articulation of particular incineration risk concerns in the Poolbeg incinerator debate were not always prompted solely by underlying worries, but were also strategic choices for reasons of pragmatism and *realpolitik* (Flyvbjerg, 1998). A particular case in point was the decision by those opposing the incinerator to shift the emphasis of the campaign against the incinerator from health concerns to concerns about traffic as these held more currency and consequently weight in the planning process.

The principal motivations for those who favoured the incinerator included pressure to comply with EU legislation, environmental protection and that the incinerator was a vital piece of infrastructure to protect Ireland's economic competitiveness. Although the reasons for supporting the incinerator varied between stakeholders, most of those in favour of the facility displayed views underlain by the concepts of ecological modernisation and an emphasis on technological waste management over social or regulatory solutions (see Dryzek, 2005). It has been articulated by those researching waste issues (Fahy, 2003; Mazzanti and Zoboli, 2008) and at EU level (EU, 2002) that decoupling of consumption and waste generation requires more attention and that waste prevention mechanisms are underdeveloped. Surprisingly, issues such as increased waste prevention in domestic and commercial settings were not mentioned as a priority or even a requirement of waste management by most of the pro-incinerator stakeholders. The motivations driving anti-incineration stakeholders were particularly diverse. Some were utterly opposed to incineration on the grounds of potential health impacts or because of a perceived threat to sustainability. Others were not ideologically opposed to incineration but believed it was not appropriate in this case for reasons including geography, fairness, regulatory risk or concerns about the financial arrangements of the PPP contract. That the incineration debate was so nuanced and constantly evolving is likely to be a reflection of both the maturity of the conflict and the level of learning, reading and information gathering by publics and stakeholders involved in the debate.

In examining the motivations behind the messages disseminated by the various stakeholders in the Poolbeg incinerator controversy, this work builds from the socio-cultural theories expounded by Mary Douglas and Aaron Wildavsky since it provides empirical data that supports the notion that risk perception is a function of values and world views and that risk clashes are often also culture clashes. However, the richness of the empirical data serves to highlight the difficulties in pigeon-holing people into just four rigid rationalities, as Douglas and Wildavsky have done. Therefore, the conclusions of this research lean towards Wynne's (1996) ideas that whereas underlying value systems do form concepts of risk, such concepts can be flexible as there may be a myriad of (possibly competing) factors and life circumstances that determine how different publics consider and deal with particular risks. While psychometric research on risk perception, such as that of Slovic's Oregon group for example, provided useful points of reference in identifying perceived characteristics of incineration risk, the individualised and abstract view of risk offered by such analysis does little to foster understandings about why risk is perceived thus. In contrast, socio-cultural perspectives on risk perception give a richer and deeper understanding of how risk is constructed and, crucially, of how risk communication can potentially operate.

A third key finding of the thesis is that the Poolbeg incineration debate signals an awakening of a discourse of environmental justice in Irish environmental controversies. The data indicates that concepts of both distributional and procedural environmental justice were expressed by stakeholders in the Poolbeg incinerator debate. Procedural issues, such as a lack of local democracy and inequities in access to expertise, were particular points of consternation for those opposing the incinerator. There were two main barriers to publics accessing expertise in the incinerator conflict: a lack of funding and an apparent nation-wide level of co-option of available expertise on the part of the DWE project. The use of concepts such as fairness, justice, rights and democracy by the anti-incineration stakeholders rendered the Poolbeg incinerator debate more politicised and changes the landscape in relation to what is required from risk communication in Irish environmental controversies.

Clearly, more meaningful and genuine forms of deliberation are apposite in Ireland in light of environmental justice concepts featuring in environmental protest. A further contribution of this thesis, then, is that it helps to make a specific link between procedural environmental justice and access to independent expertise extending the area of risk communication into environmental justice research. This is important in light of recent opinions offered by Gordon Walker (2006: 656) that while the notion environmental justice will remain a 'broad church' more rigorous conceptualisation and precision of definition of environmental justice is needed, as it can then provide an analysis of procedural justice in relation to access to expertise which can be drawn on in future research. On this point on access to expertise there is agreement between this analysis and that of Shilling *et al.* (2009) who contend that barriers to such access, along with the marginalisation of local knowledges amounts to a form of procedural injustice, and one which is under-recognised and, in reviewing environmental justice literature, this also appears to be under-researched.

While environmental justice advocates urge for a greater role for risk communication and public participation in siting decisions (Bullard, 2005), the question arises as to how far even well conducted risk communication can go towards resolving the types of power inequalities involved in environmental injustices. In this thesis, there exists a tension between risk communication as a technical process which aims to provide information and facilitate (some limited) consultation on one hand, and risk communication as an expression of power relations where various stakeholders attempt to control, contain or even disrupt and subvert the risk communication process. In his influential case study of planning in Aalborg, Flyvbjerg (1998) advances the proposition that power dictates what is considered as knowledge, thus turning the old adage that knowledge is power on its head. A compelling example provided by the Poolbeg incinerator case study of how power determines acceptable knowledge is provided by the differences in how the toxicological and epidemiological experts were treated in the risk communication process. The expert who provided the evidence which best suited the political decision to develop of an incinerator in the Dublin area - that is the toxicologist - was held in high regard by

those developing the incinerator. Meanwhile, claims by the epidemiological experts that incineration emissions were potentially harmful and recommendations that a baseline health audit be conducted within the affected communities were quietly ignored.

