

**Contested knowledge in the assessment of public health risks: A case study of the Nant-y-Gwyddon landfill site in the Rhondda Valley, south Wales.**

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This thesis is submitted in candidature  
for the degree of Doctor of Philosophy

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## **SUMMARY**

In recent years traditional approaches to the assessment of health hazards have struggled to connect with the concerns of local communities, resulting in disputes over the interpretation of risk. The Nant-y-Gwyddon (NyG) landfill site in the Rhondda valley, south Wales, was shut down in March 2002 on the recommendations of an independent investigation, following five years of concerted and highly publicised protest action by a group calling itself Rhondda Against Nant-y-Gwyddon Tip (RANT).

This local environmental protest provides an interesting case study in the sociology of public health risks and community mobilisation. The research has aimed to explore the key processes and relationships involved in the evaluation of perceived threats to public health in the period up to the closure of the tip in 2002. Rich documentary data formed the primary evidence for the case-study, and this has been used for two main purposes: first, to construct an historical account of the protest focusing specifically on the actions and perspectives of the residents who became local activists; and secondly, to explore the positioning of the main actors in relation to some of the key issues and events. This research contributes to theory in several ways. The findings are illustrative of the different kinds of knowledge and expertise brought into play by both residents and statutory bodies, and as such connects with the literature on types of expertise, local knowledge and popular epidemiology. The research also highlights the need to locate such struggles in their broader social and cultural contexts, and suggests the importance of concepts such as dependency, hegemony and counter-hegemony, for understanding lay-expert relationships and protest more broadly. Following this, various examples are also given to suggest the development of several counter-hegemonic features of the residents' campaign, across epistemological, social and political domains.

## **PUBLICATIONS AND PRESENTATIONS RELATING TO THESIS**

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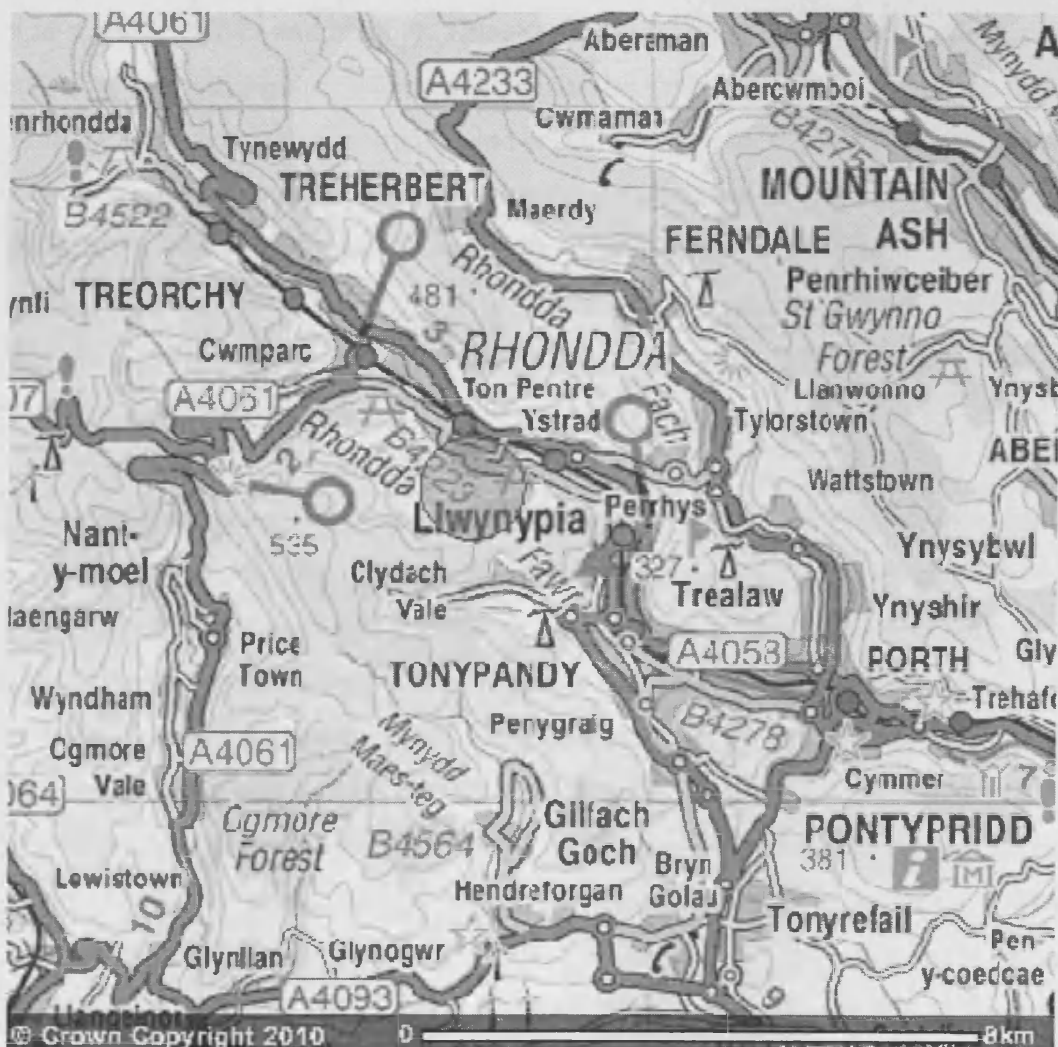
## **Chapter 1: Introduction**

The Nant-y-Gwyddon waste disposal site is situated on a mountain (Mynydd-y-Gelli) above the adjacent communities of Clydach Vale, Gelli, Ystrad, and Llwynpia in the Rhondda Valley of south Wales (see map overleaf). It is located in a region with a long history of coal mining and a population struggling with the social and economic legacy of the industry's demise in the post-war period. As with most deprived, post-industrial communities, the Rhondda also has a history of poor health, which has been connected with the difficult social conditions in which people live or have lived; whether through the toils of heavy labour and the pollution associated with much heavy industry, or the stresses and strains of unemployment, financial hardship and the devastating social and cultural consequences of these experiences (see Williams 1998; Williams 2006). The area has a history of political activism connected with the trade unions and the socialist movement (see, Francis and Smith 1998 [1980]), and also a history of protest over environmental and industrial illnesses; with regards to mining and black lung disease, for example (see Bloor 2000). The communities of the Rhondda were also known for their cohesiveness and the communalism which was closely associated with the mining industry and the social and cultural institutions which grew up around it, in addition to the important community building role played by the chapels in these villages (see Pope 1998).

Waste disposal operations at the site began in 1988 and in the mid 1990s their license was amended to the disposal of industrial in addition to domestic waste. As a consequence of persistent 'aesthetic', environmental and health concerns, the communities adjacent to the site have been subject to intensive scientific investigation. The site was shut down in March 2002 on the recommendations of an independent investigation carried out on behalf of the Welsh Assembly Government, following five years of concerted and highly publicised protest action by a group calling itself Rhondda Against Nant-y-Gwyddon Tip (RANT). The issues surrounding the establishment of and response to this landfill site were considered by the then Director of the Wales Centre for Health, to offer a unique opportunity to undertake an in-depth case study in the sociology of public health risks, enhance our understanding of the processes involved, and provide guidelines to inform discussion, policy and

strategy in the future. In pursuit of this interest the Wales Centre for Health approached my supervisors Professor Gareth Williams and Dr Eva Elliott to explore ways in which this case study might be investigated and jointly they applied to and were successful in winning an award under the Economic and Social Research Council's CASE Collaborative Studentship scheme (Award No. PTA-033-2006-00062).

Map showing the villages situated close to the tip.



This local environmental protest provides an interesting case study in the sociology of public health risks, as well as in the study of collective action and mobilisation.

Although relevant to one another these fields of research and scholarship have two distinct sets of literature, both of which were considered to be useful for conceptualizing and informing this research. As such there are two literature review chapters which consider literature in both of these areas. The first of the chapters (chapter two) considers the literature on the role of risk, science and expertise in such conflicts. The literature is broken down into sections on: rights and environmental justice; lay-expert relationships and the 'risk society'; the practice and politics of science; lay knowledge and popular epidemiology; reflexivity, trust and uncertainty; and science, culture and identity. The second literature review chapter (chapter three) starts by considering the main approaches in the study of social movements; resource mobilization, political opportunity and most extensively framing approaches, along with more holistic approaches based on the work of theorists such as Gramsci and Bourdieu. This chapter also considers the main factors which have been found to influence collective action processes, and which have been categorized as institutional and process factors, networking and network resources, cultural knowledge, and political and historical contexts.

There are two methodology chapters. The first of these (chapter four) considers epistemological and methodological questions and choices. It is explained how this research follows a pragmatist approach in that although it is primarily concerned with the discursive processes involved in the construction of belief and knowledge claims, it also recognises 'lived experience'; and the existence of 'real' risks and environmental problems. This chapter discusses the rationales behind the chosen retrospective case study design, and the strengths, weaknesses and practicalities of using documents to access the perspectives and accounts of residents, officials, experts and other important groups. Case studies are well placed to develop theoretical insight and for examining the fine detail of social life and following the principles of the *extended case method* this research aims to move from the "micro" to the "macro," and thus extend out from the field (Burawoy 1998). It is also explained how the research seeks to follow a discursive and dialogic approach to the analysis of data.

This research aims to explore the key processes and relationships involved in the evaluation of perceived threats to public health in the period up to the closure of the tip in 2002. The research has four key objectives.

- To describe and analyse the development of a community protest about a landfill site.
- To investigate the interpretive and framing activities of community members in developing evidence, and seeking and obtaining redress.
- To examine the response of the statutory authorities and their utilisation of specialist expertise.
- To explore the relationships between competing bodies of evidence in the production of public health knowledge about health risks.

The second methods chapter (chapter five) describes the various stages of the research in terms of: the selection of the case study site, identifying, collecting and managing documentary data, ethical procedures and considerations and the analysis and production of findings. It explains how the data were analysed firstly to construct an historical account of the protest focusing specifically on the actions and perspectives of the residents who became local activists, and second to explore the positioning and claim making of the main actors, through a more in-depth, discursive analysis of selected texts. The four findings chapters represent distinctive but nonetheless overlapping chronological phases, set apart by what are identified to be key *turning points* or *critical events*, and given their distinguishing features by the type of protest or campaign activities being undertaken in each phase. The findings chapters therefore follow four distinct phases and themes: *the origins of protest*; *navigating mistrust: social and political contestations*; *citizen science*, and *political change, opportunity and the investigation*.

The final discussion chapter (chapter ten) begins by summarizing the overall thesis, before moving onto consider the main implications of the research for theory and knowledge. Following the *extended case method*, as conceptualized by Burawoy (1998), this section aims to extract the general from the unique and to situate the individual case with the wider social fields that structure the processes unfolding

within that case (Sullivan 2002:265). The thick description generated by this case study research affords three distinctive but interlinked areas of theoretical contribution. It explores the different kinds of knowledge and expertise brought into play by both residents and the statutory bodies in relation to the literature on types of expertise, local knowledge and popular epidemiology. It also considers the need to locate such struggles in their broader social and cultural contexts, drawing out examples of dependency and hegemony, and the usefulness of these concepts for understanding lay-expert relationships. The final part in this section continues to work within this thicker contextual framework, making further use of the concepts of hegemony and counter-hegemony by providing various examples to suggest the development of several counter-hegemonic features of the campaign, across epistemological, social and political domains.

The discussion chapter finishes by considering some of the key implications for policy and practice. In its recommendation for policy and practice it discusses the need for officials and scientists to recognize and find ways of working with local knowledge, and considers the potential of the citizen-science alliance (Brown 2010), and the methodology of Health Impact Assessment, as well as implications for statutory-public relationships more broadly. Implications and suggestions for community groups confronted with similar situations are also briefly discussed. The limitations of this project and suggestions for further research are finally considered to bring the chapter and thesis to a close.

## Chapter Two: Risk, science and expertise

### *Introduction*

A distinctive feature of the last few decades has been the growth in local environmental or health based movements and related social conflict, and the increasing articulation by members of the public of health risks perceived in connection with local, national and global hazards. These types of movements and conflicts have been the subject of considerable academic interest, as seen in numerous pieces of empirical research, as well as in the significance attached to such movements by social theorists seeking to theorise social change more broadly. This review chapter, the first of two, discusses the literature on the role of risk, science and expertise in these kinds of conflicts.

Cases of opposition to perceived environmental or health hazards have included mobilisations around; the environmental causes of asthma (Brown et al 2003) and breast cancer (Potts 2004 a/b), a chemical plant (Hines 2001) and chemical waste sites (Couch and Kroll Smith 2000, Futtrell 2003), open cast mines (Moffatt and Pless Mulloli 2003), the perceived health effects of local pollutant sources (Brown 1992; Brown et al 2000; Williams and Popay 1994; 2006) a controversial pesticide (Couch and Kroll Smith 2000), ground troop exposure to radioactivity in the Gulf War (Brown et al 2000), and expert knowledge and advice given on the issues of farming practices (Wynne 1996a); over nuclear power, 'mad cow disease', debates over biotechnology and concerns over new reproductive technologies; global environmental change and food safety (Irwin and Wynne 1996), to name just a few.

At the most basic level these conflicts could be seen to arise from a perceived negative impact of a particular hazard, often on the health of a local population.

For example, it has been noted how environmental health disputes emphasise the inter-relationship between locality and health (Moffatt and Pless Mulloli 2003; Wakefield 2005). Kebede (2005) similarly notes that members of Grassroots Environmental Justice Organisations (GEJOs) are normally working-class people who happen to be in these organizations as a result of their personal experiences. This

suggests that grassroots environmental activism is mainly triggered by the threat against first order quality of life issues, which are issues that directly impact the well-being of movement participants (Kebede 2005). It is suggested that in these situations there is on one level a simple political protest against something unpleasant and dangerous, but it is also argued that such efforts often also represent an attempt to change the way in which risks are defined and how priorities for action are decided (Williams and Popay 1994; 2006). Most disputes are therefore more complex than simply perceived negative effects. In reflection of the complexities of local oppositions this chapter is broken down into sections on: rights and environmental justice; lay-expert relationships and the 'risk society'; the practice and politics of science; lay knowledge and popular epidemiology; reflexivity, trust and uncertainty; and science, culture and identity. At different points within these sections the work and ideas of four key theorists; Beck, Giddens, Wynne and Habermas, are given particular consideration, as the chapter seeks also to explore relationships between these theories and the empirical evidence.

### **Rights and justice**

One underlying source of conflict discussed in the literature concerns the unequal distribution of hazards, which in the United States (USA) has led to a discourse of 'environmental racism'. Activists thus call for social and environmental justice when addressing the question of hazard distribution. Environmental racism has been defined as 'racial discrimination in environmental policymaking and the unequal enforcement of environmental laws and regulations' (US House 1993, cf Hines 2001). The reality of environmental racism in the USA is suggested in repeated study findings that minority communities experience disproportionately high levels of environmental risk (Hines 2001). For example, in 1990, Greenpeace reported that the average income of families who live in communities with hazardous waste incinerators is 15 percent below the national average (Bullard 1994), whilst three out of five African Americans live in close proximity to an abandoned hazardous waste facility (Brown et al 2000). Although the distribution of hazards does not occur along racial lines in the UK, there are clear class based patterns with the most disadvantaged communities most likely to be situated close to an environmental hazard. This inequitable distribution is suggested to occur for the simple reason that powerful corporate or government interests find it comparatively easy to ignore the powerless



(Brown et al 2000). However, it is also noted how increasingly the powerless are becoming mobilised (Brown et al 2000), with environmental movements typically appealing to issues of justice and rights to make their claims, often drawing attention, particularly in the USA, to the unequal and highly racialised distribution of risks (Couch and Kroll-Smith 2000, Kebede 2005).

Examples of such oppositions include broadly based movements, such as movements asserting the links between local environments and conditions such as asthma and breast cancer, as well examples of more local oppositions to specific neighbourhood hazards. For example, Brown et al (2003) explain how environmental justice organisations engaged in debates over asthma emphasise the unequal distribution of environmental risks and hazards according to race and class, and the need for a reduction of environmental factors that they believe are responsible for increased asthma in their communities. Asthma is thus discussed as a 'politicised illness experience', as organisations are engaged in showing people how to make direct links between the experience of asthma and the social determinants of health (Brown et al 2003). Similarly, Potts (2004a) describes how breast cancer activists argue against any tendency to generalize in relation to the distribution of breast cancer, recognising the uneven, and often discriminatory, patterns of disease prevalence. An example of a more localised opposition, which is couched in discourses of inequality and injustice, is in Hines (2003) study of the strategies and techniques used by a local community and plant opponents in obstructing the construction of the Shintech plant in the US. Of interest here is Hines account of how the opposition was able to expand its coalition base and gain national attention on the issue of environmental racism.

However, perceived negative effects, and issues of discrimination, rights and justice are by no means the only sources of contention relating to environmental health disputes. For example, Couch and Kroll Smith (2000) explains that evidence from these movements suggests more than just an appeal to moral or ethical rights and that whereas social movements previously have relied on moral, not scientific, appeals to lobby for change, they are now also arming themselves with the lingual resources of toxicology, risk assessment, biomedicine etc. There is a body of theoretical and empirical literature which suggests that issues surrounding lay-expert relationships

and competing forms of knowledge occupy a central place in the development of these conflicts, and it is this literature to which we now turn.

### **Lay-expert relationships: the 'risk society'.**

Some of the most prominent theoretical work to have been developed in relation to this subject is in debates on the 'risk society.' In what has been described as the reflexive modernization paradigm (Pellizoni 1999), Beck and Giddens have discussed the emergence of 'reflexive modernity' (Giddens 1990; 1991; 1994) or 'risk society' (Beck 1992) in terms of the consequences of some of the key processes of modernity and post-modernity; individualization, rationalization and globalisation.

Both of these theorists have identified fundamental characteristics of modernity to be processes of rationalization and individualisation. It is argued that modern societies have been driven by a need to control and render calculable the external environments in which we live, and this in turn has dictated a central role for science, technology and expert institutions. Also in operation have been processes of individualization which, according to Giddens result in the 'disembedding' of individuals from traditional cultures and ways of life (Giddens 1990; 1991), and the freeing of individuals from the normative expectations of social institutions (Beck 1992). Importantly, this means that people increasingly are left with important life choices to make and new sets of questions in need of answers. According to Giddens this produces a world of intensified reflexivity as 'individuals more or less have to engage with the wider world if they are to survive in it' and this in turn means that 'information produced by specialists (including scientific knowledge) can no longer be wholly confined to specific groups, but becomes routinely interpreted and acted on by lay individuals in the course of their everyday actions.'(Giddens 1994:7). Beck similarly argues that in the process of modernisation, more areas have been taken from the sphere of the natural and inevitable and made the objects of choice, agency and responsibility (Beck 1992). Post-modern conditions of neo-liberalism, globalization and economic insecurity have further accelerated these reflexive tendencies, due to the erosion of identities formed around class, gender and workplace (Beck 1992; Giddens 1994; Gow and Leahy 2005), and the increasing flow of information, knowledge and cultural artefacts, which in turn lend themselves to more fluid, fractured and multiple identities (Irwin and Michael 2003).

However, whilst all of this would suggest greater public expectations of control and agency, and a more reflexive engagement with different knowledges as a way of enhancing control, another unintended consequence of modernity is also proposed; one of 'manufactured uncertainty'. Far from being ordered and predictable, Giddens (1994) argues that the world we live in is one of dislocation and uncertainty, a 'runaway world'. What was supposed to create greater certainty—the advance of human knowledge and 'controlled intervention' into society and nature—is heavily implicated in this unpredictability, with manufactured risk a direct result of human intervention into the conditions of social life and into nature. Along similar lines, Beck (1992) also describes how contemporary societies are increasingly organized around the distribution of ecological hazards. Wealth production is inextricably tied to hazard production and the hazards produced by society can no longer be contained within conventionally modernist systems of prediction and control. Beck also notes that the distribution of these new hazards seem blind to inequalities as they flow easily across national and class boundaries (Beck 1992).

It is this contradiction between subjective expectations and orientations (ie for control and agency) with objective realities (ie manufactured and uncontrollable hazards), which is attributed a central role in the production of risk, uncertainty and social conflict. According to Giddens, increased reflexivity and engagement with different and conflicting knowledges, including publicized cases of manufactured hazards and scientific uncertainties, contribute to a blurring of the distinction between expert and lay knowledge, a shift in relationships of trust, ontological insecurity, and a heightened awareness of uncertainty and perception of risk (Giddens 1990; 1991; 1994). Giddens explains how science and the orientation of control can no longer do the job of legitimation which for so long was basic to modern social development; the findings of science are therefore interrogated, criticized, and made use of in common with other reflexively available sources of knowledge (Giddens 1994). Examples of such public suspicions towards experts include; safety of the MMR vaccine, measures to be taken for foot and mouth and the release of GM crops (Irwin and Michael 2003). Automatic trust in experts therefore no longer prevails (as was the case in 'simple' modernity), but is actively calculated, chosen and invested accordingly (Giddens 1994). As trust relationships become more ambivalent, and feelings of insecurity and

uncertainty more intense, organised protest and oppositions to perceived risks and hazards become more prevalent, as exemplified in the growth in movements couched in discourses of the environment or 'nature' (Giddens 1994).

Beck similarly describes how increased 'real', manmade hazards, coupled with increased expectations of control, combine to produce a much greater societal sense of risk and uncertainty (Beck 1992). Because the 'real' hazards produced by society can no longer be contained within conventionally modernist systems of prediction and control, thus failing public expectations of control, lay people lose their sense of trust in science and expertise (Beck 1992), and scientists/experts lose their exclusive claim to knowledge. Beck argues that this leads to the interaction of different groups and knowledge types and the emergence of citizen groups who challenge the legitimacy of official accounts of human, environment relationships, and in doing so learn to speak the language of science (Beck 1992). Beck (1995) and Franklin (2002) also connect people's environmental concerns to the disruptions of post-modern globalization. As stress increases with the pace of work and insecurity of employment, the natural environment is more and more seen as a calming refuge (Beck 1995). Franklin (2002) argues that as long as social welfare and affluence were secure, environmental damage was an unpleasant side-effect. Now this arrangement has come to an end and tolerance of environmental neglect has evaporated.

### **The practice and politics of science.**

In line with such theories, there is a body of empirical work which supports this idea of 'uncertainty', as linked to a mistrust of expert systems, to be a key risk experience for lay activists. In terms of the practice and politics of science, Brown et al. (2000) explains how virtually all diseases attributed to environment causation are highly contested and the source of considerable confusion, anger and resentment. Without the benefit of exposure histories, accurate dose-response predictions, knowledge of synergistic effects, valid etiology models, and diagnostic capabilities, establishing any proof of causation within accepted scientific levels is highly problematic (Brown et al 2000). Moreover, these types of diseases are prone further to conflict situations due to the fact that environmental diseases are often linked to the production and consumption practices of modern societies. Taking action on these diseases often therefore becomes a matter for political intervention, and where causation is accepted

will involve demands for compensation and justice by the victims of any such diseases. This explains why, even in cases where environmental causation is relatively clear to pinpoint, for example black lung disease, it may still be highly contested (Brown et al 2000). It is thus argued that organizational deceit is a main source of conflict in environmental health disputes, due to the likelihood that corporations and governments will engage in some level of deceit to manage the impression that they are in control of a crisis. For example, Brown et al (2000) describe strong resistance by industry lobbying groups to proposed changes in the legislation and regulation of air particles, whilst the role of organizational deceit is suggested to be similarly evident in efforts to suppress the effects of exposure to toxins and, possibly radioactivity, amongst ground troops in the first gulf war.

Phillimore et al. (2000) similarly describes various official efforts to minimize debate on the links between air pollution and health in the deprived industrial Teeside region. These included efforts and determination on the part of the main industries and local government to keep control over the pollution story, for example through the inclusion of local government staff on the research team and in significant efforts made to rival the researchers' interpretation with an alternative account from the first moment. This rival account contested the researchers' findings by emphasising the importance of evidence on poverty, deprivation and individual lifestyles as health risks, thereby overshadowing or discounting the effect of air pollution, and in turn suppressing any link between pollution and poverty and the potential for a re-politicization of issues of poverty and social exclusion. Finally, it is noted how the well recognised difficulties of establishing 'proof' in environmental epidemiology, were used politically to suggest inconclusiveness and play down any evidence of adverse health effects. In this way, epidemiological science finds itself giving unwitting legitimacy to corporate public relations efforts intended to exonerate business (Phillimore et al. 2000).

In these scenarios, where vested political or corporate interests clearly exist, at the same time that negative effects are being denied or only cautiously affirmed in officially produced scientific accounts, it is of no surprise that the alleged 'neutrality' of science is called into question. Indeed, it has been noted from various case studies of lay activism that when public agencies fail to find adverse effects many view them

as supporting corporate polluters (Brown 1992; Brown et al 2000; Couch and Kroll-Smith 2000; Kebede 2005). This is evident in Wynne's study of Cumbrian sheep farmers' experiences of scientific interventions following contamination of sheep by radioactive fall out from Chernobyl (1986). Wynne (1996a) highlights variously articulated conspiracy theories among the farmers, based on the existence of perceived vested interests and memories of past deceits. However, the accounts of the farmers suggested that the issue was not only a perceived likelihood of deceit, but also perceived inadequacies in scientific assumptions and approaches to the problem, which the farmers became aware of in their interactions with the scientists. Wynne identifies several such assumptions, including; that uncertainties in scientific knowledge could be contained within the private discourse of the scientists and would be misunderstood if disclosed in public; that local lay knowledge was effectively worthless and that scientific methods of research could fully simulate realistic-farming conditions as practiced, transmitted, and valued in hill-farming culture (Wynne 1996a).

In other words, real or perceived likelihood of deceit, along with experiences of flawed scientific approaches and uncertainties, seems likely to undermine the objectivist claims of science and the confidence or trust that the public might otherwise invest in these findings. However, this is only one side of the coin; there is a wealth of literature which suggests that it is not just that members of the public experience diminished confidence in experts due to the practices of experts, but that the objectivist truth claims of experts are also being undermined by alternative and competing forms of expertise being drawn on and developed by 'lay' groups.

### **Lay knowledge and popular epidemiology**

A useful starting point for considering this notion of alternative expertise is in the literature on lay knowledge. Popay and Williams (1996) argue that through a more or less systematic process whereby experience is checked against life events, circumstances and history, lay people acquire an 'expert' body of knowledge, different from but equal to that of professionals in the public health field (Popay and Williams 1996). Williams and Popay (2006; 1994) summarise several key themes emerging from work on lay knowledge and health and illness, noting that lay perspectives are: many and varied; logically consistent and coherent; biographical or narrative

reconstructions of the relationship between the illness and the person's life conceived as a whole, and are culturally framed within certain systems of belief and action. Lay knowledge is 'representative' of the discourses upon which it draws and is both personal and social knowledge in the sense that shared knowledge informs the private understanding of illness (Williams and Popay 2006).

There is also a considerable literature which affirms that 'lay' experts have valuable and valid insights into a range of environmental issues, for example radiation, air pollution, and local land use practices (Wynne, 1996; Irwin and Wynne 1996; Potts 2004a). In recognition of this, Collins and Evans (2002) argue for a special 'third wave' rationale for science and technology, which recognises the special value of scientific expertise, but which also recognizes the contribution which can be made by 'experience based expertise' alongside that of specialist 'accredited experts'. Here they distinguish three levels of expertise: *No expertise*; *interactional expertise*: where enough knowledge is possessed to interact interestingly with participants in scientific debates and *contributory expertise*: where enough expertise is possessed to contribute to the science of the field being analysed. Under this typology the type of unique, experience based knowledge possessed by lay activists would be considered a form of *contributory expertise*. In acknowledgement of such arguments, Prior (2003) similarly notes how lay people can have expertise by virtue of their experience, but that this needs to be distinguished from expertise which is based on specialist technical and scientific learning. Following this, he also questions the concept of the lay-expert altogether, as by the *Oxford English Dictionary* definition, 'layman' is to be 'an outsider or non-expert (esp. in relation to law or medicine).', which suggests the two terms to be mutually exclusive (p52).

The nature and value of this kind of local knowledge is illustrated in two qualitative studies identified for this review, both of which explored community perspectives on nearby hazards. Walker et al (1998) carried out a series of focus groups with local residents in the deprived post- industrial town of Jarrow. The research focus was on defined locality and on the specific cultural setting within which issues of risk, knowledge, citizenship and social change were discussed and generated. Powerful themes to emerge from the project included; memory, situated expertise, morality and social powerlessness. In terms of situated expertise the research illustrated rich

contextual understandings and knowledges developed by residents as a result of living and working in the area, for example, in accounts of the effects of local pollution on fish in the nearby river and the connection between routine gas releases and children's respiratory problems. The researchers conclude that situated expertise closely reflects the characteristics and culture of the local contexts in which it is generated and maintained, and this 'knowledge' should be seen as an active process of sense-making (Walker et al 1998; Irwin and Michael 2003). In a study which explored the health and environmental concerns of parents living near open cast mines, Moffatt and Pless-Muloli (2003) similarly describe how immediate sensory experiences were relevant, as was the value attached to the landscape, the peacefulness of the countryside and a pollution free environment. These findings are suggested to highlight the value of subjective experience in weighing up judgements about what objective measures can capture and the importance of accounting for specific local or individual factors when carrying out any kind of health impact assessment (Moffatt and Pless-Muloli 2003).

The intervention of this kind of lay knowledge into the world of public health is argued to represent an epistemological challenge to the 'objectivity' of expert knowledge, by both contesting the impartiality of that knowledge vis a vis other forms of knowledge, and by raising questions about the extent to which the process of objectification-upon which the truth claims of scientific knowledge depend-permits a proper understanding of health problems in the 'new modernity' (Williams and Popay 2006 [1994]). Potts similarly explains how lay knowledge lends itself to an alternative epistemology whereby 'the personal, the subjective and the partial count', and which is informed by an ecological perspective that understands people as indivisible from their environments (Potts 2004a: 133), and which also resonates with feminist critiques, in particular Harding's (1991) notion of 'situated knowledge'. From this perspective, the knowledge claims of 'lay experts' challenge the traditional positivism that still dominates epidemiology for public health (Potts 2004a).

In addition to this literature which stresses the value of lay knowledge, a further body of literature also exists, which focuses on the activities and accomplishments of lay groups in legitimating their knowledge and experiences through the use of empirical method and scientific argument. Such activities can be seen to further undermine the objectivism and truth claims of science, not simply by suggesting multiple truth



claims, but also by challenging the 'value neutrality' of science by using scientific methods to develop rival accounts, which are at the same time based on subjective experience. This phenomenon has been termed 'popular epidemiology' (Brown 1992), and could also be seen as a sub category of, or one the processes by which people can become 'citizen scientists' (Irwin 1995).

Phil Brown first coined the term 'popular epidemiology' to describe the processes in which lay people detected and acted on environmental hazards and diseases, in conflicts between lay and professional ways of knowing about environmental health risks. Brown (1992) suggests that the phenomenon of popular epidemiology stems from the combination of the legacy of health activism; growing public recognition of problems in science and technology, and the democratic upsurge regarding science policy. Popular epidemiology is suggested to be the process by which lay persons gather scientific data and other information, and also direct and marshal the knowledge and resources of experts in order to understand the epidemiology of disease. It is more than public participation in traditional epidemiology, since it emphasizes social structural factors as part of the causal disease chain (Brown 1992), or as Popay and Williams note, the initial knowledge is still experiential (Popay and Williams 1996). In addition it involves social movements, utilizes political and judicial approaches to remedies, and challenges basic assumptions of traditional epidemiology, risk assessment, and public health regulation (Brown 1992). A similar and also useful concept worth mentioning briefly here is that of the *embodied health movement* (Brown et al. 2004). As in processes of popular epidemiology, embodied health movements address disease, disability or illness experience by challenging science on etiology, diagnosis, treatment and prevention. It is described how such groups introduce the biological body to social movements, especially with regard to the embodied experience of people with the disease; they often make challenges to existing medical/ scientific knowledge and practice; and they often involve activists collaborating with scientists and health professionals in pursuing treatment, prevention, research and expanded funding (Brown et al 2004.)

There are various empirically researched examples of popular epidemiology and embodied health movements which illustrate how emergent forms of alternative expertise are developed to undermine and contest official and mainstream scientific

accounts (Brown 1992, 2007; Brown et al. 2000; 2003; 2004; Couch and Kroll-Smith 2000; Epstein 1995; Kroll-Smith and Floyd 1997; McCormick et al. 2003; Potts 2004a/b). Based on his empirical work, Brown (1992; 2007) notes how resident investigations start with an observation that there have been visible health effects, clear evidence of contamination and strong indications that these two are related, whilst scientists are often viewed as too concerned with perfection in scientific study and thus unwilling to acknowledge these effects. Lay activists are thus described as often taking the initiative in detecting disease, forging links with sympathetic scientists, generating hypotheses, pressing for state action, and conceiving and overseeing scientific studies (Brown 1992; 2007).