The ability of powerful actors to co-opt and therefore control and, in a way, contaminate knowledge within a risk communication process throws some doubt on the capacity of risk communication to alleviate, mitigate or reduce power inequalities experienced in environmental injustices. In actuality, this use of power may seem to imply that risk communication processes potentially exacerbate inequalities by providing rationalisations for planning decisions, while at the same time going through the motions of public consultation to occupy communities and so prevent open conflict. While all this is possible, it also provides a potential solution, or partial solution, to issues of power inequality in risk communication processes. It would seem that a constructive redistribution of power towards community stakeholders, to create participation processes characterised by the upper reaches of Arnstein's (1969) ladder may provide the key to redressing issues of power and knowledge inequality. Small group deliberation models, such as those described by Petts (2008) may be a practical way of managing such a productive redistribution of power, whereby citizens, scientists, business people, politicians and officials share decision-making responsibilities to a lesser or greater extent. Although the siting of potentially risky facilities are likely to be inherently problematic (Blowers and Leroy, 1994), the advantage of a risk communication process is that it can increase transparency and allow communities to feel that there has been fair representation and consideration of their concerns.

9.2.3 Evaluation of the DWE information programme

The evaluation of the DWE information programme undertaken in this thesis provides an important base study of communication about incineration risk in Ireland. For all its flaws, the DWE programme was innovative in terms of waste facility planning in Ireland and it offers an important learning opportunity, not just

for academics researching waste politics, but for those charged with formulating waste policy.

A fourth key finding of this thesis is that the DWE information programme was based largely on a deficit model of risk communication, that is, it assumed an educative role in respect of the local communities. In addition, the information programme served to tightly control the range of topics in the incinerator debate. The implication that the communities would be reassured about the planned incinerator once they had been provided with the correct information is indicative of a condescending attitude towards publics. While the information given appears to have been wide-ranging and appropriate, the debate was tightly controlled. A highly positivistic approach to science and technical information was adopted and discussion of uncertainty or qualification of the information was discouraged.

A fifth key finding of the thesis was that the public participation aspect of the information programme constituted a wasted opportunity. It would be unfair to criticise the DWE information programme for not undertaking a public participation decision making process, as those conducting it never claimed it was anything other than information provision with very minor public consultation. However, it can be said that the opportunity existed whereby a viable and useful public deliberation mechanism could have been developed but that this did not happen.

Although the CIG process was well resourced and the DWE employees facilitating and running the process were committed and professional, it was a tokenistic process (Arnstein, 1969). Its function was to identify the concerns of local people as a guide to the issues that needed to be covered in the Open Day information sessions, which were directed at the general population of the affected areas. Therefore, it amounted to little more than an elaborate scoping exercise and despite the work and time commitment given by members of the CIG, it was made clear from the outset that their views and concerns would not impact on the decisions about the incinerator technology or siting. There were a number of fatal flaws in the CIG process that

undermined its credibility and functionality. Firstly, the failure to provide a consistent definition of community and a failure to define terms of reference agreeable to all members were fundamental blunders in the process. Secondly, CIG members felt they had little control over the issues discussed or the experts engaged to speak. Thirdly, the relationship of the CIG to the community was tenuous and unclear and though it was intended that the group would report back to the community, there was no reporting mechanism for such regular reporting.

A sixth key finding of the thesis was the company running the information programme, RPS, was perceived as being too close to Dublin City Council to be an independent source of information. For this reason, RPS was not an appropriate choice to carry out the information programme. Authors researching waste issues in the Irish context have expressed disquiet in relation to the neo-liberal agenda that is manifested in waste management in Ireland (Fagan, 2004) and also in the extensive involvement of the private sector in state waste policy and strategy decisions (Davies, 2005). The findings of this case study suggest that such disquiet exists among publics also since it is evident that the remarkably close relationship between RPS and Dublin City Council impacted on how the risk information was received by the communities in the vicinity of the Poolbeg peninsula. In this respect, this thesis concurs with Snary's (2002) recommendation that an independent third party source of expertise and knowledge would have the potential to improve the outcome of risk communication strategies used in public utility sitings. This also dovetails with O'Neill's (2002) theories of a critical trust being dependent on the ability of publics to trace pieces of information back to reliable sources.

9.2.4 The role of the media in the Poolbeg incinerator debate

The examination of the role of the media in the Poolbeg incinerator controversy produced a seventh key finding in this thesis. Rather than being passive sources, stakeholders in the debate played an active role in the mediation of the Poolbeg incinerator conflict. They did this either through their use of the media to highlight particular arguments in favour of or opposing the incinerator or by restricting or

opting out of media engagement and thereby truncating the debate. This is an important finding as earlier studies of environmental issues in the media tend to stress the role of editors and journalists in shaping media coverage (for example Anderson 1997; Wakefield and Elliot, 2003) and the roles of lay publics and stakeholders are often given little consideration in this respect.