Couch and Kroll-Smith (2000) provide further examples which illustrate 'a fusion of traditional populist appeals with scientific reasoning, accomplished at local level by movement members' (p. 386). The most famous of these (and a key case study for Brown too; 1992; 2007) was the case of Love Canal and the Citizens Clearing-House for Hazardous waste (CCHW) (see Levine 1982). This campaign started from a house wife's concerns that her son's health problems were connected to the fact that the school he attended was on top of a chemical waste dump. Acting on these concerns, Lois Gibbs began collecting data from neighbouring families and entered into a battle with New York State Department of Health that would result in the eventual relocation of most of the Love Canal community. The CCHW was later set up by Gibbs, as a national organization providing assistance to community groups dealing with waste problems. In a British example of a 1980s herbicide controversy these authors describe how the Committee of scientists and regulators claimed the safety of the controversial product on the basis of professional knowledge and experience and laboratory testing, and saw no place for the subjective experiences of a naïve public. However, the National Union of Agricultural and Allied Workers (NUAAW), adopted a different approach, and drawing on personal experiences, challenged the approach and conclusions of the expert committee (Couch and Kroll Smith 2000). Across these cases the following patterns are identified by Couch; as people find medicine and science incoherent explanations of their local troubles, they are learning to trust the validity of their immediate, sensory, somatic experiences; they are insisting that subjective experience be reintroduced as a valid criterion of judgement in science by collapsing the subjective/ objective distinction and by constructing a popular version

of research that acknowledges the importance of contextual knowledge. This in turn suggests that accumulated knowledge about one local setting may not always be valid in another. Finally, it is noted that the appropriation of rational modes of inquiry are becoming key organizing strategies for environmental movements (Couch and Kroll Smith 2000).

Potts (2004a) also suggests that it is appropriate to position the work of the breast cancer/ environment movement in terms of 'alternative experts' (Potts 2004a), and as fitting Brown's description of popular epidemiology, in which laypeople detect and act on environmental hazards and diseases (Brown 1992, Potts 2004b). Potts explains how these activists become true experts in terms of their detailed and specialized understandings and development of new knowledge claims. Drawing on Hanningan's (1995) suggestion that institutional judgements are the end-products of a dynamic social process of definition, negotiation, and legitimation, Potts proposes that by positioning themselves as experts, activists within the breast cancer/environment movement seek to have a valid role in that process. Potts thus concludes that the challenge of the work of the breast cancer/ environment movement takes us beyond 'alternative' and 'lay' expertise, and posits not just a 'new social contract' for the science of epidemiology, but a new political project too. Ultimately, such change demands a radical repositioning of the subject in epidemiological enquiry, and overturns the hegemony of biomedicine and its lone authority to determine the extent and nature of breast cancer risk (Potts 2004a).

Epstein's study of AIDS activists, further illustrates this kind of approach. In this study it is described how these activists not only found ways of presenting themselves as credible within the arena of credentialed expertise, but also succeeded in 'changing the rules of the game, transforming the very definition of what counts as credibility in scientific research such that their particular assets would prove efficacious...' (Epstein 1995: 426) These trial participants claimed a unique and important perspective on the process; that they could generate 'situated knowledges' (Haraway 1991). Of vital importance, also though, was their mastery of the technical field and their ability to make effective use of existing differences of opinion among credentialed experts. These activists thus weaved skilfully back and forth between

epistemological, methodological, political, and ethical claims to construct powerful arguments that proved effective in both specialized and public arenas (Epstein 1995).

These examples therefore support Brown's (1992) claims that in the popular epidemiology process a powerful reciprocal relationship exists between the social movement and new views of science. Irwin and Wynne (1996) similarly observe how science becomes both an obstacle and a potential source of local support, but that for this beneficial effect to occur, 'publics' must battle against the essential conservative and 'pro establishment tendencies of scientific institutions.' It is explained how science and the public do not inevitably work in opposition to one another; access to the internet can quickly turn an uninformed citizen into a 'citizen scientist', and that at a time of rapid technical change, it is reasonable to suggest that scientific knowledge and technological artefacts have become a major constituent of our self identity (Irwin and Wynne 1996). Brown argues that this general blurring of boundaries between science and public, in combination with specific awareness of new knowledge, and statutory and professional resistance to that knowledge, leads people to form social movement organizations to pursue their claims-making. This in turn leads to further challenges to scientific canons. The socially constructed approach of popular epidemiology can therefore be seen as a result of both a social movement and a new scientific paradigm, with each continually reinforcing the other (Brown 1992).

In summary, there is a considerable body of literature which suggests what could be termed the 'flawed objectivism' of science to be an important source of contention in conflicts over environmental health issues. It suggests that official accounts which attempt to deny local claim making by virtue of scientific 'fact' will be contested and fought over in often localised contexts, where perceptions of deceit, corruption, and 'bad science' combine with alternative, sophisticated and sometimes empirically validated lay accounts of illness, to further undermine claims pertaining to the objectivity and superiority, and hence trust and credibility of scientific accounts.

### **Reflexivity, (mis)trust and uncertainty?**

In some respects, then, this literature could be taken to fit with Beck and Giddens accounts of reflexive modernisation, uncertainty and the loss of automatic trust in experts. In particular, it fits with Beck's argument that experimental science has

taught us little about modern hazards; people have instead learned about them from experiences, which in turn further discredit scientific approaches (Beck 1995). However, some of the literature identified, whilst recognising 'flawed objectivism' as a source of contention, contests this idea of loss of automatic trust as being the main source of opposition and conflict. In a direct challenge to the arguments of Beck and Giddens, Wynne proposes that lay-expert conflicts and contestations are less the result of a new and reflexive engagement with scientific and expert knowledge, than the result of a threat posed by scientific cultures to social identities (Wynne 1996a). At the core of this argument is a different theoretical perspective on 'knowing', in which all knowledge is understood as contingent, situated and entailing cultural identity which affects local knowledge and the trustworthiness of others and their knowledges (Irwin 2003). This contrasts with what has been described as the overly rational choice perspective of Beck and Giddens (Lash 1996), which presumes that risks, or scientific knowledge, exist independently as an object for measurable public attitudes or beliefs, with publics now having to invest trust by deliberate decision and choice between competing experts. Such a position is argued to suppress more culturally rooted forms of public knowledge from the informal non-expert public, whilst also failing to recognise the cultural nature of science, in so far as it disseminates and imposes particular and problematic normative versions of the human and the social (Wynne, 1996b).

A first implication of this more 'cultural' perspective is that the observed interactions that take place between experts and the public will be underpinned by an interaction of cultural and social identities. This in turn suggests less of a 'disembedding' effect, and as Wynne argues, less of a shift from simple to reflexive modernity, as supposed by Giddens. Here Wynne argues that the supposed earlier conditions of unqualified public trust have never prevailed, and instead that Giddens has confused unreflexive trust, with reflexive dependency and private ambivalence. What is needed, he argues, is a notion of trust relationship, in which ambivalence is central and trust is at least heavily qualified by the experience of dependency, possible alienation, and lack of agency, and where a deferential relationship may be based on a sense of inevitable dependency rather than a considered and decisive investment of trust. For example, in his analysis of the factors influencing the reception of scientific expertise by the Cumbrian sheep farmers', Wynne suggests that 'credibility' and 'trust' are 'analytical

artefacts which represent underlying tacit processes of social identity negotiation, involving senses of involuntary dependency on some groups, and provisional or conditional identification with others in an endemically fluid and incomplete historical process' (Wynne 1996a: 41). In other words, rather than trust and credibility being largely dependent on the believability of truth claims, as Giddens or Beck imply, Wynne argues that trust and credibility are themselves analytically derivative of social relations and identity negotiation (Wynne 1996b), and a deferential relationship may therefore be based on a sense of inevitable dependency rather than a considered and decisive investment of trust (Wynne 1996a).

Case studies of activism and risk perception in two towns characterized by their reliance on chemical and petrochemical industries also highlight the central role of local conditions and relationships in influencing local responses to possible hazards. These case study towns demonstrated traditionally greater acceptance of potential hazards (Phillimore et al 2005; Schluter et al. 2004), therefore also challenging accounts of reflexive modernity. Phillimore et al. (2005) explains how their study findings contradict Beck's 'risk society' thesis (Beck 1992, 1995), which implies unease with our manmade environments, and our dislocation from formerly taken-for-granted certainties. The study explores the salience and centrality of a deep-rooted trust in the chemical corporation of a German town, rather than a discourse in which risk, distrust and insecurity are the dominant frames of reference. Although the findings suggested a degree of weakening trust, the dominant impression was one of trust, and there was a discernable sense of pride in being associated with something gigantic and pioneering, in particular in the accounts of older generations. Rather than 'blind trust' these findings were taken to suggest a clear dependency, and a confidence which is seen as well-founded in a long-sustained knowledge. This trust is thus suggested to represent a form of conditional trust and that crucial to its maintenance will be how far industry is seen as the town's reason for being as opposed to an imposition bringing unwarranted risk. Similar to Wynne's position, Phillimore thus concludes that when people speak of trust, it should not be assumed that such mental dispositions reflect a phase of modernity now largely supplanted elsewhere (Phillimore 2005).

Walker et al's (1998) study of risk perception in the deprived post-industrial town of Jarrow offers contrasting accounts but lends itself to similar conclusions. In this study local memories are described as forming a central element of the 'sense of place' and could be said to constitute the community and its separation from the rest of British society. The authors explain how collective memories both reinforce a self image of a community under threat from the outside world and, in this case, heighten a sense of powerlessness and alienation. This in turn provides a significant cultural context for the discussion of risk perceptions and environmental awareness. In contrast with the chemical company in the German town, which is seen as the *raison d'être* of the town, and constituting an important part of the town's identity, in Jarrow, the widespread perception that the chemical works 'put little back' into the community fuelled outrage that local people should suffer the adverse consequences with none of the benefits. This moral judgement is suggested to have linked very strongly with a sense of social isolation and alienation. However, although this sense of alienation raised public concern, it also left it frustrated in the knowledge that Jarrow had struggled for decades to be given recognition for its problems, and so was unlikely to change now (Walker et al 1998; Irwin and Michael 2003).

Similar conclusions are also identified in research by Scammell et al. (2009) which carried out focus groups in middle and low income communities near Boston, USA, which had been the subject of environmental health studies. Whereas participants from the more affluent, predominantly white communities discussed trust in terms of study design and methodologies used, participants from the lower-income, higher-minority communities of Salem assessed health studies with reference to their trust (or lack thereof) in study sponsors and public health institutions. These residents suggested that their economic and political vulnerability made it unlikely that their communities would ever be the focus of a study that resulted in improved health of residents, or would be anything other than inconclusive and meaningless. Getting a study that would make a difference would require political and economic power they did not have. The authors thus conclude that participants' experience of tangible or experiential evidence, trust or distrust in health agencies and research institutions, and a sense of relative community power, influence how they assess the findings of environmental health studies.

### **Science, culture and identity**

The above examples suggest that trust, or loss of, will be heavily influenced by local histories, conditions and relationships, and support Wynne's argument that apparently sudden shifts in attitude, from positions of trust to scepticism, or automatic to reflexive trust, may in fact only represent a 'very small shift in the complex balance of components of social identity which people are holding in tension with one another' (Wynne 1996b). Moreover, in suggesting the importance of local socio-cultural contexts, identities and relationships in influencing investments of trust and perceptions of risk, these studies also point to the role of cultural differences and processes in these conflicts.

Various observations have been made in the literature of cultural differences between lay and expert approaches. Brown (1992) notes that professionals generally concern themselves with disease processes and classes, whilst lay people focus on the personal experience of illness. Further, lay explanatory approaches often utilize various causal models that run counter to scientific notions of etiology and there is often also dispute over accepted level of statistical significance required for intervention, with epidemiologists preferring false negatives to false positives (Brown 1992). In contrast, the rationale informing lay groups more rigorously asserts the inherent uncertainty of scientific knowledge, and demands a precautionary approach to potential exposure to hazards. For these groups, indication of harm, rather than proof of harm should spur action (Williams and Popay 1994). In a critique of Collins and Evans (2002) 'third wave' rationale, Wynne also makes the case that contestation is rarely only about propositional truths, but is more usually also, if more obliquely, about what is the proper public meaning and definition of the issue(s) being contested (Wynne 2003). Others have also argued that we need to pay more attention to the alternative forms of reasoning that citizens (Alaszewski and Horlick Jones 2002) bring in disputes over technical questions such as safe thresholds, where the issue for local residents may not just be about avoiding the risk of increased cancer levels but assaults on their ability to live well in their home environments (Moffatt and Pless Mulloli 2003; Wakefield et al 2005).

The empirical work of Wynne and others point also to the cultural power and hegemonic status of scientific practices. By examining how the scientific institutions



framed the issues and knowledge they identified as science Wynne (1996b) identified several institutionalised assumptions which clearly highlighted the culturally loaded structures of scientific knowledge as deployed in public domains. Wynne then analysed the 'cultural' interactions between the farmers and scientists from the point of view of observing each social group attempting to express and defend its social identity. From this analysis he describes how the scientists were expressing and reproducing their intellectual-administrative framework of prediction, standardisation and control, in which uncertainties were 'naturally' deleted, and contextual objects such as farmers and their farms were standardised in ways consistent with this cultural idiom. The farmers, for their part experienced scientists as denying and threatening their social identity by ignoring the farmers' specialist knowledge and farming practices, including their adaptive decision making idiom. Moreover, whereas the accounts demonstrated the reflexive capability of lay people in articulating responses to scientific expertise, the scientists showed no overt ability to reflect on own their social positioning (Wynne 1996b). Wynne thus argues that 'through their rationalist discourses, modern expert institutions and their 'natural' cultural responses to risks in the idiom of scientific risk management, *tacitly and furtively impose prescriptive models of the human and the social upon lay people, and these are implicitly found wanting in human terms.*(p57, emphasis in the original)' This study also concludes that the most fundamental dimension of risk expressed in interactions between locals and experts is risk to social identity (Wynne 1996a), and that 'local' case studies should be seen as 'an expression of deeper problems of modernity as embodied in dominant institutional cultures: they are not just a defence of 'traditional communities' against an anonymous modernising 'centre', but a more fundamental challenge to the very idea of a universalising 'centre' in the first place' (Wynne 1996b:36).

Wynne's findings might also be interpreted, a la Habermas, as a local example of expert systems suppressing not only the substantive claims and beliefs of the farmers, but also the communicative contexts in which such beliefs are formed. The work of this group of new social movement theorists is useful here, for the place that it accords to culture (especially collective identity), in these kinds of conflicts, and their conceptualisation of social movements as social constructs that challenge the intrusion of political and economic institutions into the restricted domain of the lifeworld (eg

see Habermas 1981, 1987; Melucci 1986, 1996). Of particular relevance is Habermas' discussion of scientism. Habermas explains that whereas traditional and also bourgeois forms of legitimation laid claims to the 'good life' in a context defined, at least partially by interaction relations, the new technocratic ideology to emerge in the 1970s was serving to eliminate practical questions and preclude discussion about the adoption of standards, thus enabling the tasks of government action to present themselves as technical ones (Habermas 1970), and the cultural narratives and symbolic forms that provide existential meaning and ethical direction to be crushed by bureaucratic procedures (Crossley, 2003). A Habermasian perspective has thus also been applied to work on lay knowledge. For example, Popay and Williams (1996; 2001) use Habermas critique of science as ideology (in which science is presented as the only form of activity through which objective knowledge can be developed), to help theorise the routine suppression of the validity of all other knowledge. Williams and Popay (2006 [1994]; 2001) also suggest that in so far as lay knowledge emerges from alienation, dissent and sometimes organized movements of opposition between system and lifeworld, it provides new ways of thinking about problems whose definition is conventionally dominated by professional experts. Indeed, much of the already discussed literature on lay knowledge also lends itself to such theories for the emphasis that it places on knowledge as situated, culturally framed and partial.

For example, in an examination of events surrounding a water contamination incident in Camelford in 1988 Williams and Popay (2006 [1994]) describe how the disagreements to which the incident and various inquiries gave rise were partly to do with nature of different kinds of evidence. On the one hand there was the carefully collated evidence of local people's own experiences, the validity and reliability of which they claimed against the other, highly technical toxicological and clinical measurements of the committee and expert witnesses. In addition, however, members of the local community were also issuing a political challenge to biomedical knowledge in so far as they were refusing to permit the authority of scientists to be used to disempower them. Therefore, whilst this case shares much in common with some of the other examples of popular epidemiology described earlier, the authors also point out that 'popular epidemiology is also in essence a struggle over meaning; a struggle over the meaning of health, of the good life, of acceptable risk, and of hazard' (Williams and Popay 2006 [1994]: 145).

A final, more anecdotal, example, which also suggests the potential significance of the 'identity threat', can be found in Irwin and Michael's (2003) account of a public debate over GM crops that took place in October 1999 between Greenpeace and Monsanto foods. The authors describe how amidst the banner headlines and earnest scientific discussions, it was easy to discern a distinct anti-American sentiment at work and a significant discourse of opposition reflecting ethical and political concerns over the global power of multinational corporations. In particular this example would seem also to be illustrative of Habermasian themes; in the apparent mistrust of science as big business, and in resistance to the intrusion of corporate and scientific rationality into the lifeworld, whereby American TNCs are seen as the most powerful icons of an aggressively expansionist global capitalism, thus suggesting a resistance being waged at least in part over the 'grammar of forms of life'.

In short, there is a fair amount of evidence which, in suggesting firstly the cultural nature of lay/expert interactions, and secondly the cultural power of science, supports Wynne's conclusion that one consequence of these interactions and a potentially salient source of conflict, may be that people experience their social and cultural identities to be threatened. Likewise, much of this work could also be interpreted in Habermasian terms as illustrative of expert systems engaged in the suppression not only of culturally grounded belief systems, but also of the communicative contexts in which such beliefs are constructed.

### **Summary**

In summary, there is a considerable literature which suggests that perceived negative effects, issues of discrimination, rights and justice and issues specifically concerned with lay-expert relationships act as significant sources of contention in environmental or public health disputes. Of these, it is issues surrounding lay-expert relationships which have attracted the most theoretical and empirical interest. Within this literature, there is considerable evidence which suggests the significance of what has been termed the 'flawed objectivism' of science. This body of work suggests that official accounts which attempt to deny local claim making by virtue of scientific 'fact' will be contested and fought over in often localised contexts, where perceptions of deceit, corruption, and 'bad science' combine with alternative, sophisticated and sometimes

empirically supported lay accounts of illness, to further undermine claims pertaining to the objectivity and superiority, and hence the trust and credibility of scientific accounts. In some respects, then, this literature could be taken to fit with Beck and Giddens accounts of reflexive modernisation, uncertainty and the loss of automatic trust in experts, in particular with Beck's account, for the attention that he gives to the role of personal experience in public-expert interactions.

However, there is also a further body of literature which, whilst recognising 'flawed objectivism' as a source of contention, contests this idea of loss of automatic trust as being the main source of conflict. In line with the arguments of Wynne, this work has suggested that relationships of trust will be heavily influenced by local histories and conditions, in particular dependency relationships. In suggesting the importance of local contexts, identities and relationships in influencing investments of trust and perceptions of risk, these studies also lend themselves to the possibility of a more socio-culturally determined risk experience than simply that scientific accounts lack credibility and believability due to perceived and exposed flaws in their objectivist claims. Here, a further body of work exists which in stressing the cultural, and fundamentally unequal, nature of lay-expert interactions (something which Beck and Giddens are criticized for overlooking eg by Wynne 1996a/b; Irwin 1996), suggests that a key source of conflict is located in the exclusionary consequences of these interactions for local identities and ways of knowing, as is argued by Wynne and has fit with Habermasian theory.

## **Chapter Three: Mobilisation and social movements**

In the last chapter the focus was on the role of risk experiences, science and expertise as key sources of contention in environmental and public health disputes. This next section aims to consider how and why these conflicts develop and take shape through reference to the literature on movement processes, and the factors which influence the shape of such movements.

### **Charting and theorising movement processes**

In describing a typical process of 'popular epidemiology' Brown (1992) notes the following sets of stages of citizen involvement; 1) lay observations of health effects and pollutants, 2) hypothesising connections, 3) creating a common perspective, 4) looking for answers from government and science, 5) organizing a community group, 6) official studies are conducted by experts 7) activists bring in their own experts and become largely in control of scientific inquiry 8) litigation and confrontation and 9) pressing for official corroboration (as despite positive findings lay involvement leads professional and governmental groups to charge the study as biased). Brown also notes that participants do not necessarily complete a stage before beginning the next, although one stage usually occurs before the next begins (Brown 1992).

Epstein (1995) similarly notes four key mechanisms pursued by AIDs activists in the process of constructing credibility within biomedicine; the acquisition of cultural competence; the establishment of political representation; the yoking together of epistemological and ethical claims making and the taking of sides in pre-existing methodological disputes (Epstein 1995). Hines (2001) also notes the following strategies that can be used by communities in waging a war against environmental racism: forming community-based grassroots coalitions; informing victims of environmental racism of their natural and legal rights; providing information on sources of pollution, impact and prevention; joining hands with national coalitions; gaining endorsements of national icons; attaining legitimate legal backing and help; mobilising the community, reaching out to the nation and vocalising concerns; promoting legitimate direct actions such as demonstrations, marches, sit-ins, petitions;

and educating community leaders on the issue and its impact on local population groups (Hines 2001). Kebede similarly details a range of non-confrontational and confrontational tactics used by GEJOs. Non-confrontational tactics included 'polite protest', 'litigation' and seeking 'media attention', but it was also noted how in certain cases the failure of concerned authorities to deal with first-order quality of life issues has forced members of GEJOs to go as far as taking illegal actions (Kebede 2005).

There is also an extensive literature on social movements in general, which provides some useful frameworks and insights for this kind of research, in particular for understanding the origins and development of protest movements. As Crossley (2003) notes, much social movement theory has cautioned against analysing movements simply in terms of the grievances and strains around which the movement has mobilised. This is because 'strain' models are suggested to invoke irrationalist models of crowd psychology and thereby undermine the truth claims that movements raise. Further, it is also explained how there are always more strains and grievances in society than movements mobilized around them, thus suggesting that 'grievances' are not sufficient causes of movement activism, even if they are necessary causes. In seeking to explain movements, much of the social movement literature has instead focused its attention on factors such as social networks and shifts in the resources available to key agents, opportunities and the manner in which issues are framed (Crossley 2003). The relative level of importance attached to these types of factors has accordingly lent itself to three main research approaches; resource mobilisation, political opportunity processes and framing perspectives.

Summarising these three main approaches Kebede (2005) explains how resource mobilization theories maintain that the ebb and flow of social movements is determined by the ability of movement participants to create, consume, transform, assemble and recollect tangible and intangible resources. Political process theories, on the other hand, attribute a more important role to factors such as demographic changes, elite disunity and access to institutional processes. And in what is the most newly emerging of the approaches, the framing perspective, attention is focused on the role of ideational processes in the social construction of grievances (Kebede 2005). Although it has been noted that very few studies have explicitly brought

framing issues to bear on understanding local environmental or NIMBY activism (Futtrell 2003), this literature provides a useful framework and some important concepts for considering the social dynamics that set in motion interpretive processes leading to activism (Futtrell 2003), and the processes by which people come to embrace a particular version of reality (Benford 1997; Futtrell 2003). This review now considers some of the key ideas in this approach.

### *Framing approaches*

Framing is suggested to have its origins in the work of Goffman (1974) and to denote an active, processual phenomenon that implies agency and contention at the level of reality construction (Benford and Snow 2000). In brief, framing is defined as the 'meaning work' of social movements and the process by which movements seek to define a problem in collective terms that necessitates a collective response and the mobilisation of movement followers (Benford and Snow 2000; Gamson 1992; Whooley 2004). Collective action frames are thus defined as an interpretation of an injustice in such a manner that elicits or requires a collective response (Benford and Snow 2000) and are conceptualised as action-oriented sets of beliefs and meanings that inspire and legitimate the activities and campaigns of a social movement organization (SMO). Frames help to render events or occurrences meaningful and thereby function to organize experience and guide action (Benford and Snow 2000).

Collective action frames are suggested to be negotiated between the movement members themselves and between the movement and external actors (Gamson 1992; Whooley 2004). Benford and Snow (1988; 2000) describe movement actors as signifying agents actively engaged in the production and maintenance of meaning for constituents, antagonists, and bystanders or observers. They are deeply embroiled, along with the media, local governments, and the state, in what has been referred to as 'the politics of signification' (Hall, 1982, cf Benford and Snow 2000). Frames are suggested to be developed by way of three sets of overlapping processes; discursive processes, for example talk, conversations, written communications; strategic processes, which include framing processes that are deliberative, utilitarian and goal direct, and contested processes which involve forms of challenges or counter framing by opponents, bystanders and the media, disputes within movements and dialect between frames and events (Benford and Snow 2000.)

Three core framing tasks have been identified; 'diagnostic framing', 'prognostic framing' and 'motivational framing', and it is proposed that by pursuing these core framing tasks, movement actors attend to the interrelated problems of 'consensus mobilization' and 'action mobilization' (Klandermans 1984, cf Benford & Snow 2000). Diagnostic framing is basically concerned with problem identification and defining a problem as a collective wrong (Benford and Snow 2000; Whooley 2004). Prognostic framing involves articulation of a proposed solution to a problem, or at least a plan of attack, and strategies for carrying out the plan. Typically it also includes refutations of the logic or efficacy of solutions advocated by opponents as well as rationale for own remedies. Motivational framing provides a 'call to arms' or rationale for engaging in ameliorative collective action, including construction of appropriate vocabularies of motive (Benford and Snow 2000). It assesses blame for the injustice and creates a collective identity of the actors involved, and is essentially concerned with determining the 'us versus them' of the movement (Whooley 2004). These three components are not discrete activities, however. For example, it is explained how diagnoses without proposed remedies hold less incentive for sustained collective action, whilst the range of possible solutions and strategies advocated to fix a problem rests on the interpretation of the problem itself (Benford and Snow 2000).

As well as the diagnostic and prognostic dimensions to a frame being compatible, another crucial feature of a frame is that it must have resonance. Frame resonance describes how far the content of a frame fits or resonates with everyday experience and cultural narrations (Benford and Snow 2000). Frames can be judged by how well they resonate with the larger historical context (Benford and Snow 1988), in that the most effective frames resonate with the political and cultural context, thereby encouraging mobilization and achieving more widespread support (Whooley 2004). SMOs will be more effective in recruiting potential members and allies if they are able to frame their demands in ways that resonates with their cultural beliefs and experiences (Benford and Snow 2000; Whooley 2004). Activists seek to construct frames that exploit 'cultural opportunities' for protest; they might draw on the language of the mass media or pre-existing ethnic identities, or on pre-existing ideas from activist subcultures or master frames, for example, the 'civil rights' frame (Reese and Newcombe 2003). Master frames have resonance with the contemporary



political and cultural environment and are therefore adopted by a range of movements to fit different political issues. For example, a master narrative of oppression and discrimination against poorer groups might be used by both local people protesting against an environmental hazard, as well as an international environmental/ social justice movement. Master frames or narratives are therefore more abstract and offer only general directions in assessing blame (Whooley 2004).

Although the framing activity of environmental protest movements has been under investigated (Futtrell 2004), several such studies make reference to framing work and mobilising processes. For example in his work on asthma, Brown et al consider how community based organizations work to create a collective identity around the experience of asthma, and suggest that through the process of collective framing Environmental Justice Organizations transform the personal experience of illness into a collective identity that is focused on discovering and eliminating the social causes of asthma (Brown et al 2003). Similarly in the study of the strategies and techniques used by the plant opponents in obstructing the construction of the Shintech plant, Hines describes how members of the St. James community reached out to and mobilized the people by educating them about their rights to live in a clean environment and about the health hazards the proposed site posed (Hines 2001).

Futtrell's (2003) study of NIMBY protest in a US chemical weapons disposal conflict provides a more detailed example of framing activity in the context of an environmental health dispute. Having adopted a 'framing' approach to the study Futtrell proposes that NIMBY can be understood as approximating a collective-action frame (as opposed to 'knee-jerk' reaction), in that NIMBY claims rest on a diagnosis of the disposal project as unwanted and legitimate collective resistance against its proponents. Futtrell describes how initially locals focused on acquiring information about the project and opposition was tempered and questions prevalent. NIMBY emerged as a reasoned cautionary response to the project only after citizens failed to receive answers to their questions, with NIMBY claims and specific calls for the transportation of waste then helping to generate local opposition. In this case, a sense of injustice alone was not sufficient for action; the injustice needed also to be accompanied by attribution that suggests a 'direction' for action, ie; a prognostic framing. Futtrell suggests that feelings of scepticism, anxiety, and pessimism among

citizens likely established a disposition to become involved in future organized protest, but that future protest was not to emerge until some salient solution to the problem was expressed and 'aligned' with prevailing interests, values and beliefs. NIMBY was one possible solution, insofar as it is a prognostic claim offering a reasonable answer to the problem. When army responses eventually neutralized NIMBYism, NIMBY was rejected in favour of a more proactive framing supporting technological alternatives to incineration. In this process the citizens' changing awareness of the broader ethical implications of NIMBY (ie dumping in other peoples back yards), combined with political opportunities and 'technological fixes', led to the adoption of more global rhetoric that prompted transformation of the NIMBY frame (Futtrell 2003).

However, although framing perspectives appear useful for conceptualising and studying movement processes, several issues or problems have also been connected with framing approaches. These have included, 'static tendencies'; wherein frames are viewed as 'things', as opposed to dynamic processes; reification and a neglect of the role of human agency, collective interpretation and emotion; and reductionism, whereby collective action and interaction are reduced to individual level explanations and frames are depicted in purely cognitive terms (Benford 1997). Chesters and Welsh (2001) similarly argue that the dominance of cognitive concerns leave social movement frame analysis poorly placed to engage with the cultural and political significance of 'affect'. To negotiate these difficulties it is suggested that researchers should focus on human interaction, discourse and the social construction of reality (Benford 1997), and move away from rational actor models by adopting the perspective of theorists such as Bateson which acknowledges that 'the signs and symbols associated with formal rationality are cultural criteria selected on the basis of affective aesthetic preferences' (Chesters and Welsh 2001: 7). One application of this might be to recognise meta frames (which include abstract, universal appeals), meso frames (which include perceptions of institutional, organizational or processual features) and micro frames, which are suggested to relate to an emotional life world where identity and meaning are negotiated, and include emotions such as fear, elation and despair. Chesters and Welsh argue that, in Bateson's terms, there is competition between appeals to universals such as humanism and intensely experienced individual affects, in what is an active negotiation of meta and microframes (Chesters and Welsh

2001). On this basis they also call for attention to the non-linguistic communications of movements as they argue that trust and solidarity is built around not just verbal exchanges but also exchanges affected through facial expressions, extent of pupil dilation, tone and rhythm of voice. This ‘vocabulary’ of trust and solidarity is suggested to give rise to a particular movement consciousness not just a language (Chesters and Welsh 2001).

*‘Holistic’ approaches; Gramsci and Bourdieu*

The need to give greater attention to the role of culture and emotion in theorising and explaining social movements is an argument which seems to be made across the social movement literature. Summarising some of this literature Polletta (1997) cites the argument that political opportunity perspectives should be expanded to include the contradictions and gaps in dominant ideologies which trigger opposition; movement ‘resources’ made to encompass compelling narratives and traditions of protest and that movement ‘success’ should also be judged by transformations wrought in culture and consciousness (Polletta 1997). However, Poletta also argues that several of these perspectives still remain limited by their retention of dichotomous conceptions of culture and structure (Polletta 1997). In a paper which contests the false dichotomy of reason and emotion, Erimbayer and Goldberg (2005) also call for social movement studies to seek to develop an understanding of how emotions shape collective action in conjunction with both social structure and culture, and draw on the work of classical American pragmatists and the sociology of Bourdieu, to help theorise such a position (Erimbayer and Goldberg 2005). These authors cite Bourdieu’s conceptualisation of emotions as integral aspects of “strategies” and outline a transactional perspective which sees emotions and power conceptualised in transpersonal and relational terms. They argue that by developing a more multilayered understanding of ‘how emotional power is deployed or contested in collective action, by making visible bases of power and of symbolic violence that are elided by conventional understandings of emotion, a relational approach can at least significantly deepen our appreciation of how such power and symbolic violence are resisted and how they might be overturned’ (Erimbayer and Goldberg 2005: 493).

In separate papers discussing the development of the Mental Health Users Movement (1999) and anti-corporate protest (2002) Crossley also argues that the move beyond

rational choice and 'resource mobilisation' models have been insufficiently theorised, with none of the models posited offering an adequate account of social agency or structure. The work of Bourdieu is again suggested to be useful here; his (1977) theory of practice is suggested to maintain the strategic emphasis of rational choice models but in a manner more sensitive to issues of culture and the structure-agency problem (Crossley 2002). Bourdieu identifies three key concepts integral to explaining practice; habitus, field and capital. Habitus has been defined as 'a socially constituted system of 'durable, transposable' dispositions providing individuals with class-dependent, predisposed ways of categorizing and relating to familiar and novel situations' (Bourdieu 1980: 53). The habitus is formed 'in the context of people's social locations and inculcates them into a world view which is based upon and reconciled to their position, thus serving to reproduce existing social structures' (Williams 1995; 585). A field is a structured system of social positions and power relations; 'the positions occupied within the field stand in relations of domination, subordination, homology to one another by virtue of the access they afford or deny to the goods or resources (ie capital) which are at stake' (Williams 1995, 587). The forms of capital identified are: economic, cultural (ie legitimate knowledge of various sorts), social (various kinds of relations with significant social others), and symbolic (prestige and social honour). According to Bourdieu it is the interaction of habitus, field and capital that generates the logic of practice (Bourdieu 1990) Practice is therefore not consciously organised; it possesses a practical logic, which works 'outside conscious control and discourse' (Bourdieu 1990:61). Bourdieu's account of practice therefore leans more towards the reproduction of practice than transformative social action. However, it is also proposed that when individuals confront events that cause self-questioning, 'habitus begins to operate at the level of consciousness and the person develops new facets of the self' (Reay 2010:81).

Crossley (1999) considers that Bourdieu's concept of habitus allows consideration of the generative principle underlying new (and old) forms of practice. With reference to the mental health users' movement he explains how if users are acting, thinking and identifying themselves from how they used to, then their habitus must have been transformed. Core activists, in particular can be said to have developed a 'resistance habitus' which entails the skills required to deconstruct and actively challenge the discourse and practice of psychiatrists and the disposition to do so. Analysis of a

movement must therefore focus in part upon development of 'resistance habitus' and upon development of forms of 'pedagogic action' which reproduce resistance habitus, thereby extending and perpetuating the movement. With respect to the 'field' concept, Crossley explains how the notion that fields facilitate, shape and constrain action alerts us to the 'opportunity structures' for movement activism as fitting with the older notion that they may enter periods of crisis. However, Crossley also notes how this notion raises the most common criticisms of Bourdieu; that it is too deterministic and gives too much weight to the causal efficacy of social strains, particularly those caused by a mismatch between habitus and fields (1999; 2002). As a way of overcoming this deficiency Crossley (2002) suggests combining Bourdieu's theory of practice with Smelser (1962) 'value added model'. Such a model should focus on three broad areas: 1) Strains, focal events and situational definitions, 2) fields and opportunity structures, 3) concentrations and movement of capital (Crossley 2002). Crossley also notes that movement analysis cannot adopt a single field focus as struggles spread across fields, and that each field in which activists engage operates according to different dynamics and requires different dispositions (Crossley 1999).

In an account which shares some similarities with this interpretation and application of Bourdieu, Kebede (2005) outlines a Gramscian framework for interpreting resistance and mobilisation. Such a perspective is argued to allow for consideration of resource, opportunity and framing factors, and to enable consideration of the interplay between macro- and micro-processes in the social construction of collective actions. Kebede explains how the Gramscian concept of hegemony is legitimised, among other things, by way of the social, political and cultural capital that in-establishment groups possess; hence the importance of access to resources. In addition, the study of hegemony provides an understanding of the processes by which political opportunities are closed or opened. Whilst hegemony can accommodate limited demands of social movements, in so far as it is expansive, more radical counter-hegemonies have to depend on political opportunities that come as a result of elite disunity, political realignments, or demographic changes. It is further explained how, like framing theories, the Gramscian approach directs our attention to the social psychological aspect of collective actions (Kebede 2005). In a paper calling for a more discursive approach to the study of framing Steinberg (1998) explains how hegemony is

achieved by drawing on interpretive repertoires to bind the dilemmas that can be represented, thereby serving to construct silences within common sense. However, because the construct of hegemony is contingent and incomplete, and ideological discourse full of contradictions, counter-hegemony is possible (Steinberg 1998). As hegemony is rule by consent, collective actions that challenge it are thus directly involved in ideological dynamics (Kebede 2005).

The unfolding of total counter-hegemony is described as a multifaceted process. Under hegemony, and as a result of the ideological entrenchment of the world outlook of in-establishment groups (to the point that it becomes 'common sense' for society at large), there is an 'active consent', which is underpinned by the belief that the system is naturally open to social changes. As this premise comes to be visibly contradicted, active consent is replaced by 'passive consent'. Passive consent falls short of organized dissent in that it is marked by contradictory appraisals of social reality, which reflect the fact that although people are reluctant to be persuaded by traditional ideologies, they are not ready to express their grievances. At this stage, individuals undergoing consciousness transformation cannot make a decision between the ideology they have internalized and the emergent perspective that has come as a result of their personal experiences (Kebede 2005). Relating this to GEJOs Kebede explains how the intellectual constitution of GEJO participants have two legitimate sources; the dominant order, the frameworks of which they are ideologically inclined to work within, and their practical experiences which have taught them that industrial pollution is responsible for their health problems and that government and industry are obstructing the solutions. Collective action is thus often preceded by an intense experience that paves the ground for critical reflection. This often happens when the impact of an ecological crisis, as in the adversity in Love Canal, has direct impact on one's first order quality of life issues. Such experiences 'create a crack in the core values that are embedded in one's persona' (p.91). However, it is in the second stage that real counter-hegemony ensues, wherein the supposed neutrality of the state is questioned and a range of tactics, including confrontational ones, are used to articulate and seek resolution of environmental issues. The emergent collective action frame, which is grounded in the personal experiences of movement participants, takes precedence over the previously prevailing ideological hegemony. Collective actions at

this time are carried out in a connected fashion and an alternative is sought (Kebede 2005).

In terms of the substantive content of the collective action frames of GEJOs Kebede describes how although the organizations deal with an issue limited in scope, viz environmental crisis; over time their movement participants have been forced to recognize the broader, underlying political/economic/ cultural issues and hence contest the multiple dimensions of existing hegemony. Similar to Futtrell's findings cited earlier, Kebede explains how, at the stage that 'personal troubles' are gradually transformed into 'public issues', the focus becomes communities rather than individuals and NIMBY is the foremost slogan. Over time, however, movement participants become aware of the fact that without an all-embracing stance their efforts are likely to be futile. Consequently, based on a 'new common sense' (Gramsci 1995; Kebede 2005), environmental collective action frames that pay attention to the interest of society at large are formulated, as expressed in the adoption of the maxim 'Not in Anyone's Back Yard' (NIABY). In terms of political critique Kebede similarly describes how emergent frames come to appeal to visions of participatory democracy and distributive justice, whilst in developing critiques of the intellectual order GEJOs have created an intellectual space for the emergence of a new way of looking at epistemological and social assumptions previously taken for granted (Kebede 2005). Kebede's work also highlights movements' usage of a 'master frame'. Kebede describes how movement participants of GEJOs did not construct their emergent political frame from scratch; instead they also drew on discursive elements for the new frame from the political tradition of the American social system, in particular the civil rights movement of the 60s and 70s. Kebede thus proposes that the civil rights movement was important in providing a 'master frame' out of which specific collective action frames, such as 'environmental justice' were derived (Kebede 2005).

### **Factors influencing collective action**

Having considered some of the key theoretical explanations of social movements, and their application to environmental protest movements in particular, the review will now consider the literature on the influences shaping the development and course of these kinds of movements and conflicts. These can be grouped into the following sets

of influences; institutional and process factors, network resources, cultural contexts and knowledge factors and political/historical contexts.

#### *Institutional and process factors*

Empirical research has highlighted how social movement organisations transform their collective action frames in order to invalidate their opponents' counter-frames. In Futrell's discussion of NIMBYism for example, it is described how the NIMBY frame emerged in response to an 'information haze' largely created by the Army, but when Army responses eventually neutralized NIMBYism, NIMBY was eventually rejected in favour of a more proactive framing supporting technological solutions (Futrell 2003). Given that any conflict is an interactive process, developments that occur during this process will clearly influence the course of the conflict and the development of movements within the conflict. New revelations, apparent deceptions or cover ups or other kinds of opposition activity and approaches (eg conciliatory or repressive) will fairly inevitably influence the interpretive, framing and strategic activities of movements, which in turn will influence statutory responses, and so on.

It is argued that institutions are relevant to our understanding of collective action in a variety of ways: they structure opportunities for protest and defiance, mould 'discontent into specific grievances against specific targets' shape 'the collectivity out of which protest can arise' and even shape the form that protest takes (Piven and Cloward 1979; 20-21, cf Emirbayer and Goldberg 2005: 480). The need to theorise the role of emotion and culture within institutions is also stressed here, for example Polletta argues that 'norms of instrumental rationality are cultural rather than transcendental; organizations operate not on the basis of objective criteria of efficiency but in tune with the routines, rituals and myths which stipulate appropriate organizational forms and practices' (Polletta 1997:440). Emirbayer similarly argues that institutions are best conceived of as 'bounded sets of iterational practices, ordered or channelled through overlapping social-structural, cultural and collective-psychological matrices.' (Emirbayer and Goldberg 2005: 485).

#### *Networking and network resources*

The networking activity of movement organisations is a common theme across the literature. Kebede describes a 'growing realisation among the members of GEJOs that



confrontation can be effective only when 'its' use grows from a base of strong organizations capable of mounting sustained pressure for change in the long haul' (Edwards 1995: cf Kebede 2005: 89). Hines similarly describes how another key strategy of the group opposed to the Shintech plant in the US, was the expansion of its coalition base, as the group used the issue of environmental racism to gain endorsement of various high profile figures and organisations which helped legitimise the cause (Hines 2001). Within the popular epidemiology literature discussed in the previous chapter there are also various examples of local groups forging links with sympathetic scientists, and a general blurring of lay-expert boundaries. For example, Brown (1992) describes how following the inconclusive findings of official studies activists bring in their own experts and take control of scientific inquiry (Brown 1992). Potts (2004a/b) study of the environmental breast cancer movement similarly described a complex network of relations between communities of interest in which a common purpose and shared ideology enable dialogue and collaboration between the different lay/ expert communities. In a similar vein, Couch and Kroll Smith (2000), cite Beck in their description of such movements as 'learning to speak the language of science', an observation which also ties in with Crossley's (1999) point, viz Bourdieu, that struggles spread across fields (Crossley 1999). This is noted in his own study of the development of the Mental Health User Movement, which describes how the struggles straddled a number of other discrete social fields (eg political, media, legal), and how the fields were articulated and made to work one against the other (Crossley 1999).

The presence and availability of potentially co-operative and sympathetic organisations, and the language and cultures of these potential allies will therefore be important factors in guiding and influencing the framing and networking activities of activists. This has been suggested in empirical research which has highlighted how SMOs transform their collective action frames in order to build alliances, as well how they differentiate their goals from other similar organisations when competing for scarce resources eg members or grants (Benford and Snow 2000). In research into the determinants of civic action on community health problems, Wakefield et al (2001, 2005) identified 'social capital' as a key factor. Barriers to participation included lack of knowledge of whom to contact in relation to air pollution and how to contact them, whilst in cases where respondents were involved in, or aware of, local networks, they

reported increased personal involvement in air quality issues, as well as increased involvement within the wider community as a result of recruitment. These findings are concluded to lend support to existing theory in this area, which suggests that social capital is a primary facilitator of civic action in other (primarily political) contexts (Putnam, 1993 cf Wakefield et al 2001).

*Cultural contexts: the media, local knowledge and 'practical wisdom'*

An important role for the media in influencing risk judgements, feelings of injustice and likely dispositions towards protest, is also suggested by some writers (eg Renn et al 1992, cf Wakefield and Elliott 2003; Beck 1992a). Beck (1992) attributed a central role for the media with regard to public perceptions of environmental hazards, arguing that the media –through its propagation of powerful images- can function as 'cultural eyes through which the "blind citizens" can perhaps win back the autonomy of their own judgement.' (Beck 1992a: 120). Others have argued that the mass media have little effect on personal risk judgements, especially in relation to other information sources (Wakefield and Elliott 2003; Tulloch and Lupton 2001).

Drawing on their findings from research into risk perception among members of the public, Tulloch and Lupton (2001) argue that if there are 'blind citizens' these tend to reside in 'expert' communities of such agencies, and not among the situated logics and temporally articulated biographies of everyday life. Through making use of Beck's own emphasis on 'reflexive biographies', the research is reported to have drawn attention to the same 'embedded' (family, class) traditions which risk individualization supposedly replaces (according to Beck), suggesting a much greater reflexivity about (both short term and long term) histories, and their interweaving with biographies of risk which are both individual and social (Tulloch and Lupton 2001). Beck's account is thus again criticised for its neglect of the contexts of conversation, experience and everyday life and for its universalizing tendency (Tulloch and Lupton 2001). In a study on the influences of local newspapers Wakefield and Elliott (2003) similarly found that while newspapers were a major source of risk information their impact was mitigated by resident distrust and access to other information sources, most notably their own personal information networks (eg face to face communications with friends, neighbours and officials at public meetings) (Wakefield and Elliott 2003).

The importance of local and culturally embedded experiences and perspectives in risk related social processes has been a recurrent theme throughout this review. Factors such as place attachment, powerlessness and trust/ dependency relationships have all been suggested to influence what could be described as a disposition to protest. Wakefield et al (2001) reported some level of influence of 'place attachment' on civic action, in that all respondents who took civic action reported feeling attached to their neighbourhoods. The study also found that low perceived self-efficacy and sense of control minimised action taking; that is, residents who felt that the effectiveness of any civic action they took would be limited because of their own perceived powerlessness were unlikely to take action, and there was a widespread perception that community action, particularly in disadvantaged neighbourhoods, was doomed to fail. This resonates with the earlier discussed research on risk perception in Jarrow, where it was explained how collective memories both reinforced a self image of a community under threat from the outside world and, in this case, heightened a sense of powerlessness and alienation. Although this sense of local alienation raised public concern and perception of risk, it also left it frustrated in the knowledge that Jarrow had struggled for decades and was unlikely to achieve change now (Walker et al 1997 cf Irwin and Michael 2003). Likewise, the point made in the previous chapter that relationships of trust will be heavily influenced by local histories and relationships, further suggests the importance of local contexts, identities and relationships in influencing likely dispositions for action.

As well as influencing dispositions for protest, local cultural and experiential factors seem also to significantly influence the course of such conflicts. First, there are several examples of how locally and culturally situated experiences of risk directly influence the course and nature of protest, through affecting interpretations and diagnosis/ prognosis of the problem. For example Kebede (2005) proposes that ultimately the socially marginalized (eg minority groups and women) come to see the resolution of environmental problems in the light of broader solutions due to their first hand experiences of marginalisation. Kebede observes that the fact 'the focus of toxics organizing is home, community, integrity of family, health' is explained in that these are 'all traditionally women's domain of concerns...', thus also explaining why women are the most active participants in GEJOs (Kebede 2005: 152). Similarly, for minority groups the fight against environmental injustice is also the fight against the

cultural practices of racism that enables its institutional basis. The efforts of minority ethnic groups has thus been double pronged; convincing concerned authorities of the relationship between racism and environmental issues, whilst also dealing with the environmental problems (Kebede 2005). In a similar vein Kebede also describes how, for Native Americans, the effort against environmental pollution is also the effort to culturally maintain one's identity due to the importance of 'nature' in the Native American normative paradigm (Kebede 2005).

An important influence of ideology and collective identities on the framing and protest activities of organisations has also been observed (Reese and Newcombe 2003, Oliver and Johnston 2000, Bostrom 2004). For example, from their research into the framing choices and consequences of those choices for three kinds of welfare rights organizations in the US, Reese and Newcombe (2003) conclude that social movement organisations' (SMOs) 'organizational ideologies' (core norms, values and beliefs) mediate their response to political and cultural conditions and shape their framing decisions. Perhaps predictably they note that SMOs with strict, highly principled ideologies are less likely than SMOs with loose pragmatic ideologies to adopt collective action frames strategically to maximise others support (Reese and Newcombe 2003). The importance of ideology as a concept is further argued by Oliver and Johnson (2000) who make the case that although ideologies can function as frames, there is more to ideology than framing. They argue that frame theory offers a relatively shallow conception of the transmission of political ideas as marketing and resonating, whilst recognition of the complexity and depth of ideology points to the social construction processes of thinking, reasoning, educating and socialising. With respect to movements, this means that ideologies shape activists preferred goals and strategies, and as such limit framing options. Although they do shift in response to political and cultural changes and internal processes of negotiation, conflict and segmentation, once adopted they shift slowly, especially in comparison to collective action frames, which tend to be more fluid (Oliver and Johnson 2000, Rees and Newcombe 2003).

The salience of the cultural context is also suggested in the literature on resonance and cultural identification. Emirbayer and Goldberg (2005) argues that within the cultural context of action, power flows from 'the occupancy of certain privileged positions or

nodes within symbolic configurations' and is derived from a capacity to identify with or to 'speak in the name of' (Emirbayer and Goldberg 2005: 493). Through activists 'tapping into' cultural narratives or master frames to achieve resonance, such narratives in turn influence the discursive and strategic activities of movements and the range of options open to them. A good example of this is provided in Kebede's description of how the direct impact of the civil rights movement is seen in those GEJOs where their constituents are minorities especially African Americans. Here the 'organic intellectuals' of the civil rights movement, like Jesse Jackson and Ben Chavis provided important advisory roles in the struggle for environmental justice eventually resulting in the notion of 'environmental racism' (Kebede 2005). In contrast, the organic intellectuals of White Americans' GEJOs (eg Lois Gibbs) were not the 'political descendants' of the civil rights movement. Instead this new frame is suggested to be derived from a set of values and assumptions embedded in the American political cultural system, eg the idea of 'total justice' and notions of 'equal opportunity' and 'justice for all'; the underlying premises of the American constitution (Kebede 2005). In other words cultural narratives and master frames can act as both resources and constraints for a movement. Areas with rich histories of local activism will have a potentially rich set of symbolic resources for activists to work with. However, as the Jarrow example illustrates, activists in such areas may need also to negotiate narratives of powerlessness in order to transform deep rooted senses of isolation and injustice from barriers into potentially motivational resources.

It seems there has also been something of an emotional turn in the social movement literature. Emirbayer and Goldberg (2005) argue that transactions, which include social movements as well as the various institutional and extra-institutional forces with which they engage, 'always unfold within a context of transpersonal emotional investments, *a collective-psychological context of action*, which potentially constrains and enables action no less than do the social-structural and cultural contexts upon which analytic attention has heretofore been focused' (Emirbayer and Goldberg 2005: 470). Here they cite Melucci's (1996) claim that 'a certain degree of emotional investment is required in the definition of a collective identity, which enables individuals to feel themselves part of a common unity. Passions and feelings, love and hate, faith and fear are all part of a body acting collectively.' (cf Emirbayer and Goldberg 2005: 487) They point out that political opportunity structures contain

emotional as well as cognitive means ‘fostering (or quashing) hope or urgency...or by reducing (or heightening) fear’ (Goodwin et al 2000, 79: cf Erimbayer and Goldberg 2005: 478). Likewise, the collective-psychological work of activists also seeks to transform the feelings of others in the group, for example shame into pride or dignity (Erimbayer and Goldberg 2005). Recent work on lay knowledge has also recognised a place for emotion. Popay and Williams (2009), drawing on the work of Nussbaum (1990), make use of Aristotle’s concept of ‘practical wisdom’, one important aspect of which is the emotion which lay knowledge may embody. Here they cite the argument of Nussbaum (1990) that ‘emotions and the imagination fed by them are central to a fuller and more grounded understanding of how knowledge of human predicaments is articulated’ (Popay and Williams 2009:15).

#### *Political and historical contexts*

There are several examples in the literature which suggest the important influence of political and historical contexts on protest and activism. For example Northridge and Shepard (1995) describe how the retrenchment of environmental protection and devolution of (environmental) service provision to local level in Canada has increased the importance of civic action around local environmental issues. In place of government regulation and control, local activism has become a driving force in environmental protection as residents’ come together to gain a greater say in decisions affecting their neighbourhoods (Northridge and Shepard 1995). In other words devolution could be interpreted as opening up a meaningful space for community activism, thus likely influencing dispositions or tendencies for protest. The need for frames to be aligned and resonate with the political context and prevailing opportunity structures has already been discussed, thus suggesting the influence that the political context will have on the framing and strategic decisions of movements. Likewise, even though the ideological beliefs of activists have been suggested to be influential, Reese and Newcombe (2003) also note how beliefs about how the world works and can be changed are based on activists’ assessments of their own and others political forces, and so are shaped considerably by their political context.

An example of how changes in a political context can significantly influence the course and likely outcome of a protest is given in Cinalli’s (2003) comparison of two mobilizations in Northern Ireland which were opposed to the construction (1970s) and

then expansion (1996) of the Westlink motorway in Belfast. Cinalli argues that the diachronic dimension of the study significantly increases the explanatory value of the political opportunity structure (POS) by showing the importance of changes in the broader political system in structuring the opportunities for, and extent and form of collective action. It is argued that the relatively 'relaxed' and 'inclusive' context of the 1990s enhanced the expectations, hopes and optimism of urban and environmental campaigners, who decided to merge their efforts, thereby successfully building a 'new' distinct organizational system of relationships that cut across their cultural, social and political differences. This enabled the transformation of specific claims into a general issue which was perceived as relevant by a large part of the Northern Irish society. In the early 70s, however, the 'nascent state' situation was insufficient to overcome pre-existing identifications, hence the web of protestors disintegrated almost immediately. Cinalli thus concludes that whilst framing and resource factors were of relevance, it is political change and new political opportunities that appear key in explaining the differences between the two mobilizations (Cinalli 2003).

Further examples of the importance of the political context for influencing the relative success of a movement are highlighted in two contrasting examples. In Hines study of the Shintech mobilisation it is described how the framing of the issue as environmental racism struck chords with powerful interests across the nation and enabled a strong coalition to be forged, largely due to the fact of institutional, particularly environmental, racism being a hot political issue (Hines 2001). In other words the political climate made for a very successful 'resonance.' In an example of the potentially negative impact of a changed political environment, Whooley (2004) explains how prior to the American Civil War, the good versus evil framework encouraged by the religious masterframe effectively mobilized followers of the American Anti-Slavery Society against slavery. However, with emancipation and the onset of the muddled political environment of reconstruction, the religious masterframe no longer resonated with the changed context. Attempts to alter the masterframe to a rights based frame compromised the integrity of the framing process. Ultimately, the movement dissolved unable to reconcile their frame with the new political reality (Whooley 2004).

**Summary**

The social movement literature has illustrated some of the continuous interpretive and framing processes that are integral to the formation and development of protest movements. It thus helps explain how initially isolated experiences of risk over time can develop into organised and cohesive opposition movements, and increased levels of collective and critical consciousness among movement participants. In considering the main factors influencing these processes, the potential roles of process factors, network resources, knowledge resources and political and historical contexts in influencing both the direction and the potential capacity of these movements has also been highlighted. However, whilst it is useful to categorise such factors their transience and inter-connectedness needs also to be remembered, for example, changes in a political context will not only alter opportunities for collective action but will also over time influence other factors such as potential networks and cultural narratives.



## **Chapter Four: Methodology**

This first methods chapter starts by considering the epistemological grounding and basis for this research, before considering the theoretical and empirical rationales for carrying out case study research, and within such approaches the benefits and implications with using accounts, stories and documents as the main data sources. The final section considers approaches to the analysis of these kinds of data.

### **Epistemological considerations**

This research follows a pragmatist approach. It is primarily concerned with the discursive processes involved in the construction of belief and knowledge claims, and more broadly in how actors interpret and construct their own realities and identities. As such, it is situated within interpretivist traditions and in the post-positivist world of the social sciences. However, although this research is fundamentally focused on processes of interpretation and construction, the pragmatist stance which is adopted contrasts with relativist approaches because it recognises contingency. It recognises that the causal pressures people confront in their actions provide a sufficient connection between our beliefs and the world, so that 'human belief cannot swing free of the non human environment' and 'we can never be more arbitrary than the world lets us be' (Rorty 1999 32-33; Kivenon and Piironen 2004). Thus, although such an approach entails a focus on the discursive processes involved in the construction of belief and knowledge claims, this does not negate the importance of what has been termed 'lived experience', and some of the core assumptions associated with this school of thought (eg see Williams 2006). Indeed, although something of a divide has grown up between post-structural, discursive approaches and the cultural Marxism of 'lived experience', in the study of history too there appears to be growing efforts to build on both of these schools, in what a historian has termed 'social history after the linguistic turn', as social historians insist that 'conditions and consequences, structures and processes have to be taken seriously and brought back in.' (Kocka, 2003: 21).

Steinberg (1997) illustrates a place for both experience and discourse in the ongoing processes of identity negotiation and renegotiation. He explains how post-structuralist criticisms of the 'lived experience' position have questioned EP Thompson's link between experience and class consciousness (Thompson 1966), for its alleged failure to recognise the constitutive nature of language in the development of working people's class consciousness. Steinberg firstly suggests that this is a misreading of Thompson, in that he did accord a role to language in the formation of class consciousness. By applying a Bakhtinian, dialogic perspective (Bakhtin 1981) to his analysis of the language of the Spitalfield weavers in the 1820s, Steinberg then also illustrates the important relationship of both language and experience. He explains;

'To counter the hegemony of political economy through which large manufacturers and government officials sought to restructure their world, the weavers appropriated pieces of bourgeois language and retooled it as a weapon of the weak. In this process they were true Bakhtinian practitioners; they saw the words in use were half theirs. That they were able to fight this battle of meanings was because the totality of their experience outstripped the ability of any set of languages to wholly define their world. The fracturing of the male artisan's honourable status, his waning authority in the household, and everyone's hunger and destitution knocked loudly on the portals of meaning and demanding explanation' (Steinberg 1997: 487).

This application of a Bakhtinian perspective thus seems also to illustrate Rorty's argument (above) that 'human belief cannot swing free of the non human environment', suggesting common ground between pragmatist and Bakhtinian or dialogic approaches. In the specific context of this research, this kind of pragmatist approach also has the advantage of allowing space for the existence of 'real' risks and environmental problems, and is well placed to counter the accusation against constructivist studies of science and knowledge (SSK), that they have denied the 'realness' of such risks (Wynne 2002). Such an approach thus also sits well with Wynne's argument for constructivist research which recognises reflexive processes of subject-object co-construction and the essential contingency involved, and allows space for the more 'wide-ranging, multivalent and rich human meanings which constitute public concerns' (Wynne, 2002: 462).

Much of the risk related literature reviewed in chapter two has involved a focus on the interpretations, rationalities and identities that are being produced in their respective

conflicts, and would appear to follow pragmatist lines, if not explicitly stated as such. For example, in the study of the Cumbrian sheep farmers Wynne (1996b) drew mainly on in depth interviews with farmers and other locals as a way of investigating the factors influencing the reception of scientific expertise by this sub population, as well as also examining how scientific institutions framed the issues and knowledge as science. In a retrospective exploration of events surrounding toxic waste contamination in Woburn, Massachusetts, Phil Brown (1992) similarly used open ended interviews with activists to explore toxic waste activism, knowledge about toxic waste, attitudes toward corporate and governmental actors, and attitudes and participation in other environmental and political concerns. Officials and public health researchers were also interviewed on the subject of lay-professional differences in official and community health studies, with additional data also being obtained from official documents, legal documents, public meetings, and archival sources. By examining the data in terms of its place in the historical/chronological development of the toxic waste crisis Brown was then also able to create the stages model of popular epidemiology earlier described (Brown, 1992). In a longitudinal study of NIMBY protest in the U.S Chemical-Weapons Disposal Conflict Futtrell (2003) similarly drew on documentary, interview and observational data gathered over a seven year period, and through focusing on movement 'framing' was able to assess claims-making and identify changes in claim making over time.

### **Data collection approaches**

As in previous studies this research makes use of a retrospective case study design, relying on documentation to access the perspectives and accounts of residents, officials, experts and other important groups, and for facilitating a thick description of 'what went on' (eg Brown 1992; Futtrell 2003; Williams and Popay 1994). Not only is this consistent with such studies, there are also numerous considerations which suggest the suitability of these techniques for investigating such topics, as will be considered below

#### *A case study approach*

Case studies, along with histories, have been suggested to be the most appropriate method for answering the 'how' and 'why' questions about a set of events over which the investigator has little or no control, and where the phenomenon needs to be

investigated within its real life context. Such 'how' and 'why' questions are suggested to deal with operational links needing to be traced over time, and whereas the historical method is usually applied where there are no relevant persons alive to report, even retrospectively, what occurred, the case study is used to examine contemporary events. As in the case of historical approaches, the case study also relies on primary, secondary and cultural and physical artefacts, but it also adds to these two further sources: direct observation and systematic interviewing (Yin 1994). In providing a tool for answering these more explanatory kinds of questions, a main purpose of the case study is suggested to be to develop theoretical insight and for examining the fine detail of social life (Prior 2003). Indeed, rather than generating findings which can be statistically generalised to populations on the grounds of probability, the investigator's goal is instead suggested to be analytic generalization, through expanding and generalizing theories (Yin 1994). Thus, the case study researcher is 'not as interested in the 'representativeness' and the uniqueness of the case as its contribution to reconstructing theory' (Burawoy 1998: 16). Case studies 'are inductive in their execution, identifying sources of data and explanatory principles and testing provisional findings progressively as they unfold' (Sullivan 2002: 265).

The *extended case method* aims also to extract the general from the unique, to move from the "micro" to the "macro," and thus involves extending out from the field. In contrast to the constant comparative method developed by Glaser and Strauss (1967), the aim of the extended case method is 'not to abstract the minimum number of essential features in one case that can be generalized to other cases but, rather, to situate the individual case in as much richness of detail as possible with the wider social fields that structure the processes unfolding within that case' (Sullivan 2002:265). Theory is argued to be essential here, in that 'it guides intervention, it constitutes situated knowledges into social processes, and it locates those social processes in their wider context of determination' (Burawoy 1998:55). In other words the theoretical framework of the researcher is important in guiding, not only what is observed, but also how these experiences are linked into broader, non-local forces, in this instance, the hegemonic national and global political order which structures local approaches and responses to risk management in public life.

### *Accounts and stories*

It is anticipated that a particularly useful form of talk or writing for this research will be that which is producing an 'account', be it in interview data or existing documentation. Accounts or narratives are considered to provide a useful mechanism for exploring how social actors frame and make sense of particular sets of experiences within a wider narrative (Coffey and Atkinson 1996) and give meaning to their lives and capture these meanings in written, narrative and oral forms (Denzin 1989). It has been suggested that this kind of narrative approach has at its premise that we act by locating events within an unfolding life story, and that such narratives, through their internal logic or plot, not only have a role in representing reality but also in apprehending and constituting it (Polletta 1998). Moreover, it is argued that stories guide action as 'through narrativity we come to know, understand, and make sense of the social world, and it is through narratives and narrativity that we constitute our social identities; we come to be who we are by being located or locating ourselves (usually unconsciously) in social narratives *rarely of our own making*' (Somers and Gibson 1994: 58-59, original emphasis). The study of narratives or accounts thus provides a useful way of exploring conceptions of the self (Maclure 1993). It also follows that the study of how actors construct their biographies and how key events and other social actors are represented through narratives of experience holds promise for illuminating the relationship between social processes and personal lives, and could be considered to represent a form of 'interpretive interactionism' (Denzin 1989). Whereas it has been argued that direct questions often fail to examine how individuals perceive their experiences to be related to social, cultural, and personal circumstances, accounts are argued to be more likely to reveal non-conscious motives and meanings and to illuminate individuals' interpretations in a social, cultural, and personal context (Orbuch, 1997).

In the study of history too, biographical or narrative history is suggested to have increased in popularity, reflecting both the rise in 'history from below' and the relativist orientations of scholars (Hobsbawm, 1980). Just as Denzin (1989) and Plummer (2001) recognize the value of biography for illuminating relationships between social processes, historical change and individual lives, Hobsbawm similarly recognizes the study of a 'situation' as a convenient point of departure, from which

the ultimate goal should be to illuminate ‘some wider question, which goes far beyond the particular story and its characters’ (Hobsbawm, 1980; 248). A useful example here is Bloor’s (2000) examination of the communal understandings of, and collective responses to Miners’ Lung (pneumoconiosis) in the 1920s and 1930s. Through the use of oral history materials from the South Wales Miners’ Library, Bloor was able to consider the role of the South Wales Miners Federation in exerting political influence to direct research funding and to alter compensation legislation; in buying expertise and duping experts to secure favourable compensation decisions in the courts; and in securing strategic support for the seeming independence of expertise where expert opinion would further the miners’ cause. From these histories Bloor was also able to observe a sophisticated lay understanding of what Bevan called ‘the secular nature of all knowledge’ and the successful instrumental use of expertise for personal and political ends (Bloor 2000).