In considering the ways in which stakeholders attempted to control the mediated debate, the most unexpected finding was that the DWE information programme staged a concerted effort to engage as little as possible with the media. In addition, the private service provider contracted to build and operate the incinerator was completely shielded from media exposure. Unexpected as this finding was to the researcher, it is afforded support by Davis (2002) contention that the reticence to engage in debate in the public realm is a common public relations strategy of corporate and government when there is a wish to suppress or control discussion of a topic. The (relative) silence from DWE in the media debate represented an attempt to control the mediated debate about the incinerator in a show of subtle covert power (Lukes, 2005). From its own perspective, DWE had no need to engage with the media. The primary goal of the DWE project was to get the project through planning and the winning or losing a public relations battle about incineration was not relevant to this goal. From a risk communication point of view though, the refusal to engage was considered by anti-incineration stakeholders and journalists to be a show of arrogance from Dublin City Council and bred suspicion about the private service provider. This content analysis is a useful addition to the relatively few investigations of scientific and environmental issues and conflicts in the Irish media (For example, Heffernan, 2001; Davies, 2005, 2006). It provides an example of how stakeholders in such conflicts utilise the media, against which future approaches of both authorities and protestors can be compared.

9.3 Implications of the research

This thesis has a number of implications for those involved in environmental controversies and siting conflicts in Ireland and beyond and this section makes a

number of recommendations addressing specific issues raised in the findings of the research. The findings of this thesis indicate that publics in incineration debates are unlikely to be passive receptacles of information, but may actively decipher and communicate risk messages through the media and in public fora. Furthermore, there are likely to be diverse, constantly changing and sometimes clashing motivations and values underlying the arguments used in incineration debates. These underlying motivations may be strategic as well as value-driven. In addition, the articulation of concepts such as justice, rights, equity and democracy serve to strengthen the political voice of incineration protest in Ireland. Finally, this thesis concludes that institutional mistrust is apt to transfer readily to experts involved in communication processes conducted by authorities or industries that do not have the confidence of host communities. As a result, publics tend to find it difficult to rely on the veracity of the specialist information being disseminated during such communication programmes.

9.3.1 Implications for policy makers

These findings have implications for those charged with planning waste facilities and other controversial utilities. The findings indicate that a communication approach aiming only to educate, inform or allay fears about incineration, as was the case with the DWE information programme, is inadequate and that the time for tokenistic communication processes has passed. There is a need, then, for a more genuine two-way communication model in Irish environmental conflicts, where stakeholder contributions are not merely collected but are incorporated into decision-making processes.

The likelihood of this happening in Ireland in the near future is uncertain. The change in legislation to remove power from elected councillor to make and review regional waste management plans and the introduction of fast track planning processes under the Critical Infrastructure Act 2006[80] suggest that the current trend

[80] The Planning and Development (Strategic Infrastructure) Act 2006 provides for a fast-track planning process for large scale infrastructural projects including incinerators. Projects dealt with

in Irish planning policy is to move further away from more inclusive and deliberative forms of decision making. Nevertheless, Ireland is under EU pressure to implement legislation which increases public participation and ensures access to justice in EIA decision making processes[81] so perhaps in time more genuine forms of environmental risk communication are probable.

Small group deliberation processes would seem to offer potential for such communication models (Snary, 2002; Edelenbos and Klijn, 2006; Petts, 2008). Participation methods such as Community Advisory Committees and Citizen Advisory Panels have been described in the literature (Milliman and Feyerherm, 1999; Petts, 2008). These are bodies whose members include representatives from, for example, industry, government, business and local community residents as stakeholders. The function of community representatives on such committees ranges from providing community perspective to more powerful roles in decision making processes. The structure and make up of such mechanisms are not that far removed from the CIG group used in the DWE information programme. However, perhaps the point is that the existence of such a process is not in itself a guarantee of success. Rather the findings of this thesis suggest that such public deliberation mechanisms need to be, firstly, of a representative character with regards to the community rather than a reflective character, which was the case with the DWE programme. This would require formulating a definition of community, deciding how the advisory group relates to that definition and devising a fair selection process for the group. Secondly, the terms of reference would have to be set and agreed by all members of the group and a channel for regular communication between the community representatives on the body and the community would need to be found.

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under this system bypass local authority planning processes, instead going directly to An Bord Pleanála. The legislation has been criticised by some commentators as circumscribing public participation processes in planning and being an erosion of democracy (McDonald, 2006).

[81] Ireland recently received a warning from the European Commission and reprimanded in 2009 by the European Court of Justice for failing to transpose legislation relating to public participation in EIA processes (EU, 2010)

In addition, communication campaigns about controversial infrastructure should arguably be conducted by organisations or companies that are seen as independent so that publics have access to expertise that they deem trustworthy. This may involve different arrangements for the funding of such companies so that they are not in the direct payment of those proposing such facilities. With current recessional budgetary restraints, an alternative to employing a separate consultancy firm to conduct a risk communication programme would be to provide a fund to communities to employ their own experts. Researchers in both the US and Europe stress the value of such 'intervenor funding', or financial resources awarded to citizen stakeholders to secure expertise in environmental debates and EIA processes (Jeffery, 2002: 643; Glasson *et al.*, 2005).

9.3.2 Implications for risk communication practitioners

In drawing out the implications of this research for risk communication practitioners, there are two key thesis findings that need to be considered. Firstly, historical and geographical contexts were crucial to how the risk communication was formulated and received. Secondly, institutional mistrust among local communities was a major stumbling block in the communication process. These findings are of course linked in that the historical treatment of the area by the local authority and its resultant peripheralisation and marginalisation gave rise to deep institutional mistrust.

The findings of this thesis imply that those involved in delivering and facilitating risk communications need to be aware of the localised contexts within which environmental debates occur. Further, there is a need for risk communication practitioners to appreciate how such contexts may affect the receipt of information provided and, indeed, to be mindful the role that such contexts may have in fueling concerns or consolidating resistance. Rather than viewing discussions about historical mistrust as something which have to be endured, the finding of this thesis suggest that such discussions should be both noted carefully by those imparting risk information and the issues raised should be acknowledged and explored in an open and genuine manner. This is particularly apposite in view of Sidaway's (2005)

contention that past relationships between stakeholders in planning controversies often determine whether conflict results.