#### *Using documents*

Documentation is considered to be a critical source of evidence for case study research for its following identified strengths: it is stable in its potential for repeated reviewing; it is unobtrusive and ‘naturally occurring’ as it is not created as a result of the case study; it is exact in terms of names, references and details of an event; and it has broad coverage over a long time span and multiple events and settings (Yin 1994). It has also been argued that documents are not merely representations but also active agents serving to constitute the events of which they form a part (Prior 2003), thus suggesting a further key strength to those listed by Yin, and a function above and beyond the primarily corroborative role suggested by the same author. The study of documents has thus been suggested as useful for unpacking how things are placed, made visible, and how such systems of visibility are tied into social practices. It is also useful for observing the role played by documents in the processes through which subjects, subjectivity and identities are created and stabilised (Prior 2003), in that, although the reader necessarily appropriates the texts in terms of his or her own life-world, the text also constrains, produces and structures its readers (Ricoeur 1981, cf Prior 2003), and hence limits the interpretive and subjective opportunities being made available to them.

Existing documentation therefore provided a vital resource for this research in so far as it provides a way not only of accessing the interpretations and understandings being produced at particular times and places, but also because of its role as producers of the competing and conflicting discourses which to a large degree could be considered to constitute the conflict. The interpretive data being produced in resident accounts provided considerable insight into how residents interpreted and experienced the conflict, and how these may have changed across time/context. In so far as much of this documentation can be considered constitutive of the conflict, the data being produced in both resident and non resident accounts is also illuminating of some of the kinds of issues suggested in the literature to lie at the heart of these kinds of conflicts (eg differences in lay/professional approaches) and other likely influential factors (eg the role of the media, sympathetic experts etc).

However, there are also important issues to be considered when working with documents. The first of these types of problems concerns access to documents, including potentially low retrievability, deliberate blocking of access and selectivity bias (Yin 1994). When using documents it is therefore important to consider the representativeness of the sample of documents; whether or not the collection is complete and how the archive has been produced (Scott 1990; MacDonald 2001). Problems relating to the production of the document pose other challenges. For example in the media there will be bias and selectivity imposed by editorial policy, along with errors, distortion and audience context (MacDonald 2001). Scott (1990) identifies three issues to be addressed: authenticity, credibility, and meaning. A test of authenticity would mean ascertaining whether a document is genuine, complete, reliable and of unquestioned authorship (Scott 1990), as in processes of 'external criticism' practiced by historians. The challenge of establishing credibility is more similar to the practice of 'internal criticism'; that is, the scrutiny of documents to identify potential bias. This entails assessing likely error or distortion, as caused by time lag, or vested authorial interest. It is suggested that the researcher should always ask; who produced the document, why, when, for whom and in what context, as well as how it relates to other sources (Scott 1990; Macdonald 2001). A final task for the researcher is to interpret the meaning of the document, at both surface and deeper levels. A more detailed discussion is provided on this in the next section on analysis, but worth mentioning here are observations that it is the production and consumption

of documents in their social setting that are important (Prior 2003), as for the text to have any meaning there must be a socially-situated author and audience (Scott 1990).

### **Analysis and treatment of the data**

In its approach to the analysis of documents this research seeks to accommodate the principles and practices of several approaches. Firstly, it takes account of Steinberg's call for a more discursive, dialogic approach to the study of collective action discourses (1998). The value of the concept of hegemony and counter-hegemony for exploring environmental social movements has been suggested in the previous literature review chapter, and this approach to discourse analysis seems well suited to such investigations. Such an approach sees collective action discourse as a joint product of actors' agency and discourse dynamics; of challengers' rational actions and the constraints of the discursive field. Meaning production is theorised as purposeful but bounded by the larger field of relevant discourses in which meanings are produced, thus providing a coherent epistemology of both agency and its limiting structures within this cultural process (Steinberg 1998). Steinberg (1999) explains how although discourse is a conduit for hegemony, discursive domination suffers from its own internal contradictions which can be highlighted by 'other discourses, traces of past usages that influence present meanings, or the cold realities of life that can demand an insufficient response through hegemonic discourse' (p747). From this perspective, 'challengers seek to appropriate and subvert the dominant discourses that legitimate power, creating discursive repertoires' (Steinberg 1999: 736). This position therefore also fits with the arguments of critical discourse analysts, that the available repertoires allow fluidity in how representations can be constructed, but also bind the degree of variability in them, and that the interpretive repertoires that actors draw upon are subject both to temporal and contextual shifts, as well as possible contradictions raised by their combination in use (Wetherall and Potter 1992; Steinberg 1998). It acknowledges that the rhetorical demands of a situation will influence what and how something is being said or a story being told (Maclure 1993), and the argument of narrative theorists that storytelling's content and context mutually sustain each other (Somers, 1994).

An important concern identified for discourse analysis is with talk and text as social practices, and this involves paying close attention to linguistic content such as



meaning and topics, as well as linguistic features such as grammar and cohesion (Potter and Wetherall 1994). At a most basic level it has been noted how the counting of word items or categories can be revealing as to the focus of document, and what the dominant concerns are (Prior 2003). The study of metaphors is also argued to reveal common knowledge, and what is taken for granted as shared understandings, whilst specialised vocabularies can convey (or create) shared cultural meanings. In looking at 'folk terms' or linguistic symbols, this kind of focus is thus suggested as a mechanism for understanding the cultural knowledge of a particular social group (Coffey and Atkinson 1996). However, it is important not to view the content of text or talk as removable from their location in a wider narrative, or from the specific features and contexts of their production. As noted by Prior, although a focus on content can be useful in highlighting the concerns of a social group, there will always need to be some form of discourse analysis of how the various terms and concepts are interlocked into the other so as to form a position or stance (Prior 2004).

It is therefore also necessary to investigate the ways in which actors are locating their own and others actions or evaluations within particular frames of reference to produce coherent and plausible constructions of the world of experience, for example, how they are using particular 'vocabularies of motive' to account for social actions (Wright Mills 1940; Coffey and Atkinson 1996). Prior has argued that when looking at the content of documents, what is important is the process of 'reference', which requires a focus on how words, sentences and ideas are used holistically in social practices (Prior 2004). This means going beyond noting that something is referenced to asking questions about how specific items are integrated into 'accounts' (Prior 2004). For discourse analysts like Wetherall and Potter people are said to accomplish the nature of their actions partly through constructing their discourse out of a range of styles, linguistic resources and rhetorical devices. A main aim in discourse studies is therefore to reveal the operation of these constructive processes and a key concept here is that of the 'interpretive repertoire', which has been described as containing 'form-giving figures of speech, metaphors, tropes, and images by which people construct ideological representations' (Steinberg 1998:854-855). Collective action processes are suggested to bring order and structure to the elements in a *discursive field* by creating action-specific *discursive repertoires*, and by demonstrating the saliency of a discursive repertoire in defining a problem, suggesting a critique and

proposing a solution, whilst also appropriating, reconfiguring and delegitimizing the meanings offered by opposing repertoires (Steinberg 1998). Steinberg thus suggests that to understand framing processes research should focus on the *discursive fields* within which the framing process takes place. Researchers should 'investigate the ways in which groups select and develop a repertoire from within a field, how the boundaries of the field shape the construction of their repertoire, and alternatively how the development of repertoires rebounds upon the ways meanings are then produced within the formation' (Steinberg 1998:858).

Steinberg (1999) usefully illustrates such an approach in his analysis of repertoires of discourse among Nineteenth-Century English Cotton Spinners, in which he shows their discourse to be a relational social, semiotic, and strategic product. It is described how the spinners' choice of representations and their attempts to convey a sense of injustice were significantly structured both by who their adversaries were (and their relations with them) and the structure of the discursive field dominated by these manufacturers. For example, rather than deploying a distinct economic discourse against political economy, or employing an alternative such as cooperationism, the spinners struggled within this hegemonic genre to establish the legitimacy of their claims. The spinners produced a discursive repertoire within a field largely defined by their employers and the authorities and pundits who supported them. This repertoire was dominated by a selective appropriation of political economy, political liberalism, nationalism, abolitionism, and other genres through which factory owners mapped out a hegemonic vision of a social order. Steinberg also noted how the predominance of all of the discourses in the spinners' repertoire ebbed and flowed with the course of contention and related events in the political environment (Steinberg 1999).

These approaches have so far been concerned with interpreting the content or discursive substance of texts. Another approach in discourse studies is to focus more on linguistic strategies and devices used by authors to fulfil particular and specific functions of their talk or texts, for example how language may be used to provide accounts of events or opinions in such a way as to make them resistant to sceptical responses or alternative versions (Woolfit 2001). It has been noted that narratives are often used to perform particular kinds of accounts, eg justifying, legitimating,

mobilising (Coffey and Atkinson 1996), and researchers have identified different techniques or devices used to help make stories or claims more convincing and more 'truthful', for example; narrative structure and the textual conventions for constructing stories (Maclure 1993) and different rhetorical devices eg contrastive rhetoric (Coffey and Atkinson 1996). Other identified features of argumentation and rhetoric have included 'stake', whereby a particular type of blaming achieved or version of a world is made to seem unproblematic by presenting one's own version as neutral and a rival account as vested (Potter and Wetherall 1994, Silverman 2001), and the concept of script, where the routine character of described events is invoked in order to imply that they are features of some (approved or disapproved) general pattern (Silverman 2001).

In a discussion of the rhetoric of science and anthropology Prior also provides some more specific examples of how authors of these texts use words to persuade of the veracity of their reports and their status as objective observers. One strategy noted included the use of the passive, not active voice, which has the effect of distancing the scientist from activities being reported upon so that they are more likely to be seen as exterior to the world they investigate and report upon. Other 'externalising devices' suggested included the use of the term 'findings' as suggestive of things already in the world and the idea of 'measuring' which implies existence; again functioning to help distance the rational world from the social world of the scientists. Also noted was the use of referencing to strengthen rhetoric, use of openings and headings to structure the reading of the text and pathing and sequencing. Here, pathing is described as providing a trail to be read and locates the scientific results in a context of cumulative scientific discovery, whilst sequencing and processes of logic provides a narrative in terms of which conclusions have been arrived at, which are invariably presented as inevitable (Prior 2003).

### **Summary**

To summarise then, this research follows a pragmatist approach. In common with interpretivist traditions and constructivist approaches it is primarily concerned with the discursive processes involved in the construction of belief and knowledge claims. However, it also affords space to 'lived experience'; and the existence of 'real' risks and environmental problems, as in the words of Rorty it recognises that 'human belief

cannot swing free of the non human environment' and 'we can never be more arbitrary than the world lets us be' (Rorty 1999 pp. 32-33). In this respect there also seemed to be useful common ground between pragmatist and Bakhtinian or dialogic approaches.

As in previous studies this research makes use of a retrospective case study design, relying on documentation to access the perspectives and accounts of residents, officials, experts and other important groups, and for facilitating a thick description of 'what went on'. Case studies are well placed to develop theoretical insight and for examining the fine detail of social life. Following the principles of the *extended case method* this research aims also to extract the general from the unique, to move the "micro" to the "macro," and thus extend out from the field.

In terms of data sources accounts or narratives provide a particularly useful source of information for this kind of research. This type of data is suggested to be particularly useful for exploring how actors frame and make sense of their experiences within a wider narrative. Given the historical focus of this case study, existing documentation provides a vital resource for this research. Documents are suggested to be valuable not only because they provide a way of accessing the interpretations and understandings being produced at particular times and places, but also because of their role as producers of the competing and conflicting discourses which to a large degree could be considered to constitute the conflict. Following previous work on documents and the practice of professional historians due attention is paid to the important questions of representativeness, authenticity, credibility, and meaning, and the social settings in which the documents are produced and consumed.

In its approach to analysis this research seeks to follow a more discursive, dialogic approach to the study of collective action discourses, as seems particularly suited to the application of hegemony frameworks in the investigation of grassroots environmental movements. This means recognising such discourse as a joint product of actors' agency and discourse dynamics; and conceptualising interpretive repertoires as both allowing fluidity in the ways in which representations can be constructed, but as also binding the degree of variability in them; as subject both to temporal and contextual shifts, as well as possible contradictions raised by their combination in use

(Steinberg 1998). At a more practical level this means investigating not only the content of texts or talk, but also how the various terms and concepts are interlinked so as to form a position or stance (Prior 2004), or how actors are locating their own and others actions or evaluations within particular frames of reference (Coffey and Atkinson 1996). More specifically, it is suggested that research into movement framing 'should investigate the ways in which groups select and develop a repertoire from within a field, how the boundaries of the field shape the construction of their repertoire, and alternatively how the development of repertoires rebounds upon the ways meanings are then produced within the formation' (Steinberg 1998:858). A final feature of discourse analysis also considered in this research is that concerned with linguistic strategies and devices used by authors to fulfill particular and specific functions of their talk or texts, for example how language may be used to provide accounts of events or opinions in such a way as to make them resistant to sceptical responses or alternative versions.

## **Chapter Five: Research Design and Methods**

This second methods chapter describes the various stages of the research in terms of: the selection of the case study site, identifying, collecting and managing documentary data, ethical procedures and considerations and the analysis and production of findings. This piece of research was an iterative process informed by a combination of theoretical and methodological considerations (outlined in the previous three chapters) and a series of practical decisions which had to be made along the way in response to several key developments or discoveries. As such parts of this chapter are written in the first person as it charts my journey and continuous navigation between the research objectives and the theory based ideas underpinning these objectives, and the various challenges and opportunities that presented along the way.

### **Selection of case study site**

As explained in the introduction chapter, a joint proposal was submitted to the ESRC by the (then) Director of the Wales Centre for Health (now Public Health Wales) and my supervisors at the School of Social Sciences, Cardiff University, for a CASE studentship award to carry out research on this case study site. As such I was not involved in the selection of the site, although the following description of the case study provides important background information on the area and the key features of this part of its history, which led to its selection as a site of considerable sociological interest.

The Nant-y-Gwyddon waste disposal site is on a mountain (Mynydd-y-Gelli) above the adjacent communities of Clydach Vale, Gelli, Ystrad, and Llwynpia in the Rhondda Valley of south Wales. It is located in a region with a long history of coal mining and a population struggling with the social and economic legacy of the industry's demise. Waste disposal operations at the site began in 1988 and in the mid 1990s their license was amended to the disposal of industrial in addition to domestic waste. As a consequence of persistent 'aesthetic', environmental and health concerns, the communities adjacent to the site have been subject to intensive scientific investigation. The site was shut down in March 2002 on the recommendations of an

independent investigation carried out on behalf of the Welsh Assembly, following five years of concerted and highly publicised protest action by a group calling itself Rhondda Against Nant-y-Gwyddon Tip (RANT). The issues surrounding the establishment of and response to this landfill site were thus considered to offer a unique opportunity to undertake an in-depth case study in the sociology of public health risks, enhance our understanding of the processes involved, and provide guidelines to inform discussion, policy and strategy in the future.

This local environmental protest provides an interesting case study in the sociology of public health risks, as well as in the study of collective action and mobilisation. The research aimed to explore the key processes and relationships involved in the evaluation of perceived threats to public health in the period up to the closure of the tip in 2002. The research has four key objectives.

- To describe and analyse the development of a community protest about a landfill site.
- To investigate the interpretive and framing activities of community members in developing evidence, and seeking and obtaining redress.
- To examine the response of the statutory authorities and their utilisation of specialist expertise.
- To explore the relationships between competing bodies of evidence in the production of public health knowledge about health risks

#### **Identifying, collecting and managing documentary data**

The original intention had been to use documents, followed by interviews with key actors to generate the data for this study. As a first step the internet and the *Lexis-Nexis* database (for press articles) was searched, via *Google* with the terms 'Nantygwyddion or Nant-y-Gwyddon'. Both searches yielded high returns for the period post-2000, but were most useful at this stage for identifying key actors. Key activists were contacted to introduce the study to them, and to inquire about and arrange access to any documentation or further leads. This proved fruitful and resulted in access to the private and fairly extensive collections of two heavily involved individuals. My conversation with one of these activists was also recorded and used as

data, as they recollected this historical episode. The other crucial lead coming out of these initial communications was a recollection of the extensive archiving that took place following the independent investigation. This archive turned out to be by far the most important source of data, for the period up to and during the investigation. To give a brief overview, the data set was made up of an extensive collection of correspondence, between RANT and the various parties, which was submitted in chronological order by RANT to the investigation. The archives also included written evidence prepared for and submitted to the investigation, by all of the key parties, as well as full transcripts of the 36 days of oral evidence presented to the investigation. Other important documents retrieved and used in this study included newsletters, press releases, press articles, reports and meeting minutes. In total, 1680 documents were retrieved and stored. Table 1 below provides a breakdown of the collection of documents, by the main actor groups, and type of document. With regards to questions of representativeness and authenticity (discussed in the previous chapter), the extent and range of the archived collection suggested an extremely comprehensive and representative data set, although the fact that the archives were not as organised as they might have been does mean that some submissions may have been missed. In terms of authenticity, most written documents were produced on some kind of headed paper, and included recognisable addresses, names, signatures and sometimes slogans. The official and public nature of the independent investigation suggests also the authenticity of the oral evidence submissions and transcripts.

**Table 1: Breakdown of retrieved documents.**

	Letters	Information Sheets/ Press Releases/ Newsletters	Reports/ papers	Written evidence	Oral evidence	Total
<b>Council</b>	101	23	20	24	5	173
<b>Environment Agency</b>	133	18	12	11	5	179
<b>Health Authority</b>	35		4	5		44
<b>Welsh Office</b>	15					15
<b>Welsh Assembly</b>	13		7	6	2	38
<b>RANT</b>	352	23	2	10	8	395
<b>Residents</b>	37			55	28	120
<b>Epidemiologist</b>	9		4		1	14
<b>Environmental NGOs</b>	48	8	8	5	10	79
<b>Politicians</b>	102	15		3	3	123
<b>Waste Company</b>	27	5		3		35
<b>Total</b>	872	92	57	122	62	1215



The first challenge which presented itself in terms of data collection was how to physically retrieve large volumes of documents, which could not be removed from site. As a solution the documents were digitally photographed and stored electronically. This also facilitated the management of the data, as it meant each document was easily accessible, as every document was logged on to an Excel database. This database not only recorded the digital location of every document, but was also set up so it could be searched by date, author category, source type etc (see Table 2 below).

**Table 2: Example extract from database of sources**

Folder (saved in)	Ref No	Author	Title	Date	Where found?	Source type	Role
Docsl	01	EA	Letter (resident name)	to 18/08/1997	WAG: EFO	Letter	EA
Docsl	02	EA	Letter (resident name)	to 18/08/1997	WAG: EFO	Letter	EA
Docsl	03	EA	Press Release: Agency places report on public register	05/02/1998	WAG: EFO	Letter	EA

In order to make the analysis and interpretation of these data manageable the decision was taken to focus on the period up to the closure of the tip in March 2002, although RANT remained, and are still active today. This period was selected as it was not only the best documented (due to the evidence submissions), but, sociologically, it is also one of the most interesting episodes, from the perspective of looking at the protest as an emerging 'movement', as well as from the point of view of observing the development of competing forms of expertise and evidence. This option was also favoured by representatives of the health and local authorities who expressed concerns early on in the research that any investigation of more recent episodes might risk 'stirring up trouble.' Due to the extent, depth and breadth of the available documentary data, the decision was also taken only to use existing documentation, and not to pursue interviews with key actors. This largely was a pragmatic decision,

made in the interests of manageability, space and time, but again it suited the politics of the situation, in so far as RANT (on learning that the project received funding from the Wales Centre for Health) declined to participate in the research. It was also considered that the transcripts of the oral evidence submissions provided a comparable kind of data to that likely to be generated by interviews. Although this talk was obviously pre-prepared and made in public, as opposed to private settings, actors nonetheless engaged in a 'narrative reconstruction' of their experiences of the conflict, reflecting upon what they considered to be the critical events, and developing a retrospective account or explanation of how and why things have turned out as they have. It thus also provided important and very useful opportunities for triangulation: between the findings of the contemporary sources and those of the retrospective accounts, in particular with regards to identifying the critical events and turning points in the conflict.

**Ethics: procedures and considerations.**

Ethical approval was obtained on the terms set out in the forms (appendix 2). A key issue anticipated in using documents was that some of the documents were likely to contain sensitive data, for example, political opinions or information on physical or mental health. It was decided that if the document contained any of this kind of data then consent would be sought from the individuals concerned provided that the document was not already in the public domain (and thus already accessible to any interested party), or could be considered to 'belong' to a group or organisation, as opposed to an individual. These exclusions were in line with the requirements of the Data Protection Act (1998), and were checked with the Data Protection Officer at Cardiff University. To minimise risk to any individuals identified in the documents it was agreed that in all cases individuals would not be named, and if consent needed to be sought then the author would be sent a copy of the document and provided with the opportunity to take out or amend any part of it that they did not wish reported in the findings.

However, although these procedures were in place, it was not in fact necessary to obtain consent for the documents used. This was because the vast majority of documents were in the public domain, as they were accessed through the archives at the Welsh Assembly Government. Those that were accessed through private

collections tended to be 'group' publications, such as posters or newsletters, produced by RANT. Such data are not covered under the 'Data Protection Act' (1998) and, as such it was approved by the School of Social Science Research Ethics Committee that consent did not need to be sought for any such documents. Even though the data were largely in the public domain and anonymity was therefore unobtainable, names were removed from the texts as a matter of caution in order to respect the privacy of individuals and to reduce any possible risk to them. In most instances it was also considered more useful to have a description of the person's role in the conflict, rather than a personal name, which was considered an unnecessary detail which in some ways distracted from the findings. Any names were thus replaced by a descriptor of the person's role in the conflict eg activist, epidemiologist, Director of Public Health etc.

On more of an informal level there were also discussions around the ethics of carrying out research on what turned out to be a politically and emotionally charged subject area. First there were concerns raised with me by people in the respective authorities that the research may provide fuel to current issues at the site and in the community and might be used expediently by the activists to try and further their cause. The decision, described above, to focus on the earlier period was one solution to this potential risk and was deemed acceptable by those who had raised their concerns. Another ethical issue then presented itself with RANT's revelation that they felt unable to participate in the research due to it being part funded by the then Wales Centre for Health. The vast amount of documentary evidence publicly available meant that the research project was still viable but it raised the question of whether or not it was ethically appropriate to research the lives of those who had declined formally to participate in the research. There were two key reasons why it was decided to be appropriate. The first of these was the potential of the case study for sociological theory and for informing future practice in public health risk assessment and communication. This was considered to be particularly the case given the wealth of documentary evidence available in the archives of the independent investigation, and the uniqueness of this kind of collection. The second reason was that although RANT officially declined to participate, the secretary of the group nonetheless wished me well in the research and suggested some other potentially useful contacts. In other words, it seemed that they did not wish to obstruct the research, but did not want to be

seen to be in any way collaborating with a project associated with the health bodies in Wales which had left them repeatedly frustrated and disappointed.

Somewhat ironically then, the concerns raised by the two parties in practice achieved something of a neutralising effect. On the one hand, the concerns raised by the authorities that the research may 'stir up trouble' favoured a more historical approach which minimised activist involvement and participation. At the same time, the decision by the activists not to collude with, and participate in the research, also lent itself to such an approach. Moreover, although it was disappointing not to hear the 'live' voices of the activists or indeed other actors, and it meant I did not become as familiar with the communities as I would have liked, it also meant that as a researcher I was 'left to it' much more than would have been the case had I been actively speaking with the different groups. This has its advantages in the study of contentious episodes. For example, Kroll-Smith and Couch (1990) describe how they became subjected to the internal ideological divisions of the community in which they had moved into and lived for eight months, in what was an intensive ethnographic study of a contaminated community, and one in which the line between research and advocacy was blurred (cf Brown 2010). I was also very fortunate in that the quantity and quality of the documentary evidence was able to compensate for lack of 'live participation'. Indeed, had this material been insufficient or lacking I would certainly have made more effort to encourage activist participation in the research.

### **Analysis and interpretation**

The analysis was split into two main stages. The objective of the first stage of the analysis was to construct an historical account of the protest, which focused specifically on the actions and perspectives of the residents who became local activists. In the second stage, the positioning and claim making of the key actor groups was analysed with a more in-depth, discursive analysis of selected texts. Finally, the discursive observations from the second stage of analysis were integrated into the appropriate sections of the story which had been constructed in the first stage. More detail is provided below on the first two analytical stages.

*Analysis: stage one*

The primary goal of this initial stage of analysis was to explore RANT's strategies and actions and the interpretive work linked to these actions. On the basis of this documentary analysis a narrative account of what was going on in the RANT experience was then constructed. The decision to seek to tell the story from the community point of view was based on my judgment that it was essentially the community 'driving' the process through their continuing resistance to, or non acceptance, of the situation as it unfolded, and my own theoretical and sociological interests in protest movements and resistance, which have informed the research throughout. Pragmatic considerations such as the quantity and quality of community produced data (compared with other actors), and the need to restrict the focus of the study for the purposes of time and space, also influenced this decision.

For this first stage of analysis all documents produced by RANT or residents in the period up to the closure of the tip were selected for inclusion (n=548). The overall goal for this stage was to generate a narrative account by asking of the data; what the resident activists were doing (what action was being taken), and why they were doing it in relation to the thinking behind the action (eg the interpretation of the situation/motive), and more specifically any critical actions, experiences or events being referenced in such interpretations.

The data were able to address these questions in three main ways. First, much of the documentation could, in itself, be considered to constitute key actions in the struggle (eg complaint letters, promotional material, evidence submissions), and thus by detailing these actions and the motives or interpretations linked to these actions the struggle was, to an extent, being mapped through time. Many of the data were also referential, in that it is describing events or actions that have taken place, and is imbuing them with some kind of interpretive significance. In some cases the data were also more deeply reflective in so far as it engaged in a more extensive theorising of the wider conflict.

The data were extracted from the documents into an Excel spreadsheet. The decision to use Excel as opposed to a computer assisted package such as NVivo was based on a number of factors. First, a problem commonly noted with such packages is that they

result in a fragmentation and de-contextualisation of the data (eg Lewins 2001, Coffey et al 2006). An extremely important feature of documentary analysis is to maintain considerable detail on the context and characteristics of documents, particularly when there is such diversity of sources. Further problems have been identified with such programs with regards to managing narrative data and the tracking of a sequence of events. Being able to construct a visible and manageable chronology or timeline was seen as vital to this stage of the research, and indeed it was found that although thematic coding was certainly useful, at this stage it was probably secondary to the use of the time line in terms of getting a 'feel' for the story. On a more practical note, the documents were also all stored as J-pegs meaning that the software could not be directly applied to these data files, whilst the short length of such documents meant that the data could be extracted fairly easily into the spreadsheet.

The data were extracted in order that it addressed the analytical questions, and could be charted across time, as well as investigated thematically. For each document data were extracted with details of: digital location, authorship, audience, date, document type, main action being performed in the text (eg making a demand or complaint in a letter, carrying out a survey), summary of content, motives or interpretations linked to the action (eg odour nuisance, perception of deceit) and any critical events or experiences referenced in the text. Where the data were also referencing other actions or events, the action or event was recorded in its own row on the time line, along with any interpretive work being connected with that action. The key content from more reflective data was also recorded on the time line to provide insight into some of the interpretive work going on at that particular point in time. Such texts were also identified on the spreadsheet in order that they could be easily retrieved and considered in more depth in the second stage of analysis, if considered appropriate (See appendix 4 for example of data extraction database and procedure). By considering the above listed range of contextual information for each text the research was also addressing questions relating to credibility (eg likely bias in authorial perspective), the importance of which was discussed in the previous chapter.

The data extracted from the documents were also coded in order to facilitate thematic analysis. Six broad and theoretically informed columns were inserted into the spreadsheet, into which more specific codes could be inserted to describe the main

themes of interest in the data. A top down, theory driven approach was thus used to build the basic coding framework, but to remain open to new issues and the finer detail specific to this case study, codes and concepts were developed as grounded in the data. The final coding categories were thus developed via an iterative process, moving between the data and the analytical concepts. In this respect, some of the practical techniques of coding and comparison associated with the grounded theory of Glaser and Strauss (1967) were used in the analytical process, although the theoretical influences also informing the analysis meant that this was the extent of any application of ‘grounded theory’ in this research. Table 3 below demonstrates the primary list of codes to have emerged from the data, whilst Table 4 below this details the sub-codes that were developed from some of the primary RANT codes.

**Table 3: Primary codes**

RANT role.	Accounting, advising, complaining, counter hegemony, critiquing, expertise, expressing concern, lobbying, media work, meeting, networking, petitioning, picketing, promotion, representing, research, request action, request information, thanking, watchdog.
Non-professional relationships	Residents, business, community group, activist group, environmental group, media
Professional/statutory relationship (non-problematized)	GP, politicians, scientists, health authority, legal, head teacher, union, council, EA, statutory org, waste company, welsh office, welsh assembly.
Social problem/problematized relationships	Council, EA, HA, politicians, waste company, welsh office, politics, respect, trust, credibility, conspiracy, dependency, hegemony.
Physical/technical problem	Health, environment, nuisance, odour, pollution, technical, non-specific, multiple.

**Table 4: RANT sub-codes**

Advising	Expertise/developments/events
Complaining	behaviour/incident/legal/nuisance/planning/research/regulation/tipping
Meeting	council, epidemiologist, health authority, MP, multiple, public
Research	environment/ health/ legal/planning/technical
Request: action	Health inquiry/ research/ tipping/ advise/support/meeting
Request: information	environment/ health/ incident/legal/ planning/ finance/research/tipping
Watchdog	environment/ social

Retrospective data from the evidence submitted by residents to the investigation was also used to help build this narrative. These accounts provided an extremely useful resource for triangulation. They were subjected to a thematic analysis, with sufficient attention also paid to the narrative structure of selected extracts to enable consideration of how actors were making sense of their experiences. This in turn facilitated identification of critical events and the meaning and significance being attached to them. The data were coded using many of the same codes identified above, although care was also taken to look for new or contradictory cases in the data. The triangulation of multiple sources is also of course another technique for assessing credibility, as identified in the previous chapter.

Following the extraction and coding of the data from this set of documents, the next task was to develop a narrative account of the struggle. The key aims when constructing this account were to identify and describe chronological phases or patterns in RANTs activities and interpretations of the situation, along with the key events or experiences that appear to influence these actions or interpretations, and hence could be considered ‘turning points’ or critical moments in the ‘struggle’. This was accomplished firstly by reading and re-reading the time line in order to get a ‘feel’ for the chronology and the key events which drove it forwards. The ‘sort’ function on Excel was also used to retrieve data thematically via the ‘action’ and ‘problem’ codes assigned to the data (see above). This enabled an exploration of how chronological events intersected with patterns of interpretive and strategic activity, and provided the basis for the narrative story which defined and shaped the four findings chapter. The four findings chapters represent distinctive but nonetheless overlapping chronological phases, set apart by what are identified to be key turning points or critical events, and given their distinguishing features by the type of protest or campaign activities being undertaken in each phase. The findings chapters therefore follow four distinct phases and themes: *the origins of protest; navigating mistrust: social and political contestations; citizen science and political change, opportunity and the investigation.*

#### *Analysis: stage two*

The second stage to the analysis involved exploring in more detail some of the key texts or talk being produced by the key actor groups, as relevant to the different



identified phases of the conflict. Following the insights generated from the first stage of analysis and the theoretical interests informing the study as a whole, the decision was taken to focus attention on local statutory/ resident relations, and discourses around the health and environmental effects of the tip. For the first two chapters this meant sampling only from the texts of activists, the Council and the Environment Agency. In the third chapter, the texts of the Health Authority were also sampled, and in the final chapter (focused on the investigation), the talk and texts of the appointed epidemiologist, a researcher from *Friends of the Earth*, and the Investigator, was also included. The chosen documents were sampled either because they appear to have constituted critical ‘action’ documents, important to the development of the unfolding conflict and/or because they were engaged in a more reflective or claim making activity, with specific regard to the key thematic areas of local statutory/ resident relations and the health and environmental effects of the tip (see Table 5 below for numbers of sampled documents {excluding evidence submissions}, and Appendix 3 for bibliographic details of these documents)

**Table 5: Breakdown of sampled texts.**

	Letter	Press Release/ Information Bulletin/ Newsletter	Notes
RANT	37	4	1
Council	16	7	
Environment Agency	4	6	
Health Authority	4		

The analysis of the (non-investigation) documents was informed by the methodological perspectives and techniques discussed in the previous chapter, namely those associated with critical discourse analysis. As such attention was paid to the key claims/ frames being produced, and how these were being constructed in terms of resource categories and how these were being linked together. Although much of the literature reviewed earlier refers to ‘frames’ and ‘framing’, the diversity of the data set meant that there was no one set of terminology which could be applied universally, without forcing artificial descriptions onto some of the texts. This research was not just a study of collective action frames, and whereas some of the texts fitted well with

'framing' descriptors, others fitted better with constructs such as 'claim making' or those associated with narrative approaches. Where it was appropriate to do so, the data was conceptualised and described in terms of 'claim making'. Although claim making could be conceptualised as a more specific form of framing activity (eg it tends to be more explicit in its argumentation), it was considered useful to have this extra level of specificity for exploring what was in many ways the essence of this research; the construction of competing claims and counter-claims. Other terms were also used in places if these were found to have a better conceptual and descriptive fit with the data under discussion. In short, although this research did strive to achieve consistency in its application of descriptive and analytical terms, it also pursued a pragmatic and flexible approach to describing the data. Consistency in analytical approach, however, was ensured through maintaining the same principles of analysis discussed in the last chapter, and the underlying aim of investigating the substance and construction of a text, whether best considered a narrative account, a piece of claim making or broader framing activity.

To conduct the analysis theoretical and categorical insights from the literature and first stage of analysis were used in combination with grounded theory techniques of coding and comparison (Glaser and Strauss, 1967), to identify and describe types of claims, and the resource categories being used in the texts. Attention was also paid to how different resource categories were being connected and referenced within the texts. This information was extracted from each document using a Word template (see overleaf), which again collected the necessary contextual information to address issues of credibility described earlier and in the previous chapter. This method of extraction and organisation (as opposed to a computer assisted package) was considered most appropriate given the short length of these documents (eg letters or bulletins) and the fact that the documents were already assigned to author categories, as well as being located within particular chapters or 'phases'. The relatively small amount of text to analyse for each author/ chapter thus meant that a 'manual' approach was feasible, whilst the need to retain as much contextual and descriptive information on each source as possible, also favoured this approach.

**Extraction template**

<i>Ref/ Date</i>
<i>Author</i>
<i>Audience</i>
<i>Purpose</i>
<i>Claim (s)</i>
<i>Rationale/ Justification</i>
<i>Discursive resources/ how combined</i>
<i>Other features</i>

Table 6 below provides examples of some of the codes developed in this stage of analysis to describe the types of claim and the resource categories being used to construct these.

**Table 6: Examples of discursive codes.**

<b>Actor</b>	<b>Claim category</b>	<b>Resource categories</b>
RANT	Nuisance	Moral, emotive, experience, quality of life, health, pollution, nuisance, local ownership/norms
RANT	Legal	Law, evidence, technical, local knowledge, stat. responsibility/duty, health, pollution.
RANT	Mobilising	Emotive, moral, political, protest, health, responsibility/duty
RANT	Statutory failure	controversial events, responsibility/duty, good political practice, credibility/ trust, common sense metaphor, bad politics/ governance, conspiracy
Council	No basis for action	Evidence, local investigations, legal position, roles/responsibility
Authorities	Minimising risk	Probability language, evidence, local investigations, alternative explanations, expert/scientific principles.

This stage of analysis thus sought to achieve a balance of breadth and depth in order to generate useful insight into the nature of the claims being made and the discursive substance for these claims, within their specific contexts. As such the texts were subjected to a greater depth of analysis than in a regular thematic analysis, but possibly not as deep as would be expected of a full scale discourse analysis. More attention could have been paid to other discursive features of the texts, but given space limitations and the wish still to draw out thematic observations, this was not felt

appropriate. As a guiding principle I sought to illuminate what I felt to be the most theoretically significant features of the selected texts. On the whole this tended to be the types of resource categories used, but on occasions I felt it useful also to comment on features such as tone, structure or linguistic style. Certain documents were also felt to be more interesting for the roles that they were constructing, through more implicit methods, than explicit claim making per se. In order to achieve maximum coverage of the extensive oral evidence transcripts it was necessary to focus on the content, as opposed to the construction of the scripts, and in the main, a thematic approach to the analysis was used, again focusing on the chosen thematic areas of public-statutory relationships and the health and environmental effects of the tip. That said, certain extracts from the transcripts were also subjected to some level of narrative or discourse analysis, when it was felt there were features of their construction that really added to the findings. Examples of such cases included personal illness narratives or discourses being produced to explain or contest explanations relating to the alleged health impact of the tip.

### *Integration of findings*

The final step in the production of the findings chapters was the integration of the discursive observations from the second stage of analysis into the appropriate sections of the narrative account which was produced in the first stage of analysis. A condensed example of text from the start of the first findings chapter is provided below, to illustrate this integration and to help explain the approach to the referencing of the documents.

The first protests against Nant-y-Gwyddon Landfill Site dated back to its initial planning stages in the late 1980s, with 5,000 signatures reportedly having been collected in opposition to the proposed site. <sup>1</sup>.... The main groups to be set up and active in the first stages of the protest were the Tonypany and District Action Group, and the Gelli Tips Action Committee....<sup>2</sup>

In these early months much of local residents' efforts were focused on seeking statutory intervention to prohibit non-household refuse. Their grounds for complaint and for requesting intervention seem largely to be the offensive air pollution, its impact on their quality of life and their growing concerns over links between local

<sup>1</sup> Resident, Oral evidence, 19/12/2000.

<sup>2</sup> South Wales Echo, 22/01/97.

health complaints and the tip. This position is clearly being constructed in letters written to the Council and an MP in September and December 1996<sup>3</sup> (R1,R2,R3)....

In these earliest letters (R1;R2), the residents were producing what could be considered a 'moral' case, emphasising their suffering and lived experiences of the effects of the tip....they provide fairly graphic descriptions of the smell and local health complaints, and the disruptions caused to their daily lives (eg not being able to sit outside, children unable to play in the street) (R1; R2).

As can be seen in the first paragraph, the text is producing the narrative or the 'story' of what is going on. This was written up from the first stage of analysis and is using the documents as evidence for the key observations being made in the narrative. Full references for these documents are provided in footnotes linked to the relevant pieces of text. This follows the standard practice of historians and avoids disrupting the text with large quantities of references. The second and third paragraphs then explore in more detail selected examples of resident claim making (as located at this point in the story). These observations were drawn from the second stage of analysis (of a much smaller number of carefully sampled texts). Because these texts are referenced repeatedly, and a key concern of this part of the analysis and findings was with the construction of actor discourses and texts, the decision was taken to label these texts (eg R1, R2, R3). In the first instance that one of these texts is cited a footnote is provided detailing the full reference as well as the assigned label. Every time the text is cited after this it is referenced using only the label. This approach not only reduced the number of footnotes required, but it also facilitated a fuller appreciation of the discursive content and construction of particular texts (ie observations within texts), as well as comparisons between texts. A full table of references for these documents is also provided in Appendix 3.

### Summary

The Nant y Gwyddon landfill site, and the protest surrounding it, was selected as a case study for its potential contribution to the sociology of public health risks and the study of collective action and mobilization. Using a diverse and extensive range of documentary evidence (drawn largely from the Assembly archives of the independent

<sup>3</sup> Letter from Action Group to Council 06/09/1996 (R1); Letter from Action Group to MP, 13/12/1996(R2); Letter from Action Group to Council, 13/12/1996 (R3)

investigation), the research investigated the key processes and relationships involved in the evaluation of perceived threats to public health in the period up to the closure of the tip in 2002.

The analysis of the documents was split into two main stages. The objective of the first stage of the analysis was to construct an historical account of the protest, which focused specifically on the actions and perspectives of the residents who became local activists. Through an exploration of how chronological events intersected with patterns of interpretive and strategic activity, a narrative story was constructed which defined and shaped the four findings chapters. In the second stage of analysis the positioning and claim making of the key actor groups was investigated via a more in-depth, discursive analysis of selected texts. Following the methodological perspectives and techniques discussed in the previous chapter, attention was paid to the key claims/ frames being produced, the types of resources being used to construct these claims and how these resources are being linked together. For the analysis of the transcripts a more straightforward thematic approach was used in order to enable a broader coverage, although certain extracts were also subjected to some level of narrative or discourse analysis, as appropriate. Throughout all stages of the analysis, a top down, theory driven approach was used to build the basic coding frameworks, but to remain open to new issues and the finer detail specific to this case study, codes and concepts were developed as grounded in the data. The final coding categories were thus developed via an iterative process, moving between the data and the analytical concepts. Finally, the discursive observations from the second stage of analysis were integrated into the appropriate sections of the narrative account to produce the four findings chapters. These follow the following distinct phases and themes: *the origins of protest; navigating mistrust; citizen science* and *political change, opportunity and the investigation*.

## Chapter Six: The origins of protest

### *Introduction*

This first findings chapter charts the origins and early stages of organised action against the landfill site in the period from late 1996 to mid-April 1997. It explores the interpretive and strategic activities of a group of residents-come-activists who within months had developed a campaign which had progressed from letter writing and complaint making to high levels of organisation and widely supported forms of direct action, the most significant of which was a picket formed outside the gates of the tip. In what is the most dynamic and fast moving of the periods under study, this chapter also identifies several key events and turning points in the emergent conflict, and how Rhondda Cynon Taff Council and the Environment Agency responded at a discursive level to the unfolding situation, as they sought to construct and negotiate appropriate positions for themselves. A basic timeline is provided overleaf to indicate key events in the period under study (1996 to spring 2002).

### **A common nuisance, a collective response: the origins of protest.**

The first protests against Nant-y-Gwyddon Landfill Site dated back to its initial planning stages in the late 1980s, with 5,000 signatures reportedly having been collected in opposition to the proposed site.<sup>4</sup> However, it was not until 1995 that organised protest began to re-emerge and lay the foundations for the concerted community campaign that would lead ultimately to the closure of the tip in March 2002. The main groups to be set up and active in the first stages of the protest were the Tonypany and District Action Group, and the Gelli Tips Action Committee. The former was established in late 1996 as a response to the odour problems at the tip, whilst the latter group was set up in 1995 primarily to stop the creation of a second tip at the nearby Bwlfa farm, but they also worked to address some of the pollution problems at the Nant-y-Gwyddon Tip<sup>5</sup>. In particular they had raised concerns over the dumping of calcium sulphate filter cake at the site back in the summer of 1995<sup>6</sup>, following the ‘whistleblowing’ of a concerned (and subsequently dismissed) company

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<sup>4</sup> Resident, Oral evidence, 19/12/2000.

<sup>5</sup> South Wales Echo, 22/01/97.

<sup>6</sup> Resident, Oral evidence, 19/12/2000.

**Timeline of key events: 1995**

Late 1996  
Tonypanyd and District,  
and Gelli Tips  
Action  
Groups begin  
to step up  
protest.

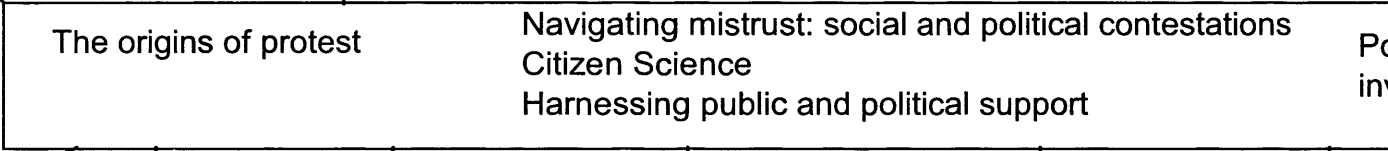
Early  
February  
1997:  
Waste  
company  
stop  
dumping  
of filter  
cake

April 1997  
(mandate):  
-Waste company  
agree to only accept  
household waste  
from RCT/  
Glamorgan pending  
results of  
commissioned  
health studies  
-Picket is called off

May 1997:  
Picket  
resumed

Oct 1997:  
-Landlease  
agreement  
-End to  
picket  
-Protestors  
prosecuted

May  
1999:  
Plaid  
Cymru  
victory in  
local  
elections



January/  
February  
1997:  
-Public  
Meetings  
-Marches  
-Picketing  
-Petitioning

February/March  
1997:  
-RANT formed  
-Continuation of  
picket/ other  
protest  
-RANT survey  
of child health

April/May 1997  
(controversial  
reports):  
-BTHA health  
profile (no  
health risk)  
-CL Associates  
Report

November  
1997:  
-Publication of  
first epid. study  
-Controversial  
council press  
release.

July 1999  
Devolutio  
National  
Assembly  
Wales is  
formed.



employee and local resident, with regards to the deposit of this material at the site.<sup>7</sup> Although these concerns were temporarily shelved following reassurances that the calcium sulphate waste would cause no problems, it was described how when the smells returned in summer 1996, attention became focused again on this waste which was known for causing similar odour problems in the surrounding villages of Pontyclun and Trecatti.<sup>8</sup>

In these early months much of local residents' efforts were focused on seeking statutory intervention to prohibit non-household refuse. Their grounds for complaint and for requesting intervention seem largely to have been the offensive air pollution, its impact on their quality of life and their growing concerns over links between local health complaints and the tip. This position was clearly being constructed in letters written to the Council and an MP in September and December 1996<sup>9</sup>(R1, R2,R3). For example, in the first of these letters it was described how:

‘Under certain weather conditions our environment, both inside our houses and in the street, becomes engulfed in the smell. It is most offensive. We are deeply concerned about the effect this may have on our health, and in particular on the health of the many young children living in the locality..... My neighbours are complaining of severe nausea and headaches, due directly to the air pollution from the tip. Our children find it impossible to play in the street.’ (R1)

In these earliest letters (R1;R2), the residents were producing what could be considered a ‘moral’ case, emphasising their suffering and lived experiences of the effects of the tip and pointing to ways in which their community expectations of local living standards had been breached. In describing how ‘many of us have lived all our lives here’ the authors laid claim to their community and local area. They also offered fairly graphic descriptions of the smell and local health complaints, and the disruptions caused to their daily lives (eg not being able to sit outside, children unable to play in the street) (R1; R2).

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<sup>7</sup> Report of the Independent Investigator, 12/12/2001.

<sup>8</sup> Statement of RANTs aims and objectives, March 1997.

<sup>9</sup> Letter from Action Group to Council 06/09/1996 (R1); Letter from Action Group to MP, 13/12/1996(R2); Letter from Action Group to Council, 13/12/1996 (R3)

In spite of the large number of complaints being made to the Council, the tip management, politicians and the Environment Agency, already there was a described sense of 'falling on deaf ears', (R2) which forced residents to start to consider alternative options. Having failed to get the health concerns looked into properly, in the last months of 1996 the activists organised their own health survey of local adults. One activist described how 'we organised our own clinics where we had people to come along and fill in a petition and that was looking at what kind of illnesses people were suffering'<sup>10</sup>(such surveys are discussed in more detail in chapter eight). In a letter written to the Council in December the activists also began to draw on a new set of discursive resources to try to construct a stronger and more legitimate position. In contrast with the more moralistic rationale being developed in the earlier correspondence, the logic starting to be produced here was of a breach in the law and assumed statutory standards. They proposed a case of statutory nuisance, as defined by the Environmental Protection Act;

'The deterioration in air quality and nuisance is in direct violation of Environmental Protection Act 1990. Hasbury's Law of England Volume 34, Definition of Public Nuisance-A Public Nuisance is one which inflicts damage, injury or inconvenience on all persons, subjects or on all members of a class who come within the sphere or neighbourhood of its operation.' (R3)

They also supported their health complaints with the findings of their health survey which noted 'an increase in incidence of suffering from headache, sore throat, fatigue and general malady', and suggested that 'this could be caused by the obnoxious fumes and poor air quality we are experiencing since the 3C waste company took over management of the Nant-y-Gwyddon refuse site'. In addition to repeating earlier calls for a restriction on waste type, in this letter they also connected their concerns with a call for an investigation of soil, air and water samples, 'in order to ascertain without doubt that there is not any danger to public health' (R3). In November of the same year the campaigners also got in touch with Friends of the Earth, to ask if they could carry out an analysis of soil, water and air samples from the landfill, in order that they have more detailed and substantiated evidence before calling a public meeting.<sup>11</sup> The importance of evidence was therefore starting to be recognised not

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<sup>10</sup> Activist interview (01)

<sup>11</sup> Letter from Action Group to Friends of the Earth, 28/11/1996.

only in terms of putting direct pressure on the appropriate authorities, but also as a device for raising awareness and harnessing popular support.

Promotion and mobilisation was the other main area of activity in this period, as suggested in the distribution of newsletters and the calling of two public meetings. In January 1997 the Tonypany and District Action group publicly distributed a paper titled 'Nant-y-Gwyddon Refuse Site Our Grave Doubts and Discoveries'<sup>12</sup> (R7). In contrast with the more explicitly 'mobilising' agendas of the public documents which follow shortly afterwards, the main function of this paper seems to have been to inform local residents of the main concerns and beliefs of the group regarding the tip, as well as to provide readers with 'important telephone numbers' (the Environment Agency, 3C Waste, Friends of the Earth and the Water Board). In this respect the activists were developing their 'tip as a problem' repertoire. The key claims being developed here can broadly be categorised as: the environmental hazard presented by the geographical positioning of the site, the disposal of filter cake at the site and problems with the membrane; the health hazard presented by the fumes and gases formed by the filter cake; the role and responsibility of the Council in producing this 'grave situation' and finally, the course of action desired of the Environment Agency, who are suggested to have a clear 'duty' to take action with respect to the tip. In terms of the discursive resources being used to construct these claims, this paper is interesting for its use of 'technical', knowledge based categories, over more moral or political arguments, as it sought to present a case based on observed 'facts' (eg using media references and the World Health Organisation as an 'expert source'), experiential knowledge of pollution, the law (Environmental Protection Act, 1990), local illness experiences and local observations of problems at the tip. It also assigned blame and responsibility to the Council based on a rationale of flawed technical decision making, as opposed to flawed democratic or political processes.

Public meetings also formed an important part of the activists' mobilisation approaches. Two public meetings were hosted separately in January 1997 by the Tonypany and District Action Group and the Gelli Tips Action Committee. These meetings were attended not only by activists and the general public, but also by

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<sup>12</sup> Tonypany and District Action Group, Information Sheet, January 1997 (R7).

various advisors, who had been called in to help guide and inform the options for action. Representatives of Friends of the Earth spoke on environmental and health issues, whilst following the first meeting it was described how ‘the Tonypandy and District Action group intends to seek legal advice, after hearing campaigner tell residents of the battle the community in Dowlais is fighting over the Trecatti tip’<sup>13</sup>. A local councillor, activist and chairman of the Gelli group, said: ‘The smells and other problems which the people of Trecatti suffered are the same as those in Gelli. By working with other groups we strengthen our own campaign’<sup>14</sup>. Efforts were similarly being made to enlist the support of local MPs, and to involve ‘local newspapers, the Environment Agency, Community Health Physician and Television in our campaign’ (R5).<sup>15</sup> These meetings were important events in the chronology of the ‘struggle’. One resident described how these meetings served as an ‘awakening’<sup>16</sup>, and it seems that they laid the groundwork for the campaign proper, in terms of securing support and gaining public endorsement of a more specific set of aims and objectives and a commitment to direct action. The main aims and objectives coming out of these meetings were reported in the press to be that tipping at the site is stopped while tests are carried out and expert advice is sought, in particular in relation to the filter cake, in order to see if it is a health hazard.<sup>17</sup>

Following from these meetings more serious illnesses were also starting to be detected and suspected of being linked to the tip, and communicated, as key health concerns, to the respective authorities. In the meeting notes written for a council meeting, titled ‘community health concern’, gastrochisis is listed as the ‘No. 1’ point of discussion, on the basis that; ‘We have already been informed of 3 such cases...Medical people have expressed grave concern at the discovery’. An analysis of all local birth defects and incidence of breast cancer was thus requested for the last eight years (R4)<sup>18</sup>. The ‘high incidence’ of the ‘extremely rare birth defect gastrochisis’ was similarly referenced in a letter to the MEP (R5), and a letter to councillors<sup>19</sup>(R6), with sarcoidosis also being introduced as an unusual illness suspected of being linked to the tip in this letter. As

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<sup>13</sup> South Wales Echo; 24/01/1997

<sup>14</sup> South Wales Echo; 22/01/1997

<sup>15</sup> Letter from RANT to MEP; 10/02/1997 (R5)

<sup>16</sup> Resident (KH), oral evidence; 23/02/2001

<sup>17</sup> South Wales Echo; 14/01/97; 22/01/97.

<sup>18</sup> Activist Meeting Notes; 27/01/1997 (R4)

<sup>19</sup> Letter from RANT to all 76 councillors; 01/03/1997 (R6)

in the previous text, the activists were again providing a fairly factual (as opposed to emotive) description of the health problems, making use of technical terms and drawing on a combination of local knowledge, expert opinion (R4, R6), references in the media (R6) and once again environmental law in their endeavour to legitimate their claims and get themselves and their complaints taken seriously (R4, R6).

In terms of strategies, different types of pressure were starting to be applied. Meetings were held between council officers and campaigners, to try to come to an agreement, and in these engagements, as in previous letters, the campaigners sought to apply pressure through reference to appropriate environmental legislation (eg R6). They also sought to illustrate the weight of public opinion behind their demands, for example, via gathering signatures for a petition 'to stop toxic waste being dumped at the tip'.<sup>20</sup> In addition to directly communicating their demands and expectations to the Council, residents also began to engage in various forms of direct action, which included planned marches to the council headquarters in Clydach Vale and picketing at the gates of the tip<sup>21</sup>. As one activist at the time explained;

‘I think people were frightened and they were very angry and so there was a demonstration on the site a protest at the site. I think initially if I remember the gates were closed for a few hours. Some of the local people sat down and just blocked the roadway. And then it was decided in a meeting to go back and do that again, to carry out a blockade. January 1997 was the first protest and that happened a few times...’<sup>22</sup>

Another explained how ‘I joined the picket line with many other people at the gates in front of the Nant-y-Gwyddon site. I stood there in all weathers, in the belief that someone would take note of what was happening at the tip’<sup>23</sup>. These methods met with some degrees of success. One activist described the important solidifying and politicising effect that the protest action achieved in a quote which also nicely illustrates the strong local dimension to the protest at this time and the likely influence of traditions of civic action and cohesiveness in the Rhondda valley:

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<sup>20</sup> Letter from RANT to the Manager Somerfield; 08/03/97.

<sup>21</sup> South Wales Echo; 24/01/97.

<sup>22</sup> Activist interview (01)

<sup>23</sup> Resident (JN), oral evidence, 01/12/2000

‘And really obviously it was a very serious action and the police were there everyday but it was also a very good humoured one because there were all kinds of people there. There were several older people. We had a few quite elderly people who came up there every single day in every kinds of weather and a lot of this was done in the winter of course, as always. And on the site on the picket itself we talked about all kinds of issues- it became quite a meeting place really quite a forum for discussion. And the local cafes in Gelli used to send food up- fish and chips or cakes and biscuits, and people driving past used to beep their horns and wave and you know the school children going past on their buses would all wave. And we had a lot of visitors as time went on from other areas including Swampi who came with his dog and his friend and they stayed for a few days....’<sup>24</sup>.

There does appear to have been considerable public support and high turn outs for the protests, and large numbers (8,000+) of signatures were reported to have been collected on the petitions, as campaigners reflected on the ‘almost 100% support of the public’<sup>25</sup>.

*A ‘first round win’, but the fight goes on: the escalation of protest*

In early February 1997, in what was claimed as a ‘first round win in a long fight’ for the residents, the waste company was forced to stop dumping filter cake at the site<sup>26</sup>. This was directly attributed to the direct action taken by local people; the picketing at the tip, public meetings and marching to the council offices (R11)<sup>27</sup>. In early February the Council also resolved to implement an independent scientific report and by the end of March 1997 had commissioned an epidemiological study to be undertaken by the Welsh Combined Centre for Public Health and University of Wales School of Medicine and had invited the University of Glamorgan to carry out environmental monitoring.

Far from becoming complacent with their initial success, though, the campaigners were spurred into greater commitment, dedication and organisation. In response to the filter cake victory, one local councillor and activist at the time commented; ‘This is a victory for the residents, but the halting of tipping (of filter cake) is just one issue-

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<sup>24</sup> Activist interview (01)

<sup>25</sup> Letter from RANT to the Manager of Somerfield, 08/03/97

<sup>26</sup> South Wales Echo, 06/02/1997.

<sup>27</sup> RANT Newsletter, March 1997 (R11).

there are still a lot of other problems on tip.’ ‘There must be an independent public inquiry into the way it is being operated’<sup>28</sup> and on later reflection explained;

‘I think by that time people had seen a lot more than they realised. They had seen the amount of the waste going into the site. They were concerned generally about the safety of the site and so they decided, we decided to stay there to have a permanent picket to try to get the site closed down’<sup>29</sup>

At the next public meeting of 18<sup>th</sup> February 1997, hosted jointly by Gelli Tips Action Committee and the Tonypany and District Action Group, the decision was taken to merge the two groups to become Rhondda Against Nant-y-Gwyddon Tip (RANT). The newly formed RANT continued to apply pressure in much the same way as they had been doing; writing letters to councillors, MPs, and by attending meetings with Bro Taf Health Authority, the Council, the Environment Agency and the waste company (R11). In February, they also carried out a health survey of local children, via a questionnaire distributed in local schools (discussed in later chapters).<sup>30</sup> Most notable in this period though were the continued forms of direct action and the high levels of public participation and support. At the public meetings, votes were taken on courses of action (R8) and it was at the first RANT meeting that the public voted for an independent public inquiry into the design and running of the tip (R11). Following this ‘stormy, well attended meeting’, they then delivered in a letter to the Council the following set of demands (R8):<sup>31</sup>

- 1) A full independent survey must be carried out in parallel with the surveys carried out by Cardiff School of Medicine and Glamorgan University on the safety and management of the tip.
- 2) The Nant-y-Gwyddon tip must only accept normal household refuse from the Rhondda Cynon Taff area.

RANT followed these demands with a warning that ‘should these proposals not be agreed upon by the Council and actioned immediately, the residents of the aforementioned area will have no alternative but to take further action.’ (R8)

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<sup>28</sup> South Wales Echo, 06/02/97.

<sup>29</sup> Activist interview (01)

<sup>30</sup> Resident (GW), oral evidence, 19/12/2000

<sup>31</sup> Letter RANT to the Council, 01/03/1997 (R8).

There are several interesting features of these texts. The first of the demands suggests that already there was concern with securing 'independent' investigations, suggesting some level of mistrust towards the authorities. The second of the demands cited above could also be interpreted as an assertion of the local, as it suggests an acceptance of community responsibility for their own waste, but a strong objection to being the dumping ground for the waste of others. Rather than reason via technical or science based explanations, as in previous texts, the activists instead invoked protest and moral/ political categories: they threatened disruptive action, and implicitly claimed legitimacy with their description of their 'very stormy meeting'. They described how the meeting was also attended by members of the public, councillors, their MP and a solicitor; how it was held to enable residents to express their 'fears', and how the proposals motioned at the meeting were carried forward via democratic means (R8). Similarly in a brief letter written later in the month RANT again drew on the Environmental Protection Act to demand action. Whereas earlier letters referenced the act in their explanations of why the situation was 'wrong', in this letter they simply and directly 'refer you to your express statutory duties' (under EPA) and make a 'complaint pursuant to section 79 (1) of the Environmental Protection Act 1990' explaining that they 'look forward to receiving your confirmation that you will take such steps as are reasonably practicable to investigate the complaint' (R9)<sup>32</sup>.

Several newsletters and posters were also circulated to help enlist public support. In these documents the activists moved away from claim making in relation to 'the problems' (as in previous newsletters), instead engaging in 'protest talk', as they sought practical support for their actions. This involved detailing key dates and events, past and future actions, and what they hoped to achieve by these. This is seen in the statement 'Residents take to the street and march on council offices' to lobby councillors to 'ensure that they realise their in house studies are not going to satisfy the residents....' (R10).<sup>33</sup> In the first RANT newsletter some practical suggestions were made for how people might help; writing letters, delivering leaflets, picketing the tip, and an 'action check list' is provided at the end (R11). In addition to simply updating readers, the activists also developed several claims to try to secure support. A first of these was through claiming agency, by asserting the success of their

<sup>32</sup> Letter from RANT to Council: 19/03/1996 (R9)

<sup>33</sup> RANT Newsletter, *News from the Frontline*, March 1997 (R10)





activities. For example, in the first RANT newsletter, in a section titled 'success so far' it was stated 'direct action by local people-picketing the tip, public meetings and marching to the council offices -has forced RCT council and their (waste) company to stop dumping filter cake at Nantygwyddon' (R11). A second set of claims being made was of the need for continued public pressure and support for the campaign, and continued scepticism towards officials (R10, R11). In these documents, RANT also began to develop a set of legitimating claims. As in the demands made to the Council, RANT claimed 'public endorsement', drawing on events such as public meetings, votes and marches (R11), and also claimed 'public ownership' (of the tip), on the basis that 'Rhondda Cynon Taff Own it, we elect the councillors so that is WE (the people) OWN THE TIP.' (R10) (Capitals in the original).

The third of this kind of action oriented public document differs from the last two, in that although it too was aiming at getting people to take action and join the picket, it painted a much more urgent and desperate picture, as immediately conveyed in the title 'Our Children's Lives Are at Stake' 'Toxic, Toxic, Toxic' (R12)<sup>34</sup>. Seemingly written a bit later, once the picket had assumed a more permanent status and the results of their own child health study had been returned to them, it urged people to participate in the picket. The poster sought to secure support by stressing in dramatic language, the dangerous situation vis 'the poisonous and harmful gases' and the apparently proven health problems linked to the 'murdering menace Nant-y-Gwyddon tip'. The legitimacy and rationale being developed here was thus quite simply the urgency and gravity of the hazardous situation. In another contrast with the more subtle mobilising strategies of the last two documents, it much more directly asserted the stake, responsibility and desired solidarity of all residents of the Rhondda, thus again stressing the 'local' dimension, with statements such as 'please unite and stand together' 'your valley and your children need you', ending 'remember we are all at risk act now!'. (R12)

It seems that such messages found resonance with the local audience, and helped harness a wide base of popular support. The February public meeting was apparently attended by upward of 300 people and the following description in the press suggests

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<sup>34</sup> RANT Poster, *Our Children's Lives are at Stake*, April 1997 (R12)

a powerful display of strength and determination. The last sentence in particular is suggestive of protest traditions, and the well recognised use of chants and songs as uniting devices.<sup>35</sup>

‘...Protestors swarmed into RCT Council Chamber to make known their feelings about Nant y Gwyddon tip in Gelli. The crowd, several hundred in numbers, included Gelli residents, people from Taffs Well and a number of young environmental protestors from outside the RCT area. The campaigners waved banners demanding an end to pollution from the tip.... A formal letter of protest had been prepared...The letter, which was read out in the council chamber, calls for: A full, independent, public survey. A ban on all refuse except household rubbish from the RCT area.....The letter concluded with the warning that if these demands were not agreed and acted on immediately the protestors would take further action.....Protestors were then asked to leave the chamber to allow the scheduled council meeting to go ahead. Afterwards they continued their protest in the rain outside the chamber with chants and songs.’

Probably the most disruptive and critical action at this stage though, was the continued and sustained picketing of the tip which prevented the collection of rubbish and income for the tip operator. This disruption and pressure, combined with continued efforts at co-operation, via meetings between RANT, their MP, the Council and the waste company, led at the start of April to a new mandate. In this mandate the waste company agreed to accept only household waste from Rhondda Cynon Taff and Glamorgan areas, pending the results of the newly commissioned studies into the effects of the tip on local health<sup>36</sup>. This turnaround was described in the press to have come: ‘after leaders of the action group RANT met with directors of tip operators at a three hour meeting in Llwynpia on Tuesday’. The press report continued:

‘RANT members agreed at a second meeting last night to accept the company's proposal. The promise is the short term pledge that campaigners-more than twenty of whom were still forming a picket outside the tip gates today-have been fighting for. They were awaiting a written promise from tip directors today before calling off the blockade. A RANT member called the news a victory for people power. Speaking at the scene she said; “This achieves almost all our short term aims”<sup>37</sup>

<sup>35</sup> Rhondda Leader; 13/03/1997.

<sup>36</sup> Letter from RANT to MP; 15/04/1997.

<sup>37</sup> South Wales Echo; 03/04/1997.

### Council responses

Perhaps not surprisingly, the Council's correspondence with RANT and the public seems much more limited in this period. The texts sampled here include two Public Information Bulletins (C1: C2)<sup>38</sup> and three letters to RANT (C3,C4,C5),<sup>39</sup> which in fact constitutes most of the correspondence retrieved in this early period.