The findings in relation to the ways in which lay publics in the Poolbeg incinerator debate synthesised, negotiated and adjudicated on the technical and scientific information about incineration risks highlights two important consequences for trust issues in risk communication. Firstly, the propensity for some stakeholders to research and learn as much as they could about the technical aspects of incineration facilitated the altering and refining of their concerns over time. This suggests that subsequent to and during the operation of such facilities there is a need to put in place mechanisms that facilitate ongoing communication between host communities and facility operators and regulators. Secondly, in light of recent research suggesting that qualified or critical trust, as opposed to blind trust, is a more realistic aim of risk communication processes and the ability of publics to trace information back to perceived reliable sources could engender such critical trust (O'Neill, 2002: Petts, 2008), there are some interesting observations and inferences to be made from this study. Some publics involved in the Poolbeg incinerator debate showed an eagerness to explore and make informed decisions about scientific, technical and legal information pertaining to incineration. Further, members of the CIG process displayed a willingness to commit to a deliberation process that demanded considerable time and work. This indicates that there was potential to foster an active or critical trust in the DWE project, had there been access for the communities to independent sources of information that they perceived as properly independent. This indicates that despite the high levels of mistrust in the Poolbeg debate there still existed the conditions to foster a qualified trust, as defined by O'Neill (2002). This should give heart to risk communication practitioners, though, in that even where difficult communication conditions exist, publics may still have the desire for engagement with risk communication processes and building critical trust is a possibility in such circumstances if access to expertise perceived by stakeholders as independent can be secured.

9.3.3 Implications for experts in risk communication processes

The ways in which trust affects risk communication and the findings of this thesis in relation to trust in expertise, have important implications for experts involved in risk communication processes. Firstly, expert speakers should be aware that publics base decisions about environmental risk information on their perceptions of the trustworthiness of the experts imparting the information. Secondly, it is useful for such experts to have an understanding of the ways in which trust in risk information, risk communication processes and expert sources is socially constructed. In particular, publics are more likely to consider as trustworthy sources those experts they perceive as not having a vested interest in the project. Experts would do well to consider their positionality, from a sociology of scientific knowledge perspective (Irwin, 2001) in order to surmise how they, and as a consequence their message, may be viewed by the audiences to whom they are speaking.

Thirdly, experts and scientists involved in risk communication should endeavour to be aware of and acknowledge the often highly political contexts within which they are imparting risk communication, and in doing so consider the effect this may have on the receipt of their message by the intended audience. It is important that experts realise that the major discussion in risk debates is generally not a technical one, but a political discussion where science is being used to back up particular arguments or positions, or as Taylor (2001: 120) puts it 'politics dressed up as science'. Fourthly, prior to becoming involved in risk communication processes, experts would be wise to ensure they are clear about such details as what the aims of the risk communication process are, who is facilitating or organising the process, what are the agendas of those running the process, what level of public consultation is actually involved and what roles experts and expert information are expected to play within the process. The findings of this thesis that mistrust, if it exists, may pass easily between those promoting a facility to the experts they engage to take part in risk communication events have particular implications for those asked to provide expertise in risk communication processes. The state of the relationship between those conducting the risk communication process and those for whom it is intended

is important information with which experts should forearm themselves prior to participating in an information provision or consultation process. That is not to imply that experts should opt out of such processes, but rather that they need to be aware of the potential for conflict and controversy in the process and that they may need to state and emphasise their relative scientific independence.

9.3.4 Implications for community activists

Finally, there are some implications for community activists that may be drawn from this thesis. These implications arise out of findings that firstly, there is an awakening of the language of environmental justice (EJ) in this incineration dispute and secondly, that there were a number of hurdles which hampered the local communities in their resistance including a lack of expertise and a campaign which seemed to be too narrow in its geographic focus to carry enough political weight.

The use of the language and concepts of environmental justice in facility siting disputes tends to politicise the discussion raising it above the accusation of NIMBYism. Davies (2006) has already outlined the advantageous outcomes that could be expected if the EJ concepts of fairness, rights and democracy were adopted by activists and citizens involved in incineration discussions. These include expanding the discourse around environmental risk by making useful links with international EJ groups as well as with national organisations concerned with social inclusion and so extend the discussion of environmental risk into the broader arena of social justice. A further benefit, according to Davies (2006), is that a discourse of EJ may strengthen demands for better access to environmental information in Ireland. This thesis has concluded that the stimulation of a discourse of EJ has begun in Ireland, and so community activists involved in risk debates about incineration and other technologies henceforth could build on this foundation.

By linking with a wider field of groups involved in environmental and social justice issues on both a national and international level may help future environmental activist groups prevent their campaign from becoming contained to a small

geographic area, as was the case in the Poolbeg incinerator dispute. Such linkages should be a priority for community groups in the early stages of a campaign as researchers examining the effect of marginalisation and the siting of LULUs contend that resistance campaigns that cut across social and geographical lines are generally more successful (Blowers and Leroy, 1994).