The information bulletins (C1, C2) are very 'factual' in their style. They seem to have been fulfilling an 'update', rather than an explicitly claim-making function, through what could be termed a 'neutral' reporting on events. For example, in the first bulletin provided to 'update concerned residents', a list of the health and environmental studies being or to be conducted was provided, along with a statement on the recent agreements by the waste company with regards to waste restrictions (C1). In the later bulletin (C2), the Council were reporting on the Bro Taf Health Authority Profile, and up to the penultimate paragraph the document was simply listing the main findings of the study. A similar update role was being performed in one of the letters to RANT (C3), the primary function of which was to report or confirm a recent event; that 'The company has now agreed that until the outcome of the investigation instigated by the Council is known, it will accept only Rhondda Cynon Taff and Vale of Glamorgan domestic waste, along with waste from Rhondda Community Skips.'

Although it might seem that this aspect of these texts says little about the positioning of the Council, due to the absence of explicit claim-making, in fact they were deploying a key discursive approach. Through limiting their public communications to a 'factual reporting', the Council were producing an impression of impartiality which was central to the role which it was constructing for itself. When this feature of their discourse is observed in conjunction with rarer but more explicit claim making activities, a much fuller picture of council positioning in this early period begins to emerge. For example, one of the key Council repertoires to emerge was concerned with 'evidence'. An example of this can be seen in the following extract from a letter

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<sup>38</sup> Council Information Bulletin; 19/03/1997 (C1); Council Information Bulletin; 24/04/1997 (C2)

<sup>39</sup> Letter from Council to RANT; 13/05/1997 (C3); Letter from Council to RANT; 02/04/1997 (C4); Letter from Council to RANT; 09/04/1997 (C5)

in which the Council was forced to engage in claim making, in response to an official complaint by RANT:

‘In response to the legal point made I would advise that the Authority is fully aware of its statutory responsibilities as prescribed by the Environmental Protection Act 1990. In this context there is no evidence to support enforcement action at this point in time.’ (C4)

In other words the Council was acknowledging a context under which it has responsibility to take enforcement action, with reference to the Environment Protection Act, but was denying that such a situation exists through a framing of the situation as one of ‘*no evidence.*’ However, a role for the Council in gathering such evidence was claimed in the next sentence that ‘our investigations are ongoing and you should be assured that appropriate steps will be taken should they prove to be necessary.’ This ‘*waiting for scientific proof*’ frame was a key resource for council claim making, and is the explicit articulation of the implicit update activity that can be seen in the information bulletin. The ‘no evidence’ frame was also used again in the second bulletin (C2) in the penultimate paragraph, which wrote that based on the figures ‘there is no discernable effect upon the health of the residents’ and also cites the apparent views of local health professionals to support this claim. The bulletin also reported the results of water sample analysis; that ‘the results of these tests confirm that there is no evidence to suggest that these water courses are being contaminated with leachate from the landfill site’.

The Council was thus engaging in public claim making only when it was directly challenged or when it had ‘evidence based’ resources with which to support its claims. This approach facilitated the production of its desired role as impartial investigator, gathering evidence in response to the ‘concerns of residents’, which in turn were referenced, and used as a discursive category to justify and explain council actions. The other main discursive resource used by the Council at this stage was their legal position in relation to the operation of the landfill. This legal status was similarly used to support the ‘detached observer’ role, as it was used to support claims of limited responsibility, or basis for interference in the day to day responsibility for the site itself (C3).

Some indication is also given of council perspectives on appropriate boundaries for public involvement. The defensive nature of the letter (C4) suggests little acceptance of any role or space for locally generated knowledge or evidence. However, another letter to RANT (C5) written only a week later, is much more concessionary in tone. It accorded notably more recognition and respect to RANT as an established community group, in its request for ‘representatives of your organisation who are in a position to speak for the various communities.’ This apparent shift could be attributed to the stated request for local participation by the appointed epidemiologist. However it might also be a product of the emergent community activist role being developed by RANT, which as well as forcing the Council to sit up and listen, may have been easier to recognise and accommodate (through consultative processes) than that of the ‘local expert’ (C5).

### **Environment Agency responses**

Only three public communications by the Environment Agency were identified in this period, all of which were press releases. The primary functions of these publications appear two fold. First, to outline the responsibilities and duties of the Environment Agency in relation to the landfill site, and second to try to illustrate how the Environment Agency was fulfilling on these obligations. The following paragraph was thus used at the start of the first press release<sup>40</sup> (EA1) and again repeated in the later two documents<sup>41</sup> (EA2, EA3)

‘Nant y Gwyddon is a landfill site operated by Rhondda Waste Disposal Limited which is a limited company owned by Rhondda Cynon Taff County Borough Council. The Environment Agency is responsible for ensuring the waste management licence conditions are met so that the site does not cause harm to human health, pollution of the environment or serious detriment to the locality. The site is licensed to accept non hazardous domestic, commercial and industrial waste.’

In other words the Environment Agency was claiming a role for itself in relation to ‘the conditions of the waste management licence’, and with concern for health, pollution and other damage to locality. In trying to account for how the Agency was

<sup>40</sup> Agency Press Release; 14/01/1997 (EA1)

<sup>41</sup> Agency Press release: ‘Agency move on waste management licence’; 24/01/1997 (EA2); Agency Press Release: ‘Agency Investigate Landfill Site Complaints’; 27/03/1997 (EA3)

meeting its responsibilities, the three releases drew on several categories of resources, which further illustrated the Environment Agency's interpretation of their role. One of these sets of resources used in the texts could be considered 'motive resources,' and these were used to provide the context for the reported Environment Agency actions. They included public complaints about odour, the confirmed findings of subsequent Environment Agency investigations into odour (EA1, EA2), the need for 'further work' at the tip (EA2), and other 'incidents', which warranted investigation of 'all the circumstances' (EA3).

In other words, the Environment Agency appeared to acknowledge the existence of an odour problem at the tip, which in turn required them to take action. Within the texts it is possible to identify four different action repertoires which they were also developing to account for their actions and responsibilities. A first of these can be seen in their 'technical assessments', as both the problems and the solutions with the tip were being discussed almost entirely in technical terms, using language such as operational standards, best practice, remediation measures etc, and as exemplified in the following explanation:

'....The company carried out improvements to the gas control system and improved operational standards. However, complaints were received last weekend following a breakdown in the new flare on site, caused by the thawing of ice....The flare was relit promptly and no further complaints have been received' (EA1)

A second 'action area' being developed was in accounts of the investigative work being undertaken or planned, as the Environment Agency cite 'site inspections', and 'further studies', as examples of their responses to the problems (EA1, EA2).

In a third area of action, the Environment Agency wrote in terms of regulation and enforcement activity. In all three texts it was described how: 'In December the Agency issued a formal warning to the company about unsatisfactory operational standards at the site.' (EA1, EA2, EA3). The texts also made threats such as; 'failure by the operator to maintain current improvements will leave the Environment Agency no choice but to take legal action' (EA1), and reported considering 'legal

proceedings' in the third release too (EA3). In the second release, titled 'AGENCY MOVE ON WASTE MANAGEMENT LICENCE' (capitals in original) it was also described how the Environment Agency 'has made a decision to vary the waste management licence at the Nant y Gwyddon landfill site in the Rhondda' (EA2, and also cited EA3)

A final action area that was emerging in these texts was around the Environment Agency's role as 'public servant', as they sought to present themselves as responding to public complaints, keeping the public informed of actions, and holding meetings with representatives. It was described how 'the Agency sent letters to all residents who had made complaints earlier in the month' (EA1, EA2, EA3), and how the Agency 'informed complainants of the steps taken..... met the local MP... officers from the council, Health and Safety Inspectorate, Bro Taff Health Authority and 7 representatives of the local action group to discuss the issues' (EA3).

### **Summary**

The first protests against Nant-y-Gwyddon Landfill Site dated back to its initial planning stages in the late 1980s. However, it was not until 1996 that organised protest began to re-emerge and lay the foundations for the concerted community campaign that would lead ultimately to the closure of the tip in March 2002. In the months of late 1996 much of local residents' efforts were focused on seeking statutory intervention to prohibit non-household refuse as residents produced what could be considered a 'moral' case, emphasising their suffering and lived experiences of the effects of the tip and pointing to ways in which their community expectations of local living standards had been breached. Before long though the rationale being developed was of a breach in the law and assumed statutory standards, and the activists began to introduce 'evidence' to support their case and use 'technical', knowledge based categories, over more moral or political arguments. Following the January public meetings more serious illnesses also started to be detected and suspected of being linked to the tip. As such they were communicated to the authorities as key health concerns in need of thorough investigation. Residents also began to engage in various forms of direct action, which included planned marches to the Council headquarters in Clydach Vale and picketing at the gates of the tip. These methods secured an early victory in February 1997, as the waste company was forced to stop dumping filter

cake at the site. Spurred on by this victory the newly formed RANT demanded of the Council that a full independent survey be carried out and that the Nant-y-Gwyddon tip must only accept normal household refuse from the Rhondda Cynon Taff area. In this set of communications, rather than reason via technical or science based explanations, the activists' invoked protest and moral/ political categories as they sought immediate responses and practical support for their specific actions. Another interesting theme in much of these texts was also the strong local dimension being asserted or implied, which in contrast with the later stages of the campaign suggested a predominantly 'inward' perspective, as the activists sought to mobilise local obligations, loyalties and (assumed) memories and traditions formed in past experiences of community protest. Meanwhile the continued picketing of the tip, combined with continued meetings and efforts at co-operation, led at the start of April to a new mandate being agreed with the waste company who agreed to accept only household waste from RCT/Glamorgan, pending the results of the newly commissioned studies into the effects of the landfill site on local health.

The Council's communications with the public in this period tended to be very 'factual' in their style. The information bulletins seemingly tried to fulfill an 'update', rather than an explicitly claim-making function, as through a 'neutral reporting' the Council worked to produce an impression of impartiality. In the instances in which the Council engaged in more explicit claim making, a much fuller picture of council positioning in this early period begins to emerge. For example, one of the main Council repertoires to emerge was around 'evidence'. The Council acknowledged a context under which it has responsibility to take enforcement action, with reference to the Environment Protection Act, but was denying that such a situation existed due to their being 'no evidence.' However, a role in gathering such evidence was claimed with regards to commissioning investigations, which might then provide a basis for action. The other main discursive resource used by the Council at this stage was their legal position in relation to the operation of the landfill. This legal status was similarly used to support a 'detached observer' role, as it was used to support claims of limited responsibility, or basis for interference in the day to day responsibility for the site itself.



In their communications with the public the Environment Agency more explicitly claimed a role for itself in relation to 'the conditions of the waste management licence', and with concern for health, pollution and other damage to locality. Within the texts it was possible to identify four distinct action repertoires being developed to account for their roles and responsibilities. A first of these was seen in their 'technical assessments', as both the problems and the solutions with the tip were being discussed almost entirely in technical terms. A second 'action area' being developed was in accounts of the investigative work being undertaken or proposed, as the Environment Agency cited 'site inspections', and 'further studies', as examples of their responses to the problems. In a third area of action, they started to write in terms of regulation and enforcement activity. A final action area emerging in these texts was around the Environment Agency's role as 'public servant', as they sought to present themselves as responding to public complaints, keeping the public informed of actions, and holding meetings with community representatives.

## **Chapter Seven: Navigating mistrust, social and political contestations**

### *Introduction*

The last chapter ended in April 1997 with the halting of the picket further to the waste company's agreement to accept only household waste from the local area (pending the results of the newly commissioned studies into the health effects of the landfill site). This next chapter explores how a series of events shifted residents' perceptions of, and responses to the emergent conflict situation. It describes how the conflict became increasingly social and political in its terrain of contestation, and in turn how the highly localised protest of the previous chapter broadened out and expanded at both discursive and strategic levels.

### **The makings of a social problem**

In spite of the new mandate agreed in April 1997, which saw the protestors call off the picket action, underlying tensions were still brewing. On learning that children (like adults) were complaining about headaches, nausea, and eye troubles, RANT had in February 1997 carried out a health survey of school children, via questionnaires distributed in local schools to be completed by parents/guardians. In April 1997 the data from the survey was being analysed by their 'medical expert' (a retired GP with a history of involvement in environmental health disputes). The survey reported high percentages of children experiencing a range of poor health conditions such as headaches, eye infections, sore throats, asthma, bowel upsets and nausea<sup>42</sup>. Not only did the findings of this survey give reason for alarm, but the behaviour of the local health board with regards to this survey and local health concerns generally gave further cause for concern and suspicion. RANT was already sore at the Health Authority after they had sent a letter to every school asking head teachers not to take part in the survey.<sup>43</sup> At the end of April 1997 the Health Authority then published their health profile for the area which reported no significant problems, serving to further fuel the suspicions of the protestors<sup>44</sup>. These suspicions were compounded five

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<sup>42</sup> Concerns in relation to child health in the vicinity of Nant-y-Gwyddon Landfill Site: Report produced on behalf of RANT by their 'independent observer' (the retired GP)

<sup>43</sup> Resident (GW), oral evidence, 19/12/2000.

<sup>44</sup> Rhondda Leader, 24/04/1997; Western Mail, 29/04/1997.

days later when a research project investigating cancer clusters in the area, and being led by one of RANT's 'expert associates' (the retired GP), was reported to have collapsed following the Welsh Office's refusal to hand over computer information on hospital cancers cases. This prompted claims by local campaigners that 'there may be an official cover up in the valleys.'<sup>45</sup>

However, it was the publication in early May 1997 of a report by CL Associates into the management of landfill gas and leachate at the tip which prompted the residents to resume their picket at the tip gates (see table 7 p. 131 for further details of these 'official' investigations). The residents' anger was partly due to what it said about the tip, but was also in response to the way the report findings had been handled and what this seemed to say about the relevant authorities and their 'cloak and dagger tactics'<sup>46</sup>. The report raised questions about contamination and pollution, but no mention was made by the Council of these problems when they met with RANT to discuss the report, leaving RANT to learn of them only through a consultation with Friends of the Earth. As the residents again took to the tip gates, their new demands reflected an intensified level of suspicion, and they called for an end to all tipping pending a full public inquiry into the management of the tip and its effects on health.<sup>47</sup> (R14)

These events marked a turning point at a psychological as well as strategic level. The issues began increasingly to take on more of a social and political character and a new set of claims directed at the behaviour of the authorities started to be made. In several of the letters written in this period one of the more general claims being made was of the authorities 'lack of concern for residents'. In a letter to the MP, in which RANT were appealing for support, RANT explained how they have had 'to step up action to press for a public inquiry into the management of the site and the Council's lack of concern for residents' (R14). In a letter to the Council RANT similarly implied a lack of care or concern on the part of the authorities, as they explained their intention to picket 'until such times that the Local Authority and/ or Environment Agency take steps under their 'duty of care' to close this site legally and make it safe.'<sup>48</sup> (R13) This apparent breach in community expectations towards these authorities was more

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<sup>45</sup> Western Mail, 29/04/1997.

<sup>46</sup> Letter from RANT to Environment Agency; 29/05/1997.

<sup>47</sup> Letter from RANT to MP for Rhondda; 29/05/1997 (R14).

<sup>48</sup> Letter from RANT to Council; 04/06/1997 (R13).

explicitly claimed in the following appeal to the MEP, which spoke of a loss of hope in the future and also specifically claimed a 'loss of trust';

'Fighting big business is a time consuming task and needs so much energy from the people involved. However, when one has to take on the Local Authority and the Environment Agency, organisations who are supposed to be there to champion the rights of the individual, it is not only energy that one loses but the faith and hope for our future....We are now in despair, it seems to us that the Environment Agency is bending over backwards to support the company running the tip, to our cost. Because of this we have lost all trust in them'<sup>49</sup> (R16).

The progression of events also meant that this time round there was to be no consensual resolution to the tip side stand off. Rather, in October 1997, the attempted dispersion of the picket (and the return of the refuse lorries) came in the form of a land-lease agreement and subsequent court orders. These resulted in seven protestors being turned into trespassers following the Council's decision to lease to the waste company, the previously public land on which the protestors had set up camp. The significance of this decision was interpreted by the press to mean that 'the company can now ask police to forcibly remove protestors from its land so rubbish can be tipped.' However, it was also noted how 'Campaigners, who have had to put up with fumes from the site which they fear could be affecting their health, have vowed to continue their protest at the tip and say they are prepared to be arrested for their cause.'<sup>50</sup>

Not only was the resumption of tipping considered wholly irresponsible given that the findings of the commissioned health reports had not yet been published<sup>51</sup>, but the covert and dubious manner in which this was perceived to have been accomplished was thought to question the Council's credibility and assumed duties and obligations to the public. An activist explained how this 'injustice' resulted in 'seven upstanding members of the community having to go through the trauma of the high court...'<sup>52</sup> and was considered 'highly suspect' as it was not done according to statutes<sup>53</sup>. A number of subsequent incidents in the months that followed the reopening of the tip

<sup>49</sup> Letter from RANT to MEP for Rhondda; 09/08/1997 (R16)

<sup>50</sup> Rhondda Leader, 17/10/1997

<sup>51</sup> Western Mail, 23/10/97.

<sup>52</sup> Letter from RANT to Council, 23/02/1998.

<sup>53</sup> Resident (GO), oral evidence, 23/02/2001.

then really started to position the Council in oppositional terms. The results of the first epidemiological survey were released in November 1997. The ‘inconclusive’ findings of the investigation were in themselves disappointing to residents, but the situation was exacerbated further by the Council’s responses.<sup>54</sup> Not only were members of the public delayed in being given a copy of the first epidemiological study in November 1997<sup>55</sup>, but the Council press release which was issued on the subject was seen to purposively downplay possible risks associated with the tip. For example, in response to this press release RANT wrote ‘the people of the Rhondda are now very much aware of the talent you and your Department have ‘minimising’ important facts and figures.... We will not let the matter rest here.... We will leave no stone unturned in our search for the truth regarding the true health data for our valley.’(R37)<sup>56</sup> Talking on the same subject another resident activist explained;

‘Rhondda Cynon Taff did not want the public, to have knowledge of our health problems. There was a meeting called on 20/11/1997, with an agenda: to consider passing the following resolutions; 1) that the press and public be excluded from the meeting....2) to consider the report of the Director of Environmental Services containing exempt information concerning the report commissioned by the council on the health of residents living near Nant-y-Gwyddon landfill site. In other words they didn’t want us to know the problems that were highlighted. The public would not leave the meeting so it was suspended to another date when the police were present to stop any members of the public attending.’<sup>57</sup>

This barring of residents from the council meeting in May 1998 by police provoked a similar outrage, sense of foul play and a fundamental lack of respect. Giving evidence at the investigation one resident asked; ‘what was the reason for this –most of the people that were there that day were old age pensioners’?<sup>58</sup> And in a much more extensive attack delivered at the time RANT argued;

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<sup>54</sup> The report was titled: ‘Report on the health of residents living near the Nant- y- Gwyddon landfill site using routinely available data’. It reported no difference between exposed and control wards for mortality data and hospital admissions for a number of general medical conditions. It found a cluster of congenital abnormalities in the ‘exposed’ area (but also that the cluster preceded the opening of the tip); an increase in spontaneous abortions in the exposed wards in 1996, and an increase in GP prescribing for respiratory and eye conditions in the exposed wards. It also highlighted problems with the quality of available routine data and made recommendations for several further investigations (see Fielder et al. 2000).

<sup>55</sup> Letter from RANT to GP; 13/11/97.

<sup>56</sup> Letter from RANT to Council; 18/11/1997 (R37).

<sup>57</sup> Resident, oral evidence (AT), 11/12/2000.

<sup>58</sup> Resident, oral evidence (JN), 1/12/2000.

'Since its inception, R.A.N.T has never shown any predisposition towards physical violence....This occasion is being referred to in the community as operation 'overkill'.....I hope that when the next meeting re the Nant-y-Gwyddon landfill site is convened, we as members of the public will be treated with some respect.'<sup>59</sup>(R21)

In terms of more enduring frustrations, one resident also described how;

'Complaints to Rhondda Cynon Taff County Borough Council and its officers, which were made during meetings that a statutory nuisance existed, were denied for a considerable period of time, stretching over two years. The Council even suggested that it was not its responsibility but that of the Environment Agency to enforce action under current legislation regarding statutory nuisance.'<sup>60</sup>

Mistrust of the Council was paralleled by increasing suspicions of the Environment Agency. The perceived slowness of the Environment Agency to investigate complaints and take action against the site operator for breaching its licence conditions, along with what was felt to be a misleading press release, similarly brought into question the assumed loyalties, obligations and competencies of this public body. In response to the Agency Press Release (August 1997) which was seen to deny or downplay the problem with the tip, RANT wrote that it 'only confirm(s) the very low opinion we have of your organisation, its managers and its ability to protect the ordinary citizen of the country'<sup>61</sup> (R17). In a letter of complaint written to the Head of the Environment Agency in London RANT asked 'I would be grateful if you could explain to me why the Environment Agency is so flexible with this company at our expense'<sup>62</sup>, and in another letter accused the Environment Agency of letting the waste company 'drag their heels', in response to the failure of the waste company to meet their improvement work deadlines.<sup>63</sup> (R18) In their evidence to the investigation one resident recalled making over 200 calls to the Environment Agency about odour, since he began counting and yet only on two occasions did they take readings at his house<sup>64</sup>. Several residents commented that they no longer bothered to ring the

<sup>59</sup> Letter from RANT to Council; 23/05/1998 (R21).

<sup>60</sup> Resident, oral evidence (WT); 01/12/2000

<sup>61</sup> Letter from RANT to Environment Agency; 08/08/1997 (R17).

<sup>62</sup> Letter to Environment Agency; 2/11/98.

<sup>63</sup> Letter from RANT to the Environment Agency; 02/11/1998 (R18)

<sup>64</sup> Resident, oral evidence (WT); 20/12/2000

Environment Agency<sup>65</sup>, and reported feeling that they were treated with contempt and as if they were lying<sup>66</sup>.

Giving evidence on the conduct of the Health Authority a RANT activist explained how they can personally recall at least four occasions on which it took the intervention of either the MP or AM before any response was received and that it is only in the last few months that the Authority has started to respond to local concerns, having 'taken years of complaints.'<sup>67</sup> Letters were also written at the time to the Health Authority Complaints Officer and the Welsh Office to complain about their treatment, in particular of being ignored and experiencing missed appointments.<sup>68</sup> In the letter to the Welsh Office RANT explained 'three letters from RANT to [the Director of Public Health] have been unacknowledged and unanswered. We feel this is totally unacceptable and as a result of their apparent disregard for our problems they have lost all credibility with the residents of the Rhondda with regards to their 'duty of care' for our health.'<sup>69</sup>(R22)

To construct their claims of statutory failure RANT not only detailed particular controversial events such as those described above, they also drew on both official notions such as 'duty of care' (R22; R13), 'open government'(R21; R23)<sup>70</sup> and what seems to be a specifically acquired knowledge of 'good political practice' in relation to specific processes. For example, in their response to being barred from the council meeting they spoke of an 'insult to the democratic process', citing their right to sit in on debates, and suggesting 'verbal barrage' to be par for the course (R21). In their objections to the implementation of an investigation of air quality (known as the Casella Survey, see Table 7 p131) they similarly pointed to the fact that it was not debated by elected members (R24). The purpose of these complaints was to highlight the failures of the local democratic processes and statutory responsibilities. Similar failures of function were also leveled at the Environment Agency. RANT wrote of the Environment Agency's 'ability to protect the ordinary citizen of the country'

<sup>65</sup> Resident, oral evidence (JN); (WT) 01/12/2000.

<sup>66</sup> Resident, oral evidence (RD); 19/12/2000

<sup>67</sup> Resident, oral evidence (JB); 18/12/2000

<sup>68</sup> Letter from RANT to Health Authority, 5/12/1997; Letter from RANT to MP, 2/12/97; letter from RANT to Health Authority, 22/04/99.

<sup>69</sup> Letter from RANT to Welsh Office, 08/12/97 (R22).

<sup>70</sup> Letter from RANT to Environment Agency, 16/07/99 (R23).

(R17), or as 'there to champion the rights of the individual' (R16), and describes how the normative assumptions of 'credibility' and 'trust' have been lost due to the behaviour of the Environment Agency (R16) and the Health Authority (R22).

They also drew on what could be considered more 'common-sensical' ideas or logic, as in the following complaint leveled at the Environment Agency that; 'when you set the time limits you must have expected the time to be sufficient to undertake the work requested, otherwise what is the point in setting unrealistic goals when the goal posts have to be moved at every opportunity' (R18). The use of the 'goal post' metaphor here extends the 'common sense' of their critique, as do the metaphors of 'dragging their heels' (same document) and the description of the Environment Agency as a 'lion with no teeth'<sup>71</sup> (R19). This use of metaphor illustrates a further set of resources, as RANT introduced fairly common notions of 'bad practice/governance', which they used in conjunction with their (failed) expectations of good practice/ governance. The 'lion with no teeth' is one such example, but can be further seen in their talk of 'fighting bureaucracy'<sup>72</sup>(R15), waste of public money in terms of the unnecessary cost to legal aid (R18), policing budgets, especially at time of 'cut backs' (R21) and council resources regarding the Casella Survey (R24).

Another important set of resources which RANT used to claim a more specific and more serious failing on the part of the authorities, was ideas and language connected with notions of conspiracy, which they linked to particular controversial events. Suggestions of conspiracy and cover up were fairly consistently levelled at the waste company throughout the period, whom they accused of distortion of facts, instigating trouble, and trying to 'uncover a nefarious plan' in order to discredit RANT with the Council and other members of the Rhondda community<sup>73</sup> (R16; R25). In a letter to the Environment Agency RANT also accused the waste company of having 'something to hide', as suggested by their refusal to allow their 'experts' access on site (R18).

Less common, but arguably more significant, were the instances in which the authorities themselves were accused of having involvement in an intentional

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<sup>71</sup> Letter from RANT to Environment Agency, 31/03/99 (R19).

<sup>72</sup> Letter from RANT to local Headteacher, 01/07/1997 (R15)

<sup>73</sup> Letter from RANT to Council, 29/07/1997 (R25)



conspiracy or cover up. This was most vehemently articulated in a letter to the Environment Agency requesting their attendance at an urgent meeting in relation to their concerns over the CL Associates Report on gas and leachate management at the site.<sup>74</sup> (R26) Drawing on the conspiratorial metaphors of 'cloak and dagger tactics' and being 'kept in the picture' RANT wrote; 'We feel that there has been enough 'cloak and dagger' information between parties despite your assurances at our meeting on 12th May 1997 to the contrary and we wish to be put fully in the picture as from this date.' The letter appealing for support from the MEP similarly spoke of being 'paranoid' and 'underhand dealings going on at the moment' (R16). In a letter to their MP following a controversial Council press release, RANT use another common metaphor in their claim that the 'council is using all their powers and the 'dirty tricks' brigade to annihilate our efforts at the moment', suggesting there to be a major cover up going on.<sup>75</sup>(R27) In a long letter of complaint in relation to being barred from a council meeting in May 1998, RANT again posed the question 'what has the Council got to hide?' (R21) and the strength of these apparently latent sentiments were again brought to the fore on the issue of the bond arrangements (or lack of) negotiated for the new waste company. In this letter to the Environment Agency RANT wrote:

'...I would like to ask you on whose authority you blatantly lied to us about this bond, and why we had to read about your volte-face in the Western Mail on Thursday, 8th July, 1999 (copy enclosed). Make no mistake (...), we will not let this matter rest, and in this era of open government, lies and sleaze are unacceptable' (R23).

### **Pro-social responses: citizen watchdogs**

These negative experiences with the authorities not only fuelled suspicions of conspiracy and cover-up, but also caused the residents considerable feelings of disrespect and general upset. Such experiences brought into question assumptions of even basic dependability, worked to erode the consensual orientations of protestors and encouraged them to take on new social roles and identities. In this changing context protest action became not simply a question of getting the authorities to fulfill on their perceived obligations (and ultimately close the tip, and carry out a full

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<sup>74</sup> Letter from RANT to Environment Agency, 29/05/1997 (R26).

<sup>75</sup> Letter from RANT to MP for Rhondda, 12/09/1997 (R27).

investigation), but it also brought into contestation the boundaries and rules by which previous expectations had been shaped. RANT also began to take on a ‘watchdog’ role in the community, developing a critical eye for environmental, social and political matters.

This ‘broadening out’ can firstly be seen at a discursive level in terms of how the ‘struggle’ was being constructed. Just as RANT spoke of a failure of the statutory authorities to ‘champion the rights of the individual’, it seems they started to see a new role for themselves here. In the already cited letter to the MP for the Rhondda, written in the wake of the CL Report controversy, RANT invited the MP to attend the next meeting, claiming ‘we feel we now need the solidarity of our Rhondda Cynon Taff MPs to support us in our campaign to live in a community which fosters the welfare of its people before financial gain’ (R14). In another appeal which similarly constructed the struggle as being opposed to the ‘system’ (rather than simply the tip), RANT claimed ‘It is only by standing together that we can fight bureaucracy and win.’ (R15) To support this more political framing of the campaign, RANT drew on a range of desperate and moralistic imagery. The talk was such as ‘the situation is now so serious’, stepping up action ‘to urgently press for a public inquiry’ (R14) of ‘emergency meetings’, ‘despondency and desperation’ (R27), whilst this idea of a worthy, righteous cause was constructed through talk of welfare, community (R14), standing together (R15), ‘hope and faith for our future’ (R16) and set in opposition to ideas such as financial gain (R14) and bureaucracy (R15). The idea of justice also began to feature more strongly in RANTs appeals, which contrasts with the earliest of objectives which were focused solely on having the tip closed and made safe (eg R13, R19).

#### *Environmental watchdog*

At a practical level RANT appear to have had a ‘team of observers’ at the tip, who on several occasions noted and made official complaints to the Agency and the Council with regards to breaches in licence conditions and other dubious practices. Such observed breaches included tipping outside the permissible area<sup>76</sup>, the stockpiling of

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<sup>76</sup> Letter from RANT to Environment Agency, 15/12/1997.

large numbers of tyres at the site (and fire risk associated with this)<sup>77</sup>, litter at the site<sup>78</sup>, lorries visiting the site throughout the night<sup>79</sup>, and the failure of lorries to carry their 'duty of care notices.'<sup>80</sup> RANT also made enquiries as to official working hours at the tip,<sup>81</sup> scrutinised planning applications relating to the tip<sup>82</sup> sought information from the Environment Agency on the compliance status of works due to be undertaken at the tip<sup>83</sup>, and vented other safety concerns, such as the checking of gas and water bore holes; access to the forest for the fire service and whether site staff have competent qualifications.<sup>84</sup> RANT also expressed concerns with some of the equipment being used at the tip. Following an incident with a piece of equipment in Germany they described how they 'have already written to experts in the field of waste management and plan to contact Siemens direct on this matter.'<sup>85</sup> In their complaint to the Health and Safety Executive (HSE) about certain insecticides, pesticides and rodenticides being used at tip RANT similarly allude to their investigative programme of work in this area.<sup>86</sup>

As well as keeping a close eye on the present operation of the tip, RANT also sought to keep a check on future undesirable deposits or developments. For example, on learning, 'through our comprehensive activities into matters of environment care and protection...' that large stock piles of waste materials were being prepared for disposal at the Royal Ordinance Factory<sup>87</sup>, RANT wrote to the Ordinance Factory, the Council, the Environment Agency and MP seeking confirmation that none of this waste will be deposited at Nant-y-Gwyddon.<sup>88</sup> In a similar vein, RANT wrote to the owners of Gelli spoil tip to urge that the spoil from the Gelli tip is not used at Nant-y-Gwyddon, as was intended.<sup>89</sup>

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<sup>77</sup> Letter from RANT to Environment Agency, 05/11/1998; Letter from RANT to Environment Agency, 20/03/1999.

<sup>78</sup> Letter from RANT to Environment Agency, 20/03/1999.

<sup>79</sup> Letter from RANT to Environment Agency, 04/06/1998.

<sup>80</sup> Letter from RANT to Environment Agency, 22/10/1997.

<sup>81</sup> Letter from RANT to Environment Agency, 15/07/1998.

<sup>82</sup> Letter from RANT to Council, 05/08/1998; Letter from RANT to Council, 25/08/98; Letter from RANT to Council, 15/09/98; Letter from RANT to Council, 07/06/2000; Letter from RANT to Council, 07/06/2000.

<sup>83</sup> Letter from RANT to Environment Agency, 08/10/1998.

<sup>84</sup> Letter from RANT to Environment Agency, 20/03/1999.

<sup>85</sup> Letter from RANT to Council Leader, 06/10/1999.

<sup>86</sup> Letter from RANT to Health and Safety Executive, 07/09/1999.

<sup>87</sup> Letter from RANT to Ordinance Factory, 29/12/1997.

<sup>88</sup> Letter from RANT to Council, 29/12/1997.

<sup>89</sup> Letter from RANT to solicitor of Maindy Estates (owners of Gelli spoil tip), 16/09/1998.

RANT's also monitored the condition of the local environment, in terms of its safety or potential risk for humans and wildlife. This included, reporting to the RSPCA the discovery of a dead fox, and the poor condition of other wildlife<sup>90</sup>, investigating the quality of the drinking water<sup>91</sup>, and the possibility of purchasing a hydrogen sulphide monitor for themselves<sup>92</sup>. They also issued warnings; of the danger in children's play areas close to the site, publicised the suspected risks to health in the various newsletters and publications<sup>93</sup> and wrote to the Welsh TUC alerting union members working near site of possible dangers to health.<sup>94</sup>

### *Social and political watchdog*

At a social and political level RANT increasingly began to hold the Council to account with regards to potentially dubious legal and planning decisions, and inconsistencies in stated council policies. Having scrutinised the Rhondda Local Plan, RANT wrote to the Council planning department to complain that Nant-y-Gwyddon does not appear to comply with any of the minimum criteria identified for new landfill sites in the document. They asked how the continued operation (and indeed proposed extension) of the landfill can be justified, 'when you have recognised that environmental damage will follow if the criteria you have outlined are not strictly complied with'.<sup>95</sup> They also held the Council to task for their slowness in exploring alternative rubbish or recycling solutions.<sup>96</sup> In response to the perceived 'illegal' leasing of land to the waste company, RANT repeatedly highlighted foul play to the Council legal department, Welsh Office and District Audit office, citing the relevant parts of the Town and Country Planning Act and Halsbury's Statutes and urging an investigation into the alleged serious offence.<sup>97</sup>

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<sup>90</sup> Letter from RANT to RSPCA, 30/12/1997.

<sup>91</sup> Letter from RANT to Welsh Water, 11/09/2000; Letter from RANT to Pesticides Action Network, 14/09/2000.

<sup>92</sup> Letter from RANT to Environment Agency; 11/11/99.

<sup>93</sup> RANT Pamphlet, Urgent Action for Rhondda Children, November 1997.

<sup>94</sup> Letter from RANT to Welsh TUC, 06/03/1998.

<sup>95</sup> Letter from RANT to Council, 25/09/1997.

<sup>96</sup> Letter from RANT to councillor, 22/04/99; letter from RANT to Council, 05/08/1998; RANT Information Sheet, 01/07/98.

<sup>97</sup> Letter from RANT to the Welsh Office, 11/11/97; letter from RANT to the District Auditor, 12/11/1997; letter from RANT to Council, 23/02/1998.

As well as challenging the authorities on issues specific to the tip and its effects, RANT also challenged council practice more broadly. At a financial level, RANT developed a critical concern for the 'public pound'. RANT fiercely opposed the use of public money to carry out any remediation works at the tip following the recommendations of the Entec reports on odour problems and hydrogen sulphide in the local communities (see table 7, page 131 for further details on investigations). In this letter they described how 'members of the public are now so concerned over the mismanagement of their money by the Council that there are rumours that large groups of people are planning to withhold their payments.<sup>98,99</sup> Likewise, they voiced their concerns over the lack of an insurance bond, which should have been provided by the Company, in the event that it went into receivership. RANT similarly complained to the District Auditor about council tax payers money being spent on the legal fees of the administrator<sup>100</sup> and questioned the amount of public money being spent on the air monitoring programme (the Casella survey) when 'the Casella survey on its own is only going to confirm the Entec findings'. Instead they suggested that 'this money should surely have been better spent towards the cost of updating the refuse collection system by introducing recycling schemes....' and expressed concern that 'in a council known to be struggling financially where will all this extra money come from and which service will suffer as a result?'<sup>101</sup>. More generally RANT also sought to keep a check on council and councillor expenditure. They requested a copy of the District Auditors Report<sup>102</sup>, and financial records relating to councillors' expenses, citing their rights under the Audit Commission Act 1998, and the case of another council being fined for failure to allow this.<sup>103</sup>

At a political level RANT queried unacceptable practices. They asked how funding for the air monitoring study was allocated without being debated by all elected members<sup>104</sup>, how councillors have failed repeatedly to access appropriate reports, suggesting 'perhaps it is time that the officers of the Council are taken to task by the

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<sup>98</sup> Letter from RANT to Council, 09/03/98; letter from RANT to Audit Commission, 02/06/1998; letter from RANT to Environment Agency, 01/05/1998.

<sup>99</sup> Rhondda Leader, 21/05/98.

<sup>100</sup> Letter from RANT to District Auditor, 14/07/99.

<sup>101</sup> Letter from RANT to Council, 05/08/1998.

<sup>102</sup> Letter from RANT to Council, 26/08/1999.

<sup>103</sup> Letter from RANT to Council, 16/07/1999.

<sup>104</sup> Letter from RANT to Council, 05/08/1998.

councillors who employ them'<sup>105</sup> and most extensively and bitterly following their encounter with the police at the council offices in May 1998. This event was considered an extreme waste of resources, 'at such time of financial constraints' 'an insult to the democratic process' and completely at odds with the Labour Party's supposed commitment to 'open government.' (R21)

Although quick to deny local Labour Party accusations that they had become a political group RANT increasingly began to voice more extensive political critiques, publicly critiquing the words and actions of their elected representatives through letters published in the press or sent directly to the offending politician<sup>106 107 108</sup>. Here RANT drew on local political narratives of historical exploitation and Labour Party monopoly. They made comments such as 'the Rhondda Valley has suffered more, from exploitation by seekers of profit in the past than any area in the UK. It would be a sad story if our new Welsh Assembly perpetuated this "crime"<sup>109</sup>(R29), and following Labour's local election defeat (May 1999) they observed that the days where 'a donkey would be voted in if it were Labour' have well and truly gone.'<sup>110</sup>(R30) In a letter to the Environment Agency RANT again suggested exploitation, but with reference to social scientific categorisations: 'controversial landfills are always situated in areas predominated by those who are situated in social class 3.'<sup>111</sup> (R28)

*Not In Anyone's Back Yard (NIABY): campaigning and advising.*

Another feature of RANT's pro-social activities was in the advisory function they increasingly fulfilled, as they offered guidance and consultation to both other activist groups, and also local government bodies. With regards to activist groups, RANT developed connections with 'environmental protest groups' throughout Britain, thus again illustrating what could be seen as a shift from the local and particular to the universal and global, and an expansion out of local solidarities to wider networks of

<sup>105</sup> Letter from RANT to councillor, 18/02/1998.

<sup>106</sup> Letter to Councillor, 22/04/99; Letter to Councillor, 08/09/99.

<sup>107</sup> Letter to Editor, Western Mail, 03/05/2000.

<sup>108</sup> Letter to Councillor, 14/05/99.

<sup>109</sup> Letter from RANT to Welsh Assembly; 03/05/2000 (R29).

<sup>110</sup> Letter from RANT to Labour Councillor; 14/05/1999 (R30)

<sup>111</sup> Letter from RANT to Environment Agency; 21/06/2000 (R28)

common interest<sup>112</sup>. They joined twenty two similar groups in a lobby of parliament in January 1999, to protest against landfill in general and for 'all the residents throughout the UK living within 3 mile radius of these tips,'<sup>113</sup> and invited other groups to join them in their protests at the newly formed Welsh Assembly.<sup>114</sup> They also offered advice and expertise to newly forming groups, supplying information packs and in one letter proposing their advisor as someone 'who can advise on chemicals'.<sup>115</sup> In a letter to the pesticide trust, they reflected on how 'all our information has been gleaned through research and hard work which we are only too pleased to pass on to others in need'<sup>116</sup>. They also drew on the experiences and expertise of other groups, asking one group for any information on the 'gasification/ pyrolysis process'<sup>117</sup>, another for information on their exposure to hydrogen sulphide and a copy of their solicitors report<sup>118</sup>, and to a group in Ebbw Vale explained, 'Having read about your fight we would like to meet with you in order to try to understand how to go about ridding our council of its secrecy.'<sup>119</sup>

RANT were also keen to engage in guidance and consultation with governmental bodies in line with their growing expertise and insight in certain areas. In a letter to the Chief Medical Officer at the Welsh Assembly-which following devolution in July 1999 had taken over from the Welsh Office (discussed further in next chapter)-RANT provided a summary of the new figures released regarding the health effects of landfill sites, and requested their comments<sup>120</sup>. In response to a request made in the *Rhondda Leader* (13/11/1997) for public views on how to improve local health services, RANT suggested to the Health Authority that 'surely priority should be given to setting up a public health information system in order that you can at least identify major areas of concern before looking to improve services....'<sup>121</sup> With regards to landfill and waste management issues RANT requested a copy of the draft document 'integrated waste management strategy' on the basis that;

<sup>112</sup> Letter to Welsh TUC, 06/03/1998.

<sup>113</sup> Letter to MPs, 04/01/1999; Letter to Environmental Group, Powys 17/01/1999; letter to resident, 28/04/98.

<sup>114</sup> Letter to Plaid AM, 19/04/99; Letter to Environmental Group, Powys; 24/04/2000.

<sup>115</sup> Letter to Environmental Group, Powys, 19/02/1999, 24/04/2000.

<sup>116</sup> Letter from RANT to Pesticide Trust, 22/11/99.

<sup>117</sup> Letter from RANT to another activist, 12/10/99.

<sup>118</sup> Letter to CARE, 03/07/2000.

<sup>119</sup> Letter from RANT to other resident activists, 29/09/1999.

<sup>120</sup> Letter from RANT to CMO, Assembly, 2/11/99.

<sup>121</sup> Letter from RANT to Health Authority, 25/11/1997.

‘...as an interested and highly involved group, with experience of the many and varied problems surrounding landfill operations, I would be glad if you could give me with some of my colleagues the opportunity of discussing with your team some of the many pitfalls that must be avoided if there is to be a successful and acceptable strategy for the future’.<sup>122</sup>

Displaying much broader concerns RANT also wrote to the Welsh Assembly with an encompassing set of ideas and solutions for their local problems, which extended far beyond the boundaries of an environmental campaign; in fact there was no mention of the landfill site at all. Here they articulated their experiences of living in an economically deprived area with reference to political narratives of regeneration and deprivation. They urged money to be spent regenerating their ‘third world country’ of ‘devastation and decay’, poor health services, depression and drugs problems, suggesting that;

‘...we need new school buildings to give our children a sense of worth and self-esteem. We need jobs so that when these children grow up with hope they will be able to earn their own living. We need a community that looks well cared for-where all these boarded up premises are either demolished or the owners instructed to renovate them. We need more easily accessible grants for residents to be able to renovate their properties. Lastly we need help for the new Rhondda Cynon Taff administration in order that fresh ideas can be encouraged and put into practice to benefit the community as a whole.’<sup>123</sup>(R31).

Although it is not clear how far, if at all, RANT’s advice was acted on there is evidence to suggest that RANT had become, in the eyes of some, an esteemed local and community group. Examples have already been given of RANT taking forward local concerns to the authorities, and acting as a source of advice for other environmental groups, and it seems that RANT were also consulted on local issues above and beyond the landfill site. For example, in a letter to the planning consultancy, RANT explained that they can’t attend a meeting regarding a local community plan due to their own work commitments, but they asked to be sent minutes<sup>124</sup>. In a letter to Rhondda Community Development Association RANT

<sup>122</sup> Letter from RANT to Council, 16/01/2000.

<sup>123</sup> Letter from RANT to Welsh Assembly, 05/08/1999 (R31)

<sup>124</sup> Letter from RANT to the Planning Consultancy, 16/03/1999.



invited a representative to come and give a talk on the project that the group wished to pursue with funding from landfill tax credits<sup>125 126</sup>, thus suggesting a fair degree of status in the community.

### **Council responses**

The residents' decision to re-instate the picket in June 1997, made it much more difficult for the Council to maintain its detachedness from the conflict, and the next three documents issued in relation to the picket illustrate how the Council was being forced to negotiate its position, as it sought to develop an 'appropriate action' repertoire. In the first press notice issued in July 1997 the Council still appears to have been trying to distance itself from the dispute, issuing the notice 'to inform members of the public...of the current position concerning the Site.'<sup>127</sup> (C6) The next document, written around the same time, is a letter written to RANT by the Legal and Administrative Services Department. This letter is much more persuasive than the press release, as it sought to encourage the protestors to end the picket, pending the availability of the reports on August 18<sup>th</sup> 1997<sup>128</sup> (C7). The third text selected on this issue is a press statement issued following the council meeting of 14<sup>th</sup> October 1997. The main purpose of this statement was to try to justify retrospectively the Council's controversial decision to lease the land outside the tip to the Company<sup>129</sup> (C8). Although the documents were fulfilling slightly different functions they combined common resource categories of law, 'evidence' and roles/ duties, as they made arguments in relation to their legal position, their perceived area of responsibility and action, and related to this the need for 'evidence'.

In the first news release reference was made to the 1990 Environmental Protection Act, under which 'the power to run landfill sites was removed from the Council'. In what was becoming a key rationale and defence for inaction by the Council, the text then emphasized (in bold) how:

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<sup>125</sup> Letter from RANT to Rhondda Community Development Association, 14/02/98.

<sup>126</sup> Landfill tax credits were a source of funding which was available to support local projects in communities situated close to landfill sites.

<sup>127</sup> Council Press Notice, July 1997 (C6)

<sup>128</sup> Letter from Council to RANT, 08/07/1997 (C7)

<sup>129</sup> Council Press Statement, October 1997 (C8)

‘The legislation specifically provided that, although the Council could be the sole shareholder, it was not allowed to manage nor to take decisions in the day to day running of the Company which managed the Landfill Site.’ It also explained how ‘the Council has no statutory powers to prosecute in relation to the Waste Management Licence granted to the Company.’ (C6)

This ‘limited’ position was then expanded in the second document, which constructed the ‘impossible position’ of the Council, due to its obligation to allow the Company ‘free and unrestricted access to the tip’, requiring it legally now ‘to take all necessary steps to ensure that it complies with its promise to allow access’, having been threatened with legal action by the Company. It continued to explain how for Members to refuse this request would be ‘to place themselves, their homes and family possessions in danger of being taken from them to satisfy any claims for damages....’ (C7). In the third text, the decision to lease the land was again justified with reference to the demands made by the Waste Company to the Council, this time involving a threat of going bankrupt (C8). Another legal category used to support the Council’s stated position was that of ‘commercial confidentiality’. For example, in response to RANT’s request for a copy of the lease relating to the site, the Council explained how they are ‘unable to forward you a copy of the lease you requested as the document evidences a commercial arrangement between the two parties.’<sup>130</sup>(C9)

Although much of Council discourse was around their ‘non-involved’ status, they nonetheless acknowledged a role for themselves in respect to evidence of nuisance or health effects. In the first news release, the Council claimed a ‘responsibility to take action when it is satisfied that a statutory nuisance emanating from the site exists.’ They suggested themselves to be fulfilling this responsibility via ‘regular monitoring at strategic points around the area within the immediate vicinity of the landfill site’, and how ‘being extremely concerned for the health and well-being of the public, commissioned an epidemiological study to be undertaken...’ This ‘paramount consideration’ for health was stressed in all three documents, all of which emphasised the need to wait for the final results of the two investigations before committing to any definitive course of action (C6, C7, C8). Interestingly, the last of the three texts, which was seeking to justify the lease of land, explained the decision to have ‘been taken after careful consideration of all the information and reports currently

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<sup>130</sup> Letter from Council to RANT, 03/02/1998 (C9)

available', although they also reported to be awaiting 'the final report of the first epidemiological study before making a decision as to what action may be required' (C8). Another different example, of how this 'evidence for action' rationale was brought into play is given in a letter dismissing RANT's request that the Council erects notices at the site boundaries warning children to keep away. In what was becoming a 'party line' it was explained:

'... reports of the investigations are expected by the 18<sup>th</sup> August, 1997, and if there is any suggestion in either of these, that action should be taken to prevent access to any adjoining lands, consideration of any necessary action will be given the highest priority.'<sup>131</sup> (C10).

The first of these documents also outlined how it perceived the roles of the other main parties. It explained the waste company, 'through its Directors, to be solely responsible for the day to day running of the site', the Environment Agency to be responsible for ensuring that the site 'operates in accordance with the terms of the Waste Management Licence and within the provisions of the Environment Protection Act and other relevant legislation', and the Health Authority to have 'responsibility for local health issues.' (C7).

The next three texts sampled in this section on social problems are letters written in response to particular and distinctive issues, although it is possible to observe some common discursive categories being drawn upon to construct the Council's position. In the first of these, the Council was responding to RANT's enquiry regarding the publication of the epidemiological report, and was denying them a right or automatic access to the report<sup>132</sup> (C11). In the second letter, the Council wrote a few lines in which it defended the police presence at the recent meeting, in response to a very long letter of complaint by RANT on the subject<sup>133</sup> (C12), and in the third letter the Council was refusing a recent request by RANT to be consulted on the Waste Management Strategy.<sup>134</sup> (C13).

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<sup>131</sup> Letter from Council to RANT, 23/07/1997 (C10)

<sup>132</sup> Letter from Council to RANT, 12/11/1997 (C11)

<sup>133</sup> Letter from Council to RANT, 27/05/1998 (C12)

<sup>134</sup> Letter from Council to RANT 04/02/2000 (C13)

In the two documents which were refusing RANT's request, the Council engaged in a kind of denying activity, refusing to give RANT the recognition they were seeking. In the first letter regarding access to the report findings the Council claimed its own privileged position, explaining: 'Although you state that it was RANT which requested the study, it was of course this authority which commissioned ..... the study.' (C11) In the letter regarding the Waste Management Strategy the Council explained that they have 'decided that the appropriate time to consult with your Organisation would be when the draft Waste Management Plan goes to public consultation' (C13), thus denying RANT any kind of special status on the basis of their expertise. All three texts also referenced features of bureaucratic or democratic process to support or expand their arguments. In the letter regarding the report it is explained: 'the decision will be a matter for the Members, with due regard being paid to the legal position at that time.' (C11) Similarly, the decision on the Waste Management Strategy was linked to a 'discussion at a recent Waste Management Sub Group' (C13). In their defence of the police presence at the council meeting the Council wrote: 'it is accepted that the public have the right to protest but you must appreciate that the Authority has to ensure that the business of the Council proceeds in accordance with the procedures set down by Parliament'. This text also referenced the past behaviour of the protestors to further justify the move (C12).

### **Environment Agency responses**

As in the earlier phase, much of the Environment Agency communications continued to perform a similar 'update' role. Numerous press releases were issued to update on enforcement activity and these continued to be couched in technical and legalistic terms. However, the Environment Agency, like the Council in this period, was also forced to engage in more direct claim making, in response to particular events and complaints, as they too sought to develop a repertoire of 'appropriate action'.

Probably one of the most controversial issues experienced by RANT in relation to the Environment Agency was with regards to the handling of CL Associates Report on gas and leachate management, over which RANT accused the Agency of 'cloak and dagger' tactics. In response to this accusation the Environment Agency wrote back to RANT to 'strongly refute, therefore, any accusation that the Agency has been a party

to an exchange of information in a “cloak and dagger” fashion<sup>135</sup> (EA4). In a letter in October of the same year, written in response to local accusations of inaction, the Environment Agency was similarly defensive, explaining: ‘I do not share your view that the Agency has not been tough in its enforcement action.’<sup>136</sup>(EA5).

To support these claims the Environment Agency drew on the same ‘duty’ categories as in earlier texts, although not surprisingly these are weighted differently reflecting the different natures of the issues. In their refutation of ‘cloak and dagger’ tactics, the Environment Agency made particular use of ‘public servant’ categories, as they sought to demonstrate that ‘the Agency has acted in an open and transparent way’. The letter cited how ‘a copy of this document was put on the public register following its submission to the Agency and to which the public has had access’ (EA4), and also that ‘the Agency has repeatedly suggested that a liason committee be set up, comprising representatives of the local community, the waste company and the Agency so that issues concerning the operation and regulation of the site can be discussed on a regular basis.’ (EA4: 2/06/1997). As would be expected the Environment Agency placed much more emphasis on ‘enforcement actions’ in seeking to refute the suggestion that they have not been ‘tough’. Here they highlighted how ‘the modifications of the licence and the recent High Court action do, I feel demonstrate our commitment to take whatever action is warranted’ (EA5). Another feature common to Environment Agency discourses was the technician nature of proposed ways forwards and possible solutions. In one of the letters they wrote: ‘...may I begin by stating that the Agency is committed to taking whatever action is necessary to resolve the problem at the landfill and thereby fulfill our regulatory role. To this end the Agency is keen to seek a solution to the problem of leachate collection and disposal and the related problem of landfill gas management.’ (EA5).

Both texts also drew on legal categories, and interpretations of the responsibilities of other organisations, as resources to justify their positions. In their defence of their handling of the CL Associates Report, and subsequent offer to meet to discuss the approach of the Environment Agency, the letter also explained: ‘I must draw to your attention that the Agency is unable to discuss certain aspects of the report undertaken

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<sup>135</sup> Letter from Environment Agency to RANT; 2/06/1997 (EA4)

<sup>136</sup> Letter from Environment Agency to RANT; 02/10/1997 (EA5)

by consultants... our legal department has advised us not to discuss the report in public as this may jeopardize our case.’ (EA4). Likewise, in the letter defending Environment Agency enforcement approaches, they wrote:

‘With respect to the question of legal proceedings being taken, you are aware that the Agency is still preparing a file for the consideration of its legal department....You will be aware from the brief given to our consultants that the Agency would wish them to act as expert witness on our behalf in any possible legal action that we may take.’ (EA5)

In terms of organizational responsibilities, in relation to the proposed liaison committee the Environment Agency explained: ‘To date our suggestion has not been acted on by either the Local Authority as owners of Rhondda Waste or the Company.’ (EA4) In the letter regarding enforcement they explained:

‘With respect to your comments concerning the health of the community... we await the findings of our consultants and the health studies being undertaken by (the Epidemiologist) on behalf of the local authority. We will also continue to liaise with the Bro Taf Health Authority.’ (EA5)

Another controversial event involving the Environment Agency in this period was a controversial press release issued in August 1997. The associated article in the Echo came with the title, ‘Health Expert Gives OK to Tip’<sup>137</sup>, in what appears to be an effort by the media to expand out of the typically technicist discussions of the Agency. These Environment Agency communications are interesting as they illustrate how the original Agency press release was distorted by the Press. Firstly, the original News Release was titled ‘Agency gives Company the all-clear,’<sup>138</sup> (EA6) and in a typical discursive fashion described the situation in terms limited to enforcement and compliance activity.

‘The Agency had modified the Company’s licence which required them to ensure that the landfill gas and leachate controls on site were fully operational. This is now the case. Agency staff will continue to closely monitor the site, and hopefully all parties can now concentrate upon resolving the issues of concern to the community.’ (EA6)

<sup>137</sup> South Wales Echo, 04/08/1997

<sup>138</sup> Agency News Release, 04/08/1997 (EA6).

The misrepresentation in the press provoked an angry response from the Agency, prompting them to write to the paper explaining: ‘Your story yesterday (4<sup>th</sup> August) has caused great concern in the local community and in no way reflects the contents of the Agency press release issued yesterday morning....’ and went on to ask: ‘Firstly, the title “Health Expert Gives OK to Tip.” Who is the health expert?.....’ (EA6) The letter then proceeded to stress the limited and very technical parameters of possible claims relating to this latest news release:

‘What the Company has done, and the Agency Inspector has confirmed, is complied with our enforcement notice to ensure that the landfill gas and leachate controls were operational-THAT IS ALL. This in no way gives it a clean bill of health....’(EA6) (Capitals in the original).

### **Summary**

A series of events in the months that followed the new mandate served as turning points at a psychological as well as strategic level. As the issues began to take on more of a social and political dimension, the residents again took to the tip gates. Events such as the handling of the CL Associates report and Environment Agency and Council Press Releases, which were seen to deny or downplay the problems with the tip, prompted suspicions of a cover up. Likewise, the perceived slowness of the Environment Agency to take action against the site operator and, most strikingly, the decision of the Council to lease the land to the waste company, brought into question the assumed loyalties and obligations of these public bodies. Further experiences of missed meetings and unanswered communications, and other controversial incidents caused the residents considerable disrespect and upset. Such experiences seriously brought into question assumptions of even basic dependability, worked to erode the consensual orientations of protestors and encouraged them to take on new social roles and identities. In this changing context protest action became not simply a question of getting the authorities to fulfill on their perceived obligations, but it also brought into contestation the boundaries and rules by which previous expectations had been shaped. RANT also began to take on a ‘watchdog’ role in the community, developing a critical eye and discourse on environmental, social and political matters, and extended their focus out from the local to the much wider issues at stake.

The Council sought to justify its behaviour in relation to the site and the picket through reference to the 1990 Environmental Protection Act, under which 'the power to run landfill sites was removed from the Council'. They also cited their legal obligation to allow the company 'free and unrestricted access to the tip'. Although much of Council discourse was around their 'non-involved' status, as in the previous chapter they continued to acknowledge a role for themselves in respect to evidence of nuisance or health effects, and a need to await the results of the two investigations before committing to any definitive course of action. The Council also referenced features of bureaucratic or democratic process to support or expand their arguments, and a couple of examples were also given in which the Council engaged in a kind of denying activity, refusing to give RANT the recognition they were seeking.

The Environment Agency, like the Council in this period, was also forced to engage in more direct claim making, in response to particular events and complaints. In their refutation of 'cloak and dagger' tactics, the Environment Agency made particular use of 'public servant' categories, as they sought to demonstrate that 'the Agency has acted in an open and transparent way'. They also placed more emphasis on 'enforcement actions' in seeking to refute the suggestion that they have not been 'tough'. Another feature common to Environment Agency discourses was the technician nature of proposed ways forwards and possible solutions. To help justify their positions they also drew on legal categories, and their interpretations of different organisational responsibilities.



## Chapter Eight: Citizen Science

### *Introduction*

In the last chapter it was described how a series of events fundamentally changed residents' perceptions of, and responses to the emergent conflict situation, as it became increasingly social and political in its terrain of contestation. This could be seen in both activists' interpretations and framings of the issues, as well as the 'watchdog' role which they appeared to develop for themselves. In addition, the highly controversial land lease event of October 1997 was significant not only for the new levels of suspicion and hostility which it engendered amongst residents, but also because it forced a change in strategy for the activists. The threat and pursuit of legal action against protestors (as made possible by the land lease agreement) meant that the remaining picket was substantially weakened and by early 1998 had ceased to function. Thus with the site now up, running and causing the residents considerable concern over health, nuisance and pollution problems<sup>139</sup>, and the commissioned health studies declared in November 1997 to be unable to prove or disprove links between serious illnesses and the tip, the protestors were forced to focus their attention on other means of struggle. One of the most extensive areas of activity in this period was the work that the protestors put into researching the health and environmental effects of the landfill site. This chapter explores in detail this side to their struggle, before briefly at the end also describing some of their more conventional (but still critical) strategies, such as canvassing public and political support.

### **Dependency, co-operation and the struggle for evidence: Science and the Activists.**

Although the examples in the previous chapter illustrate an increasing independence, self reliance and oppositional positioning in their social roles and relationships, RANT also had to engage and co-operate with the more piecemeal developments that were ongoing through this period. Indeed, although examples were given earlier of occasions where RANT reported to have 'cut all ties' with the Environment Agency,

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<sup>139</sup> Such events included a 'tyre fire' (May 98) and the installation of new flares, which were identified as exacerbating respiratory problems (Nov 98), resident, oral evidence, (BC), 19/12/2000.

and felt thoroughly at war with the different authorities, RANT could ill afford to take a wholly oppositional stance. Thus in some respects RANT also seemed to pursue a more pragmatic, 'make the most of it' approach and although relations were tense in this period there were also examples of clear expressions of dependency on these bodies. Having accused the Environment Agency of 'cloak and dagger tactics' over the handling of the CL Associates Report into landfill gas and leachate management, a subsequent letter accepted the Environment Agency's explanation and expressed 'no wish to alienate themselves from the agency'<sup>140</sup>, and in a letter to the head of the Agency in London, RANT requested a meeting to 'discuss a way forward' (to no avail).<sup>141</sup>

A similarly conciliatory tone was expressed in a letter to the Council around the same time where RANT explained 'I am sorry if I have appeared to be rather pedantic in writing this letter, but my only concern is to prevent further misunderstandings and misrepresentations of our intentions'<sup>142</sup>. Perhaps hopeful of improved representation by their councillors, RANT also wrote to their councillors (no reply noted) providing guidance taken from the Citizens Advice Bureau on noise, smoke and smells, suggesting that the information might be of benefit 'to you as a councillor representing the people of the RCT area.... As we have the impression that the officers of the council are not informing you fully of the situation regarding this site....'<sup>143</sup>

These efforts at improved relations and cooperation could be seen in continued meetings between RANT and the three authorities. For example in a letter to the Director of Public Health RANT requested that the Environment Agency are present in order that 'they as well as the residents of the area are aware of where the demarcation line can be drawn on the areas of responsibility, or where an overlap may occur.'<sup>144</sup> The two main subjects that the parties met to discuss were broadly concerned either with the operations of the tip, or the health related research being conducted in this period. With regards to the tip RANT communicated frequently with the Environment Agency and the Council, to discuss issues as and when they

<sup>140</sup> Letter from RANT to Environment Agency, 04/06/1997.

<sup>141</sup> Letter from RANT to Chairman of Environment Agency, London 13/11/98.

<sup>142</sup> Letter from RANT to Council, 29/07/1997.

<sup>143</sup> Letter from RANT to Councillor, 20/08/97.

<sup>144</sup> Letter from RANT to Health Authority, 16/12/1997.

arose; the recommendations of the Entec report<sup>145</sup>, for example, or to urge action against Rhondda Waste Disposal upon their failures to meet deadlines for carrying out Environment Agency requirements<sup>146</sup>.

Probably one of the most extensive areas of activity in this period was the work that the protestors put into researching the health and environmental effects of the landfill site. On learning of the illnesses in the areas a medical committee within RANT was set up to research and campaign on these problems.<sup>147</sup> They did this, at one level, by engaging with official studies, but also by conducting their own independent research programme.

*Engaging with official studies: friend or foe?*

In the period 1997 to 2001 twelve official investigations were commissioned and undertaken (see table 7 overleaf for details of the main investigations). Of these, RANT was most actively engaged in the two epidemiological studies which took place in the summer of 1997 (published November 1997) and Autumn/Winter 1998 (published July 2000) and the 'health clinics', led and co-ordinated by the Health Authority in early summer 1998<sup>148, 149</sup>. Not only did they play a key role in getting the studies commissioned, they also attended regular meetings and were engaged in frequent correspondence with official scientists, as a way of both keeping abreast of developments, and seeking to input into the studies.<sup>150, 151, 152, 153</sup>. As well as participating in these official studies RANT also campaigned for further

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<sup>145</sup> Letter from RANT to Council, 06/02/98.

<sup>146</sup> Letter to Council, 10/01/99.

<sup>147</sup> Resident, oral evidence (GW)

<sup>148</sup> Reports corresponding to these investigations are (in order); Fielder et al 2000; Welsh Combined Centre for Public Health 2000; Bro Taff Health Authority (1999).

<sup>149</sup> The health clinics were implemented in response to the recommendations of the first epidemiological report to try to collect more detailed and accurate data on local health conditions. They were meant to be run concurrently with the Casella survey of air quality to try to explore possible causation of health symptoms but this failed to happen due to the Casella survey being delayed until late summer 1998.

<sup>150</sup> Letter from RANT to Epidemiologist, 08/08/97.

<sup>151</sup> Letter from RANT to Welsh Office, 11/12/1997.

<sup>152</sup> Letter from RANT to Health Authority, 17/06/98; 17/11/98.

<sup>153</sup> Letter from RANT to Councillor, 22/04/99.