The qualitative data from this thesis suggested that access to expertise was one of the manifestations of procedural injustice experienced by the communities in the Poolbeg incinerator conflict. One lesson that may be learned in hindsight from CRAI's trials in relation to obtaining expertise is that activists should probably focus on securing such expertise early on in the campaign and that a push towards a system of intervenor funding, or some form of independent expertise operating on behalf of the community rather than on behalf of facility proponents may be a useful early request in a risk communication process. In terms of risk communication processes, there seems little real value in opting out of, or disrupting such programmes. Participation in risk communication processes with ample acceptable expertise coupled with the resources and back up that linkages to other EJ groups might offer could redress the balance of power to some extent for communities affected by environmental risk.

9.4 Reflections on the Methodology

The research utilised a single case study strategy with a two phase mixed method approach. The case study strategy was chosen to allow for the examination of the context, processes and interactions involved in the Poolbeg incinerator conflict. A quantitative content analysis method was used as filter stage to identify the key stakeholders and principal arguments used in risk debate around the Poolbeg incinerator. This information was utilised to construct an interview schedule and identify interviewees for semi-structured qualitative interviews designed to investigate the underlying motivations, values and contexts pertaining to the conflict. The interviews were subject to cross-sectional coding using both descriptive and

conceptual coding frames. The reported analysis emerged through a process of writing and rewriting.

Thesis research is seldom a linear process and may involve the re-thinking, re-configuration and even junking of conceptual approaches, methods and analysis. It is an iterative process and hindsight offers the researcher a valuable vista from where the research can be usefully evaluated. Working from a number of conceptual approaches to risk communication, rather than from a fully developed theoretical framework, meant that the study afforded the researcher a fluidity to take account of themes, contexts and lines of inquiry emerging from the extremely rich data set. Conversely, the lack of a fully formed theoretical framework to contain the work meant the researcher needed to be mindful of the potential for the study to veer off-course. However, the strength and appropriateness of the methodological framework combined with the well-defined and clear-cut research questions provided important points of reference that helped maintain the focus and direction of the research. The positionality of the researcher proved simultaneously to be a useful instrument and a potential limitation in researching such a deeply political, multi-dimensional and still current conflict. Consequently, a tactic of constant vigilance and thought was adopted to ensure that this situatedness could be either brought to bear in a useful way on the research or, if necessary, kept in check.

The challenges of using of both quantitative and qualitative methods in a single research project have received comment from authors (for example, Mason, 1994). The researcher in this study came from a technical and positivistic academic background and was a neophyte to sociology and human geography. Developing a competency in qualitative epistemological philosophies involved significant learning and reflection. Nevertheless, the mixed methods approach worked well in addressing the research questions and the apparent clash of contrasting epistemological presumptions of the methods presented little difficulty. The methods were quite suitable for the research. However, as with all research, the project suffered a number of limitations. Firstly, anti-incinerator interviewees outnumbered pro-

incinerator interviewees as pro-incinerator stakeholders were often reluctant to be interviewed and since the majority of the stakeholder groups contained more anti-incinerator stakeholders than pro-incinerator ones. Secondly, despite repeated attempts, the researcher did not manage to secure an interview with any representatives from the Irish waste industry, such as hauliers and landfill operators who were (and still are) opposed to scale of the Poolbeg facility. The analysis is somewhat poorer for this omission since this sector's views, which are currently receiving much media attention, are adding an interesting perspective to the discussion of economic risk around the incinerator (Michael, 2009). Thirdly, the textual analysis of materials such as pamphlets, press releases and web site content produced by the various anti-incinerator campaign groups in the Ringsend and Sandymount areas may have offered further insights into the conflict. However, this was not in the original project design and the materials were not readily available given the long-running and fragmented nature of the anti-incineration campaign. Notwithstanding the above observations, the research design was robust and its execution proceeded smoothly. One further and minor observation about the methodology though would be that the ethical responsibilities of a researcher towards those who have refused to be interviewed be explored. Such individuals would seem to be as entitled to anonymity as those who were interviewed and also it would seem reasonable that their reasons for not agreeing to an interview would remain confidential. This requires further reflection by qualitative researchers.

9.5 Further research

Although this research was extensive and provides an in-depth analysis of many aspects of risk communication in relation to environmental controversy there are a number of areas related to, but not explored in this thesis that may provide material for future research and analysis.

Firstly, newspaper coverage of the Poolbeg incinerator controversy increased dramatically in 2007, particularly following the appointment of Deputy John Gormley as Minister for the Environment. A content analysis of articles from *The*

Irish Times for 2007 was conducted but was not interpreted for this thesis. In addition, the interview data gathered includes a wealth of information about the evolution and dynamics of anti-incineration campaign in the Ringsend and Sandymount areas. There were a number of different groups and individuals involved in the anti-incineration campaign and politicians were purposely excluded from becoming members of CRAI. In addition, the campaign remained localised and did not spread to other areas of Dublin City, which contrasts with anti-incinerator campaigns in Ireland. For these reasons an analysis of the anti-incinerator campaign would add to research of Irish environmental protest conducted by other researchers (such as Leonard, 2006; Tovey, 2007). These data could provide material for research papers.

Secondly, Mythen (2010) comments that the role of citizen journalism, both electronic and print, in environmental protest has been largely neglected by researchers to date. The use of such media is used by environmental protest groups in Ireland in respect of controversies such as the Shell Corrib gas project conflict in Mayo. A study of this form of risk communication from protest groups in Ireland would make a useful contribution to the fields of protest and environmental risk communication research.

Thirdly, many of the interviewees for this research spoke about specific difficulties they had when representing their communities in technical and semi-judicial hearings such as the An Bord Pleanála and EPA hearings. Even those interviewees with technical qualifications had some difficulties questioning and understanding witnesses. Nonetheless, the anti-incineration activists in the Poolbeg incinerator debate gleaned valuable information during these hearings. A study of how lay communities negotiate, synthesise and use scientific information in technical hearings related to environmental controversy in Ireland would be informative particularly in light of concerns about fast-track planning provisions under The Planning and Development (Strategic Infrastructure) Act 2006.

Finally, one recommendation suggested in this thesis is that a system of intervenor funding be used to enhance both risk communication processes and environmental procedural justice. The viability of such an arrangement in Irish planning processes and the legal, financial and institutional arrangements that may be need to facilitate such a procedure may of interest to a political science or policy researcher.

9.6 Last Words

From the research conducted for this thesis it would seem that public participation processes and public communication programmes are viewed by Irish authorities as a useful means to an end, that end usually being the timely delivery of a particular infrastructural project. While this may seem perfectly logical from a planning point of view, it fails to consider that people are intelligent, insightful, inquiring and have long memories. The findings of this research show that with each promise broken, each answer fudged and each unwanted facility imposed, mistrust increases. This seems likely to result in further and potentially more intense conflict around environmental issues. As trends in EU legislation move towards more openness and inclusivenss in public participation and increased access to environmental information, it is an apposite time to reflect on how risk communication is approached and conducted in Ireland. From this research it appears that risk communication about public utility developments should be carried out with one eye on the development at hand and the other on the wider contexts of trust, equity, democracy and accountability. This would be a pragmatic investment in public confidence which would pay dividends for future planning. Since qualitative research strives to give voice to those studied, it seems apt to leave the very last word to those involved in the Poolbeg incinerator debate. One stakeholder puts it succinctly when he speaks of the DWE information programme thus:

> *"It was the council shooting itself in the foot, because by doing it the way they did it, they did everything possible to further erode any confidence in the community because of their approach to consultation and negotiation. I do believe that in future other City Managers will go differently about those things because a lot of projects, not only this one, will get stuck over the years to come. And eventually a different process will become inevitable and the earlier we get there the better."* Declan, Expert 3

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Appendix 1: Coding manual (abridged version)

Coding Frame for Content Analysis – newspapers

Index No.			
Publication			
Type of unit			
Headline/Title			
Date			
Author name			
Author type			
Length of unit (column cms)			
Arguments			
Source Name 1-6			
Source Type 1-6			
Source Stance 1-6			
Visual Present			
Visual Type 1-3			
Visual Bias 1-3			

Coding Manual

1. Index Number:

Identification number of the unit of analysis used on project database

2. Publication

IT - Irish Times, daily national newspaper

ITweb – Irish Times, breaking news

N4 – News4, community newspaper, free sheet

EH – Evening Herald Newspaper, daily national

HL – Herald Light, free sheet, version of Evening Herald above

3. Type of Unit:

1. News article
2. Feature
3. Opinion piece - Including interviews, editorials, opinion articles
4. Letter
5. Web only article - Including breaking news, web only editions
6. Section in 'News in brief' column or similar
7. Advertisement

4. Headline/Title - Full headline or title of unit

5. Bias of Headline/Title + 1st paragraph

P – pro-incineration

N – anti-incineration

0 – neutral

6. Date: Date of publication

7. Author: Author name (0 = information not available)

8. Author type

1. information not available
2. Journalist, specialist
3. Journalist, general
4. Scientific or engineering expert, waste industry
5. Scientific or engineering expert, environmental consultancy
6. Scientific or engineering expert, anti-waste-to-energy / incinerator campaign
7. Anti waste-to-energy / incinerator activist (non-expert)
8. Employee of Dublin waste to energy information provision campaign
9. Employee of Dublin waste to energy information provision campaign
10. Government or council official (scientific or administration)
11. Politician (either at local or national level)

12. NGO representative
13. Business representative
14. Other (including member of public who does not fit into other categories

9. Length of unit

The number of words in each unit

Column cms

10. Arguments/ Risk messages in the unit

Category	Message
Environment and Health risk messages	Waste-to-energy / incineration constitutes/ may constitute a health risk
	Waste-to-energy / incineration constitutes/ may constitute an ecological risk
	The use of waste-to-energy / incinerators will affect air quality
	Toxins, such as dioxins, emitted from waste-to-energy/ incineration plants may enter the food chain or water supply
	Concern about uncertainty in relation to effects and safety thresholds of emissions from waste-to-energy/ incineration
	Concern in relation to policing and security including monitoring concerns, possible accidents, rogue emissions or inadequate safeguards at the proposed incinerator
	There are no available baseline values of environmental parameters for Poolbeg and surrounding areas, which will make it difficult to monitor the effects of incineration on the locality
	Incineration is a safe technology and has not been shown to cause significant health and/or environmental effects
	Modern/ new generation waste-to-energy / incinerators, such as the one planned for Poolbeg, are perfectly safe once they are properly run and well-managed
	Waste-to-energy / incineration offers energy recovery
	The city council is undertaking/ has undertaken a baseline study of air quality and a range of environmental parameters in the Poolbeg area.
	The high temperatures and flue gas cleaning techniques used in waste-to-energy / incineration technology destroy dioxins and similar compounds
	No toxic waste is intended for the waste-to-energy/ incineration plant proposed for Poolbeg, and any toxic by-products will be dealt with appropriately
	Background dioxin levels in Ireland are currently very low and/or the introduction of incineration will not cause a significant increase in dioxin levels
	Opposition to the proposed Poolbeg incinerator is nimbyism/ does not reflect the opinion of the majority of local people

	Illegal backyard burning, or other types of uncontrolled burning, produces many times more dioxins than waste to energy / incineration technologies
	Incineration is/ the proposed incinerator will be subject to stringent legal requirements, emission limits and conditions
Economic and Social risk messages	Waste-to-energy / incineration constitutes an economic risk in terms of property prices and/or business development in an area
	The siting of a waste-to-energy plant / incinerator in the Ringsend/Poolbeg area will result in the area being stigmatised or peripheralised
	The siting of an waste-to-energy / incinerator in Ringsend/Poolbeg will unfairly burden residents (further)
	The siting of a waste-to-energy plant / incinerator in Poolbeg will result in an increase in traffic in the surrounding areas, with which the area may not be able to cope
	A waste-to-energy plant / incinerator in Poolbeg may restrict the enjoyment of local amenities for residents and/or will be an eyesore in the area
	A community compensation package cannot allay residents concerns about possible incineration risk
	The use of waste-to-energy plant / incineration to deal with waste is necessary for economic sustainability and/or growth
	Impact on traffic will be marginal / A traffic strategy will be put in place which restricts traffic to particular routes and particular times of the day to ensure that impact on traffic will be marginal
	The Poolbeg, Ringsend and Irishtown area may/will receive funds for community facilities as compensation for shouldering the burden of hosting the waste-to-energy plant / incinerator
Sustainability risk messages	Waste-to-energy / incineration is an outmoded technique in waste management / provides a disincentive with regards to reduction, reuse and recycling
	Waste-to-energy / incineration produces large quantities of bottom ash/ fly ash which must be disposed of
	The use of waste-to-energy / incineration is in line with waste management legislation/ policy governing waste / Waste Management Plans
	The use of waste-to-energy / incineration is necessary to deal with the volume of waste produced in Ireland/ Dublin
	Waste-to-energy / incineration is used successfully in other countries
	Waste-to-energy /incineration reduces the mass and volume of waste and/ or sanitises waste
	Waste-to-energy /incineration is preferable to landfill
	Waste-to-energy /incineration is compatible with recycling and/ or will be used as part of an integrated waste strategy which includes recycling, reuse and reduction
	The incinerator will burn x tonnes annually
Development and Trust risk messages	The company under consideration for building and operating the Poolbeg waste to energy facility is experienced and reliable
	Mistrust towards government, City Council or the waste industry exists in relation to the incineration proposal

	The development/planning process around the proposed Poolbeg incinerator is undemocratic / the incinerator is being imposed on the area against the wishes of the local people or City Councillors
	The development/planning process around the proposed Poolbeg waste-to-energy / incinerator is technically or legally flawed
	Government politicians have split views about the incinerator
	The Government/ City Council management is determined to introduce incineration/ it's already decided
	The Government is putting business interests before the interest of the people
	Concern about the site selection process and/or suitability of the site
	The planning and development process is proceeding in a systematic, proper and statutory fashion
	The Poolbeg peninsula is the most suitable according to the criteria used / siting process was properly conducted
	The Dublin waste-to-energy information provision campaign around the proposed Poolbeg waste-to-energy / incinerator is flawed
	The proposed technology has not been decided as yet – this impedes information provision
	A comprehensive and open information programme about waste-to-energy/ incineration is being undertaken by the Dublin Waste to Energy project
	An awareness raising programme about waste disposal options is being undertaken by the Dublin Waste to Energy project
	The public's queries and views are welcomed by the Dublin Waste to Energy project/ Dublin Waste to Energy project wishes to have a dialogue with the public

11. Reported Sources/Quotes

First source quoted – The source, individual or group, whose opinion, standpoint or direct quote is reported first in the unit

Second source quoted - The source, individual or group, whose opinion, standpoint or direct quote is reported second in the unit

12. Source Name

Name, if mentioned

0 = if not mentioned

13. Source Type, at time of publication

Code	Source	
0	information not available	

13. Source Type, at time of publication

Code	Source	
0	information not available	
1	Minister for the Environment	
2	Government national or local politician	Excluding Minister for the Environment, including elected reps and candidates
3	Opposition national or local politician	including elected reps and candidates
4	Waste industry spokesperson	Not RPS
5	Scientific, engineering or planning expert, independent	
6	scientific or engineering expert, anti-waste-to-energy / incinerator campaign	
7	anti-waste-to-energy / incinerator activist, not scientific or engineering expert	Including representative of residents associations or CRAI
8	consultancy personnel working on information provision or technical aspect of the project for Dublin CC - from RPS, COWI, MCOS, or PR/Marketing company	including all RPS , MCOS, COWI, consultancy staff, or communications person from PR firm, including those seconded from RPS to DCC
9	government or council official / agency	Technical or administration
10	Business organisation spokesperson or business person	not waste industry, e.g. IBEC, chamber of commerce, local business person
11	NGO representative	Excluding representative of residents associations or CRAI
12	member of the public who cannot be included in	including journalists

	other categories	
13	CIG member	

14. Stance of source as apparent from the unit

The stance of the source on waste-to-energy / incineration

p = pro-waste-to-energy / incineration

n = anti-waste-to-energy / incineration

0 = neutral

15. Visual present

y = yes

n = no

16. Visual type 1-3

To ascertain if the visual is informational, as in a technical diagram, for instance, or just decorative, as in a photo or cartoon

1 = informational graphic (including charts, maps, diagrams, graphs)

2 = photo

3 = cartoon

17. Visual bias in relation to waste-to-energy / incineration 1-3

p = positive - e.g. Proponent(s) of the incinerator

n = negative – e.g. Opponents of incinerator, protest.

0 = neutral

Appendix 2: Sample Question Schedule

Questions for anti-incinerator activists / NGOs/ anti-incinerator politicians

Icebreaker and contextualisation of respondent

- To begin, can you tell me a little bit about your involvement in the debate in relation to the Poolbeg incinerator?
- What was the focus of the anti-incinerator campaign?

Beliefs about Incineration Risk/Benefit

- In general, how do you feel about the use of incineration for the disposal of household waste?
- What are your biggest concerns about the Poolbeg incinerator?
    - Why do you think Dublin City Council wish to use incineration?
    - What is your reaction to claims that modern incinerators are safe and that the amounts of toxins such as dioxin or heavy metals released are tiny?
    - How significant were economic concerns about the incinerator to locals, for instance lowering of property prices or the potential for the area to become less attractive to business?

Beliefs about publics' understanding of incineration risk

- What do you think of Ringsend as a site for an incinerator?
    - Why do you think Poolbeg was chosen?
- In your experience of the debate around the Poolbeg proposal, how well do the public understand the benefits and risks involved in incineration?
    - To what extent do you feel the development process (siting, planning and so on) became an issue for locals?
    - In the press debates about the Poolbeg incinerator, it has been suggested that the Poolbeg area is a dumping ground for Dublin and

that more affluent areas would never be expected to out up with an incinerator, what would you say about such claims?

Media coverage

- Do you have any thoughts on how the media covered the proposed incinerator for Poolbeg?
    - Do you have any views about how the "hard science" or technical aspects of incineration and its possible effects were dealt with in the media?
    - How did you feel your own views on the issue were reported in the newspapers?
    - In my research, in the newspapers I looked at, I found that pro-incinerator views and arguments were reported far less than anti-incinerator arguments, what do you think of that?
- Can you tell me how easily you felt you (or your organisation) gained media coverage in relation to the incinerator issue?
    - Did you have a particular approach with the media?
    - What media organisations (radio stations/newspapers) were more likely to seek your comment?
    - How did you build relationships with journalists?

Anti-incinerator campaign communication

- What were your (your organisation's) key messages?
    - What particular strategies were used by {your organisation} to publicise your views?
    - You called on some global anti-incinerator figures (such as Paul Connett); how important were global anti-incinerator campaigns and resources (websites and so on) to the messages and means of communication used by the campaign?
    - Are you familiar with the environmental justice movement around anti-incineration campaigns in other countries (e.g. US)?

- To what extent, if any, was environmental justice a focus of the Ringsend anti-incinerator campaign?

Public information programme

- What do you think about the use of public communication programmes for the public about issues like the incinerator?
- The Dublin Waste to Energy Project conducted an information programme for the public about the incinerator. What were your impressions of the campaign?
    - What do you think were the aims and strategies of the information programme undertaken by the Dublin Waste to Energy project?
    - How informative was the campaign?
    - What level of consultation did you feel was reached?
    - What were the key messages you felt came out of the communication programme?
- To what extent did your campaign attempt to provide counter arguments to those communicated by DWE?
- There were some aspects of the Dublin Waste to Energy that involved public participation – the CIG process and the Open Days; can you tell me how these operated?
    - The CIG process in particular became somewhat controversial, some members left; can you tell me what happened?
    - Were there any aspects of the communication programme that you felt did work?
    - What sorts of improvements would have made it better?
- What was your impression of the level of satisfaction among the members of the public taking part in these participation methods?

Trust

- What role do you think trust or mistrust in politicians and Dublin City Council played in the Poolbeg incinerator dispute?
    - What efforts did you think were made to build trust with the local community and, anti-incinerator groups during the incinerator development process?
    - What particular issues affected the perceived trustworthiness of the council or the government in relation to the Poolbeg incinerator?
    - Concerns about the trustworthiness of Dublin City Council were mentioned frequently in the newspapers and yet didn't seem to be addressed in the media by Dublin City Council – have you any thoughts on that?

Appendix 3: Sample Letter of Consent

Consent Letter

Dear Interviewee,

Thank you for agreeing to allow me to interview you as part of my PhD research. I would appreciate if you could sign this consent form to confirm that you understand the following:

- The interview will be recorded using a minidisk recorder
- The interview will be transcripted by the researcher, Joanne Rourke
- All interview recordings will be destroyed once the project has been completed and the thesis written and finalised
- All interviewees shall remain anonymous and shall be identified using interviewee category titles such as, for example 'Politician 5', 'Consultant 3'
- Transcripts of the interviews will be kept for reference purposes, but the names of the interviewees will not be identified in these transcripts
- Direct quotes from the interviews shall be used in the thesis report in the context of the analysis of the interviews, again the speakers will remain anonymous
- All care will be taken to ensure that quotes or excerpts from the interviews do not serve to identify the speaker beyond the interviewee category title used
- The recordings gathered during these interviews will not be released to any other party at any stage

I, the undersigned, understand the conditions listed above and on that basis agree to be interviewed by Joanne Rourke for the purposes of her PhD research.