**Table 7: Official Studies**

<b>Date</b>	<b>Author</b>	<b>Commissioning body</b>	<b>Title</b>
March 1997	Bro Taf Health Authority	BTHA	Health Profile Comparison of Wards around Nant-y-Gwyddon Landfill Site and other Rhondda Wards.
April 1997	C.L. Associates	Rhondda Waste Disposal Ltd.	Review of Landfill Gas and Leachate Management at Nant-y-Gwyddon Landfill Site.
August 1997	Environment Agency	Environment Agency	Water Quality Data and Interpretation for Nant-y-Gwyddon Landfill Site and Surrounding Area.
October 1997	Welsh Combined Centre for Public Health (Palmer et al.)	RCT County Borough Council	Report on the Health of Residents Living Near The Nant-y-Gwyddon Landfill Site Using Routinely Available Data.
November 1997	Welsh Combined Centre for Public Health (Coleman et al)	RCT County Borough Council	An Evaluation of Recent Environmental Monitoring Reports Relating to Nant-y-Gwyddon Waste Disposal Site.
January 1998	Entec	Environment Agency	Investigations Into Odour Problems at Nant-y-Gwyddon Landfill.
November 1998	Entec	Environment Agency	Potential Hydrogen Sulphide Near Nant-y-Gwyddon.
December 1998	Casella	RCT County Borough Council	Investigation of Ambient Air Quality and Community Nuisance at Nant-y-Gwyddon Landfill, Gelli.
January 1999	Bro Taf Health Authority	BTHA	Report On Complaints of Ill Health Perceived Due to Exposure to Nant-y-Gwyddon Landfill Site: A Descriptive Survey.
June 1999	WCCPH Submitted a paper to BMJ based on previous research	WCCPH	Health Impact Assessment of Residents Living Near the Nant-y-Gwyddon Landfill Site.
November 1999	Dr Richardson	Welsh Office	Sarcoidosis and Nant-y-Gwyddon Landfill Site.
July 2000	WCCPH	Bro Taf Health Authority	Report on the Study of Time to Pregnancy in the Rhondda Valleys.

studies to be carried out by these expert bodies, often in response to new or emergent pieces of evidence. For example, following the publication and recommendations of the Coleman Report (on environmental monitoring reports), RANT requested that the Welsh Office provide funding for a study to trace the gases/ leachate into the communities concerned.<sup>154</sup> In response to the reported findings of the Entec study of high levels of hydrogen sulphide at the site, but considerably lower levels of hydrogen sulphide in surrounding communities, RANT similarly called upon the Environment Agency to investigate long term exposure to low level hydrogen sulphide.<sup>155</sup>

However, although RANT campaigned for and actively cooperated and participated in these official efforts, from the start they also experienced frustration and disappointment in terms of both implementation and outcome. This frustration was expressed in a letter written to the appointed epidemiologist following the publication of the inconclusive findings of the first epidemiological survey, which was recognised to have put them 'in a "Catch 22" situation from which we are having problems extricating ourselves.'<sup>156</sup> (R32) That RANT continued to engage with official efforts, in spite of these frustrations, seems not only due to their perceived dependency on these bodies and their 'accredited' studies, but also a perceived (albeit slim) opportunity to influence the methodology and by implication, outcomes of the research. This in turn seems to have been inspired firstly by a growing confidence that RANT seemed to develop in their knowledge in the face of contradictory 'official' claims, and second, by some detection of sympathy and possible allegiance amongst the scientists themselves. They thus requested that the epidemiologist participate in forums with the community (R32); and to the appointed environmental scientist requested any further information or advice as 'we feel we have reached a bit of a hiatus in our action against the above landfill site. We have read your conclusions and recommendations in the various reports that have been published on this tip and agree fully with all your comments.'<sup>157</sup> (R38) In a letter thanking the epidemiologists for their support, RANT similarly commented; 'You confirmed what we had been thinking for several months.'<sup>158</sup>

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<sup>154</sup> Letter from RANT to Welsh Office, 11/12/1997.

<sup>155</sup> Letter from RANT to Environment Agency, 17/05/2000.

<sup>156</sup> Letter from RANT to appointed Epidemiologist, 18/11/1997 (R32).

<sup>157</sup> Letter from RANT to Environmental Scientist, 27/08/1998 (R38).

<sup>158</sup> Letter from RANT to appointed Epidemiologist, 20/12/1998.

Another important factor shaping RANT's continued engagement with official studies was, somewhat ironically, their experiences of poor and apparently fallible scientific practices. For example, in their meetings with the team of epidemiologists, RANT was made acutely aware of the poor quality of routine data used by the first epidemiological study, and the severe limitations this would place upon any conclusions to be drawn from the study.<sup>159</sup>(R37) In their evidence to the investigation numerous examples were also given by residents of Environment Agency 'cock ups' with regards to sampling practices, for example, how they carried out water testing when it was pouring with rain, and hence diluted, or took a sample and then forgot about it for a week.<sup>160</sup> The failure of the respective authorities to co-ordinate simultaneously the air quality testing (the Casella survey) and the health clinics run by the health authority, as had been intended, was similarly seen at best to be an example of incompetence but also, at worst, an intentional move to undermine any chances of conclusive findings, that might help establish causality.<sup>161</sup>

Residents also recalled experiences which they felt demonstrated more directly how 'science' might be applied selectively to support political objectives. On discussing how a report into gas and leachate management was presented to councillors, one activist explained;

'I mean they come out with the conclusions at the end and they use that lovely word 'unlikely'. I really do think it's quite an enormous word for them....the summary hasn't mentioned problems with burn-off, or the design fault with valve chamber and discharge of leachate into river... the members weren't told of this.'<sup>162</sup>

Another RANT member similarly explained how at a meeting with the Environment Agency it was noted that water sample readings of Nant-y-Gwyddon stream on average were satisfactory, but when asked about individual readings two readings were found to be exceptionally high, the problem thus being that the 'average is low but peaks are high-pollution is pollution even if it only happens once. The

<sup>159</sup> Letter from RANT to the Council, 18/11/1997 (R37).

<sup>160</sup> Resident, oral evidence (AJ), 18/12/ 2000; (GW), 19/12/2000.

<sup>161</sup> Resident, oral evidence (JN), 01/12/2000.

<sup>162</sup> Resident, oral evidence (GW), 19/12/2000.

Environment Agency should have said so and not used average figures to draw attention away from high readings.’<sup>163</sup> In their investigations into sarcoidosis RANT also described how Bro Taf Health Authority are trying to downplay the alarming rates of the disease by saying that it is more common in Britain as whole.<sup>164</sup> It seems that the unexplained ‘pulling out’ of an expert team who had arranged to visit the area to investigate the illness, further added to sentiments of this ‘political science’<sup>165</sup>.

#### *A critical cooperation*

In illustrating the fallibility and manipulability of ‘scientific’ approaches, these experiences, in conjunction with local knowledge and detections of support amongst certain scientists, presented to RANT a course of both opportunity and threat. Through their continuing engagements with official experts, RANT not only was compelled to press for further investigations, but also to seek some control over them, in what could be interpreted as an approach characterised by a critical cooperation.

At a discursive level, one claim being made was of a desperate and impossible situation, in what appear to be appeals for the support and sympathy of these scientists. This can be seen in the letter to the epidemiologist (R32) in which RANT described a ‘Catch 22 situation’ and requested their participation in forums with the community to ‘allay the fears of residents’. To construct this desperate situation they drew on ‘scientific/ expert’ knowledge, local knowledge and events or statutory actions. They cited expert opinion with reference to how ‘you, yourself, told us that a door to door survey was needed’, and combined this with a confident assertion of local knowledge; ‘we know that there are health problems, you probably suspect there are health problems, Bro Taf Health Authority are keeping silent but all the time the problems are inexorably increasing.’ This point was supported with the observation that ‘since the reopening of the tip and the subsequent disturbance of the contents, we are receiving once again, a very high number of (health) complaints....’ These ‘knowledge’ resources were thus used to suggest the legitimacy and validity of their claims. RANT also enhanced their ‘victim status’ by suggesting the flawed approaches of the Council and Health Authority as complicit in their troubles, in

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<sup>163</sup> Resident, oral evidence (WT), 03/05/ 2001.

<sup>164</sup> Resident, oral evidence (GW), 19/12/2000.

<sup>165</sup> Resident, oral evidence (JB), 23/02/2001; (GW), 19/12/2000.

terms of both the Council refusing to pay for the required door to door survey, and the Health Authority ‘keeping silent.’ (R32)

Another of the ways in which they sought control was via impressing as much of their local knowledge upon the respective bodies, who were seen to be overly reliant on ‘official’ information sources, which in turn were seen to be at odds with their own experiences. In one of their first communications with the epidemiologists, in which RANT were seeking clarification of their role in the study, RANT wrote ‘I am sure between the two of us we will be able to give you as much help as is possible’. They backed this claim up with reference to their situated, locally rooted expertise, explaining ‘I am very familiar with Nant-y-Gwyddon and the surrounding area, while (another activist) knows the Clydach Vale/ Tonypandy area very well’. They also cited their high levels of (again locally founded) dedication to assisting in the research ‘such is its importance to us all.’<sup>166</sup> (R33)

There are also examples of RANT seeking to get their more specific knowledges taken on board by the authorities. For example, in a letter to the local Director of Public Health RANT countered the initial claims of the Local Health Authority that there were no unusual illness clusters<sup>167</sup>, by providing details of the number and names of confirmed cases of sarcoidosis, gastrochisis and ‘bad abscesses’, and requested a more ‘in depth’ investigation.<sup>168</sup> (R34) Similarly, in a letter to the Council the following year, RANT expressed ‘delight’ that the Council are going to carry out dust sampling, and proposed that they should recommend the streets to be sampled.<sup>169</sup> (R35)

These texts drew on different examples of what RANT were presenting as valuable forms of local knowledge. Such knowledge included illness details provided to RANT by local people, in their capacity as community representatives. For example, in the letter to the Health Authority (R34) RANT wrote ‘I would like to take this opportunity to inform you of the people who have now been diagnosed as having sarcoidosis. These people have given RANT their permission to forward their names

<sup>166</sup> Letter from RANT to appointed epidemiologist, 20/07/1997 (R33).

<sup>167</sup> Bro Taff Health Authority, Local Health Profile, April 1997.

<sup>168</sup> Letter from RANT to Director of Public Health, 13/08/1997 (R34).

<sup>169</sup> Letter from RANT to Council, 09/03/1998 (R35).



to you in order that you can further investigate this apparent cluster.’ The letter also reported there to be ‘many more whose addresses have not been given as not keen on being interviewed’ suggesting a privileged access to information. This ‘privileged’ position is again suggested in their comments on the absence of a door to door survey that ‘the number of reported cases to us of the exacerbation of children's asthma, sticky eyes and ear infections is not going to be picked up by this study.’ (R34) This kind of ‘informant’ knowledge, acquired through their status as community ‘representatives’, was also drawn upon in the letter to the Council regarding dust sampling, in which RANT requested sampling from further afield villages ‘as we have had complaints from these areas regarding health and other problems’. This integration of ‘informant’ knowledge with other lines of enquiry and research is further illustrated in a later letter to the Environment Agency.<sup>170</sup> (R42) This letter inquired of the Environment Agency whether there has been any progress made into long term exposure of low level hydrogen sulphide. In this letter, RANT not only cited complaints of residents, but by elaborating on the salient details of the complaints they developed a ‘common sense’ logic which appears to support their concerns:

‘Several people have noticed that it is now taking much longer to shake off the symptoms when they are away from their homes or on holidays. In the past the symptoms could clear up within hours or one or two days, but they are now finding that it is taking sometimes up-to 10 days to find any relief.....’(R42)

RANT also drew on other kinds of ‘knowledge’ resources to try to convince ‘official experts’ of the value of their claims. In addition to knowledge derived from local people, they drew on what is suggestive of more ‘empirical’ knowledge, seemingly derived from methodical/ empirical investigation (more detailed examples of which are provided later on in the chapter). In one of the earliest letters to the Council, they supported their health complaints with the findings of their first health survey (delivered to adults in the locality in late 1996), which noted ‘an increase in incidence of suffering from headache, sore throat, fatigue and general malady.’<sup>171</sup> Suggestive of a similar empiricism, in the letter regarding dust sampling RANT proposed the streets ‘that appear to have suffered the most severe problems from the gases’ and enclosed a

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<sup>170</sup> Letter from RANT to Environment Agency, 17/05/2000 (R42)

<sup>171</sup> Letter from RANT to Council, 13/12/1996 (R3)

map highlighting distances from the tip. Enclosed with the letter was also a copy of their dust sample findings, which had been analysed at the Greenpeace Research Laboratories. (R35) In addition to these kinds of 'informant' and 'investigated' knowledge, RANT also used 'expert opinion' to support the claims being presented to official/ statutory experts. In the letter to the Health Authority they cited the opinions and observations of an orthopaedic surgeon, who commented on the possible connection between lake water pollution and bad abscesses, and a local GP and local chemists who reported increases in health complaints/ over the counter medicine sales. (R34) The letter to the Council regarding dust sampling (R35) also provides a good example of how RANT engaged with and sought to negotiate dominant principles such as impartiality and bias (in a context of diminished trust) to try to secure methods suitable to their interests. Not only did they provide documented evidence of results analysed at the 'independent' and 'accredited' Greenpeace laboratory, but they also asked to observe Council sampling and by way of a compromise on the sampling strategy proposed that they suggest the streets 'that appear to have suffered the most severe problems from the gases' but that the Council chooses the houses 'to make it above board'. (R35)

A further dimension to this engagement activity was through a more overt critique of official methods and conduct, as they again combined 'scientific' and 'local' knowledge. With respect to the first epidemiological survey RANT were quick to point out a fundamental methodological limitation with the study; that it will not incorporate a door to door survey, (instead relying on routine data) (R34). In a similar vein, in letters to the epidemiologist, and the Health Authority RANT expressed their unhappiness with the methodology of the 'time to pregnancy study' on the grounds that by interviewing women who were 20-40 weeks pregnant the study would fail to identify the large numbers of women who had undergone spontaneous or medically induced abortions (due to congenital abnormality) prior to this date.<sup>172</sup> (R36)

To back up such criticisms RANT drew on a combination of local 'informant' knowledge, findings from published research and expert opinion. In the already discussed letter to the Health Authority, RANT highlighted the inadequacy of an

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<sup>172</sup> Letter from RANT to epidemiologist, 09/09/1998 (R36).

approach which does not include a 'door to door' survey, with reference to 'the number of reported cases to us of the exacerbation of children's asthma, sticky eyes and ear infections', along with the opinions of local chemists and GPs. To support their criticism of the 'time to pregnancy study' they similarly provided details of local women in the area who fell into the 'sub 20 week' category, combined with the findings of a paper in the Lancet reporting the 'Eurohazcon' study (Dolk and Vrijheid 1998). The display of local 'informant' knowledge, in this letter, is particularly elaborate. This in depth description not only provided important 'facts' (eg 2 terminations due to abnormalities, but no prior history), it also presented a more moral, human side to the problem, suggesting the de-humanising tendencies of scientific investigations. It explained: 'She received counselling after the first termination-now she demands an explanation. I am sure you can appreciate our reservation about this study when you consider that she would not even be considered as a statistic.' This combining of moral arguments with 'facts' is an interesting feature of these accounts, and can similarly be seen in the letter to the Health Authority which described how 'the number of reported cases to us.... is not going to be picked up by this study and this will be a very sad day for the people of the Rhondda.' (R34)

RANT also criticised how the findings of these official studies were handled and presented, again negotiating and contesting core scientific principles of objectivism and neutrality. Following the Council Press release which reported on the inconclusive findings of the first epidemiological study, RANT wrote an angry letter to the Council accusing them of 'minimising' important facts and figures, suggesting that 'a classic example of this, is seen in the construction of your Press Release'. To support these accusations they enclosed a copy of one of their allied, but accredited expert's critical analysis of the press report, thus citing the opinion of an 'independent expert'. They also referenced the expressed opinion of one of the 'official' epidemiologists, on the 'lack of "available up to date" data', which is described as 'an extremely relevant, important fact' which was relegated to the end of the Press Release. By focusing on how the Press Release was constructed RANT were thus implicitly challenging principles of neutrality and objectivism. The perceived problems with scientific investigation, and its promise of the 'truth' were then taken further and made more explicit at the end of the letter which concluded 'we will leave no stone unturned in our search for the truth regarding the true health data for our

valley’, suggesting the ‘truth’ to be something that is ‘out there’ if not easily obtainable (R37).

When the findings of such studies failed to go their way, RANT were then well placed to draw attention to these methodological criticisms, as part of a damage limitation strategy intended to undermine official claims.<sup>173</sup>

### *Independent research*

Spurred on by their experience-based convictions (regarding the tip) and doubts (regarding official claims), RANT also embarked on their own alternative research programme, independent of official efforts (see table 8 overleaf for details of key research activities and publications). RANT’s earliest efforts at investigating local health problems involved the already noted surveys of adult and child health problems, as detailed in the following accounts of a member of the Medical Committee;

‘Early in 1997 Rhondda Against Nant-y-Gwyddon Tip became aware of concerns relating to children in and around the wards nearest the tip. The RANT health committee decided to carry out a survey of some of the schools in close proximity to the tip site. (...) a retired Pembroke GP, was asked to check the questionnaire form that RANT had compiled before it was sent out to schools...Information was gained via the questionnaire, which was issued and returned in February 1997 and completed by the parents of children between the ages of 3 and 13 in Clydach Vale, Blaenclydach, Llywynpia, Tonpentre and Gelli.... Out of 400 forms, I believe that only 22 forms were not returned, which I think you'll agree is a very successful percentage indeed..’<sup>174</sup>

‘We also produced the full report called “Concerns in Relation to Child Health in the vicinity of Nant-y-Gwyddon Landfill Site, Gelli, Rhondda”. That report is available and will be made available to the Committee. It is our attempt and effort to try to clarify matters and perhaps-we thought at the time-to help health professionals to proceed further with their greater skills. However, up until the present day, to our knowledge, it has been largely ignored.’<sup>175</sup>

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<sup>173</sup> Letter to Council, 18/11/1997.

<sup>174</sup> Resident, oral evidence (GW), 19/12/2000.

<sup>175</sup> *ibid.*

**Table 8 Key research activity and publications produced by RANT**

<b>Date</b>	<b>Description</b>
December 1996 (Tonypandy and District AG)	Questionnaire: Health Problems associated with Nant-y-Gwyddon landfill site
April 1997	Concerns in relation to child health in the vicinity of Nant-y-Gwyddon Landfill Site: Report produced on behalf of RANT by their 'independent observer' (the retired GP). This was based on a survey of local school children.
October 1997	RANT Medical Facts October 1997: public information sheet summarising their knowledge of local medical conditions
November 1997	Urgent Action for Rhondda Children: pamphlet reporting on findings of child health survey
November 1997	'Four very rare diseases near the tip': public information sheet discussing local cases of sarcoidosis, gastrochisis, rhododoccus disease and oesophageal complications.
1998/1999	Research into sarcoidosis and berylliosis: contacting experts and researching the literature.
February 1998	RANT dust sampling exercise: samples analysed at Greenpeace laboratory.
1998/1999	Research into hydrogen sulphide and carbon monoxide poisoning: contacting experts and researching the literature.
1998/1999	Research into pesticides and aerial spraying of forests
Spring/ summer 1999	Seeking data from Congenital Anomalies Register (CARIS) to investigate clusters of birth defects and Welsh Cancer Intelligence Unit to investigate cancer rates in locality.

As these accounts highlights then, early thinking with regards to these research efforts seemed to be about clarifying and even providing a resource for health professionals to build on, as well as building their own ‘credible evidence’ which they then disseminated to the public to raise awareness and support for their campaign.<sup>176</sup> However, as official efforts began to turn in unsatisfactory directions, leaving sentiments of feeling ignored, RANT’s research programme seemed to become more critical and independent in its approach. One aspect of this programme was concerned with developing hypotheses which might explain the unusual illness rates in the locality, in particular following the findings of the first epidemiological study that the increased incidence of congenital anomalies predated the opening of the landfill. For example, in a letter to the head of Pesticides Use, requesting comments on pesticides used RANT explained; ‘We have been attempting to establish why an epidemiological survey undertaken by ... the Welsh Centre for Combined Public Health, Heath Hospital... indicated a peak of birth anomalies for a two year period prior to the opening of the Landfill site. It has always been the contention that this peak was the result of aerial spraying of the forestry. It has proved impossible to establish.’<sup>177</sup>

RANT also sought to access official data sources as a means to developing and testing out alternative explanations of incidence patterns. In March 1999 they wrote to the medical register of congenital anomalies, requesting information and assistance in providing data on congenital anomalies close to Nant-y-Gwyddon,<sup>178</sup> and in June of that year wrote to the Welsh Cancer Intelligence Unit requesting information on malignancy in the years 1994-1999, and that alternative areas are also investigated.<sup>179</sup> In another example the following year RANT wrote to the Health Authority to express concerns over the reported high incidences of TB within the Rhondda, and asked if ‘without disclosing confidential information could you inform us of the proportion of new cases that fall within the Nant-y-Gwyddon proximate zone?’<sup>180</sup>

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<sup>176</sup> RANT Medical Facts (October 1997); Urgent Action for Rhondda Children (November 1997); ‘Four very rare diseases near the tip’ (November 1997).

<sup>177</sup> Letter from RANT to Pesticides Use, 19/05/1999.

<sup>178</sup> Letter from RANT to Medical Register of Congenital Anomalies, 23/03/1999.

<sup>179</sup> Letter from RANT to Welsh Cancer Intelligence Unit, 09/06/99.

<sup>180</sup> Letter from RANT to Health Authority, 09/08/2000.

As well as seeking to provide explanations for unexpected incidence patterns RANT also engaged in developing more detailed causal theories of local health problems, as they responded to, and sought to make sense of new and emergent pieces of evidence or illness experiences. In such accounts RANT skillfully weaved information gleaned from local experiences with relevant theories and explanations found in text books or scientific journals and websites. In the four texts sampled here RANT proposed; a technical explanation of how hydrogen sulphide fumes from the tip might cause chronic poisoning amongst residents (as responding to the Entec study which found extremely high levels of hydrogen sulphide emissions, and local experiences of carbon monoxide poisoning)<sup>181</sup>, <sup>182</sup> (R38); they proposed an alternative hypothesis to explain how the cluster of birth defects preceded the opening of the tip; ‘that the higher incidence of birth defects prior to 1988, was a consequence of helicopter spraying with pesticides of the forestry’<sup>183</sup> (R39); and in the last two texts they offered a rationale for how and why the illness sarcoidosis might be linked to the tip.<sup>184</sup>

To develop these cases, the texts combined what appear to be established scientific explanations, as cited in journals or books, with reference to their own empirical method or investigations. In the letter regarding carbon monoxide poisoning and possible links with hydrogen sulphide emissions RANT referenced the ‘text book ‘Toxicology’ by Cassarett and Doull, 5th Ed 1996’, which states ‘that H<sub>2</sub>S can tag onto haem in the p450 cytochromes which causes it to be inactivated’. They went on to explain how ‘this would obviously affect the body’s ability to detoxify itself of poisonous foreign matters. We understand that carbon monoxide also has this affect on haem and would therefore have a double barrelled effect on possible chronic poisoning’. (R38). In the letter regarding sarcoidosis, RANT similarly referenced ‘research work on sarcoidosis undertaken by Dr Lee Newman, Denver’ explaining ‘Dr Newman believes that sarcoidosis, diagnosed by the Kveim test, is usually caused by beryllium toxic reactions.... There are blood tests for beryllium. We believe that beryllium may have been deposited at our site from a factory in Llanishen’ (R40)

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<sup>181</sup> Letter from RANT to appointed environmental scientist, 27/08/1998 (R38)

<sup>182</sup> The Entec report 1998 stated that the air above the Nantygwyddon site is prone to contamination by Hydrogen Sulphide in concentrations in excess of 50,000 parts per billion. This exceeded the site's odour threshold by factors of up to 194 million.

<sup>183</sup> Letter from RANT to Environment Agency, 23/09/1998 (R39)

<sup>184</sup> Letter from RANT to Director Scientific Research Centre, 02/01/1998 (R40); Letter from RANT to TUC, 06/03/1998 (R41).

These arguments were then connected with their own investigations. For example, as well as suggesting a causal pathway for toxic poisoning, RANT also cited the confirmed positive cases of carbon monoxide poisoning, and pre-empted the obvious explanation by stating 'they have had their heating appliances tested and these have shown no faults or emissions of carbon monoxide' (R38). Displaying a similar method, in the letter regarding sarcoidosis, RANT followed up their reference to the cluster of sarcoidosis and 'American research work which has linked beryllium to berylliosis' (... 'an illness which closely mimics sarcoidosis'), with reference to their subsequent attic dust sampling program. Here they described how 'dust from the attics of two houses situated within half a mile of the landfill site, were sent by us to an accredited research laboratory for chemical analysis.... The levels of lead and beryllium far exceed their M.R.L (minimum risk level) in both houses and the level of cadmium is also greater than its MRL' (R41). RANT displayed a similar 'empirical' or deductive logic in their efforts to obtain the information necessary to test their alternative hypothesis on birth defects. In this letter they laid out the basis for their hypothesis regarding pesticide spraying of the forest and birth defects: 1) That the number of congenital anomalies in the 'exposed' wards was greater than those of the 'unexposed'. 2) That the increased incidence predated the opening of the landfill...Coincidentally the so called 'affected' wards are near heavily forested areas (R39). In seeking to present as credible these investigations, it is perhaps not surprising that RANT couched their approaches and findings in appropriate technical language, for example reference to MRLs, and notions of credit/ independence; 'accredited' laboratories, and also cited the participation of a researcher from Friends of the Earth (R39)

The letter regarding sarcoidosis in particular highlights how they sought to progress from theory to empirical investigation. On learning of research on beryllium, they then carried out dust sampling in attics, which they had analysed at the Greenpeace laboratory and which showed positive for beryllium (R41). This had the effect of prompting the Council to undertake its own sampling programme, as well as providing a boost to RANT's campaign, which was described at the time as



'beginning to reach a climax'.<sup>185</sup> In their efforts to investigate any connections between pesticides and local illness, RANT also engaged intensively with the available literature on health risks associated with pesticides, researched past and current usages of herbicides and pesticides in the area<sup>186</sup>, <sup>187</sup>,<sup>188</sup> and undertook a programme of water sampling to test for these chemicals in local water sources.<sup>189</sup>

As well as developing a campaign which challenged 'science' with 'science', RANT also challenged the political usage of dominant scientific approaches in public risk management. This could be seen in their increasingly frequent espousal of the 'precautionary principle'. For example, in a letter to a local newspaper editor RANT write: '...The Environment Agency could apply the precautionary principle: Nant-y-Gwyddon tip should be closed until, and if, it can be scientifically be proved to be safe....'<sup>190</sup> In other words RANT were seeking to invert the conventional approach of waiting for proof that the alleged hazard is 'unsafe', by demanding that it is proved safe.

#### *Sources of expertise*

Developing this kind of research agenda clearly required a considerable level of skill and expertise. RANT appears to have developed their expertise in a few key ways. A first of these was through the involvement of some key personnel who had relevant backgrounds and experience. This group of 'activist experts' included several residents who had varying degrees of previous scientific experience. One of these residents, and a key advisor to RANT, had a background in environmental illness contestations which stemmed from his previous roles as union representative in chemical and waste industries. The medical secretary at RANT had previous experience of working in a laboratory, whilst another of RANT's resident associates was a qualified lawyer with a specialism in environmental law, who just recently had completed an MSc in Environmental and Waste Management. The dissertation which he completed for this degree had specifically researched sarcoidosis in the locality and

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<sup>185</sup> Letter from RANT to Greenpeace Laboratories, 19/08/98.

<sup>186</sup> Letter from RANT to Pesticides Use, 19/05/1999.

<sup>187</sup> Letter from RANT to Forest Manager, 21/04/99.

<sup>188</sup> Letter from RANT to Council, 17/11/98.

<sup>189</sup> Letter from RANT to C.A.T (action group), 20/05/99; Letter from RANT to Pesticides Action Network, 14/09/2000.

<sup>190</sup> Letter from RANT to the Editor, South Wales Echo, March 1998.

was titled; *A Human Health Risk Assessment of Sarcoidosis and the Nant-y-Gwyddon Landfill Site*. The non-resident advisors with accredited scientific or medical qualifications included; a researcher for Friends of the Earth and university physicist, and a retired GP from Pembrokeshire with an interest in environmental illness and a history of involvement in these kinds of disputes. Friends of the Earth (FoE), played both a campaigning role; speaking at public meetings and writing to the press and other bodies<sup>191</sup>, as well as an important consultancy role, providing help and support with the technical and environmental issues being brought into play. For example, in their consultation on the CL Associates Report they highlighted some causes for concern in the report, and they provided guidance on environmental issues such as tyre disposal.<sup>192</sup> Both the GP and FoE researcher also attended discussion meetings, and corresponded with the relevant authorities on RANTs behalf<sup>193, 194, 195</sup> and the FoE researcher in particular prepared and delivered extensive evidence to the investigation. The retired GP also provided support in the way of technical skills, for example in helping to prepare and analyse RANT's health surveys, analysing available data sets, providing commentary on official reports and press releases<sup>196</sup>, and guidance on key issues such as radioactive waste and sarcoidosis.<sup>197</sup> In addition to providing guidance, the input of such experts also seems to have been valued by RANT from the point of view of adding credibility to their work.<sup>198</sup>

RANT also drew on sources of more field specific expertise, as they educated themselves in line with their continually developing research agendas. This involved accessing and interrogating the existing available literature on relevant topics, through reading scientific reports and journals, and in the later years made use of internet based resources, including the US Environmental Protection Agency (EPA), Centers for Disease Control and Prevention (CDC), Agency for Toxic Substances and Disease Registry (ATSDR), RACHEL's Environment and Health Weekly (news and resources for environmental justice)<sup>199, 200, 201</sup>. A considerable amount of effort was also spent

<sup>191</sup> Letter from RANT to Friends of the Earth, 24/04/2000.

<sup>192</sup> Letter from RANT to Environment Agency, 05/11/98.

<sup>193</sup> Letter from RANT to Friends of the Earth, 29/09/98.

<sup>194</sup> Letter from RANT to Environment Agency 23/09/1998.

<sup>195</sup> Letter from RANT to General Medical Council 17/01/2000.

<sup>196</sup> Letter from RANT to Council, 18/11/97.

<sup>197</sup> Letter from RANT to Environment Agency, 24/02/99.

<sup>198</sup> Resident, oral evidence (GW) 19/12/2000.

<sup>199</sup> Resident, oral evidence (GW), 19/12/2000

engaging specialized experts, seeking their opinions and guidance on specific issues. This could particularly be seen in their efforts to research sarcoidosis. They used the Greenpeace research lab to analyse dust samples<sup>202</sup> and had involved a specialist team from the Royal Brompton, who reportedly showed a great deal of interest in their work, and were due to visit the area before unexpectedly pulling out<sup>203</sup>. Considerable contact was also sought with expert bodies, in their efforts to get to grips with pesticide and herbicide risks.<sup>204</sup> After obtaining water samples<sup>205</sup>, RANT sought comments and assistance on the data from the Pesticides Action Network, and another expert due to their concerns that the results issued pesticide readings.<sup>206</sup>

Other efforts at engaging experts and organisations included data requests from statutory bodies such as the Medical Register of Congenital Anomalies<sup>207</sup> and the Cancer Surveillance Unit<sup>208</sup>, requests to the National Society for Clean Air for advice on how to trace the pathways of the gases from the site down to the community<sup>209</sup>, to the Scientific Research Centre, for any documentation on toxic wastes at landfills and connections to ill health, or any other research assistance<sup>210</sup>, and to the WHO for the safe H2S (ppm) figure laid down by the organisation and any information on possible cumulative effects<sup>211</sup>.

### Science and the authorities

The texts of the authorities sampled here can be divided into those which are making some kind of claim regarding a health or pollution effect of the tip and those which are defending or justifying approaches to scientific investigation.

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<sup>200</sup> Resident, oral evidence (WT), 03/05/2001

<sup>201</sup> Resident, oral evidence (JB), 28/02/2001

<sup>202</sup> Letter from RANT to Greenpeace Laboratories, 31/01/2000.

<sup>203</sup> Resident, oral evidence (GW), 19/12/2000.

<sup>204</sup> Letter from RANT to Pesticides Use, 19/05/1999.

<sup>205</sup> Letter from RANT to C.A.T (activist group), 20/05/1999.

<sup>206</sup> Letter from RANT to Pesticide Action Network, 14/09/2000; Letter from RANT to activist expert, 06/09/2000.

<sup>207</sup> Letter from RANT to Medical Register of Congenital Anomalies, 23/03/1999.

<sup>208</sup> Letter from RANT to Cancer Surveillance Unit, 23/03/99.

<sup>209</sup> Letter from RANT to the National Society for Clean Air, 03/01/1998.

<sup>210</sup> Letter from RANT to Scientific Research Centre, 02/01/1998.

<sup>211</sup> Letter from RANT to World Health Organisation, 22/02/2000.

### *Claim making*

Three of the Council texts sampled here are engaged in claim making over the health effects of the tip<sup>212</sup> (C15, C16), whilst in another example, the results of a recent surface water sampling exercise are discussed (C14)<sup>213</sup>. It is interesting to note some common features across the documents in terms of how the arguments are being constructed.

All of the texts in one way or another sought to limit possible perceptions of risk. One way in which they did this was by following up statements which report on findings of pollution or effect, with a mitigating ‘but’ or ‘although’ statement which offers a reason to suggest ‘no risk’. The choice of words used to discuss investigation findings similarly can be seen to be minimizing messages of risk. Indeed the word ‘likely’ or ‘unlikely’ features in two of the texts (C14; C15). In the letter regarding water sampling the Council wrote:

‘...I must advise that in my view, the level of pollution was small and consistent with that found previously by both the Environment Agency and Consultants acting for Rhondda Waste Disposal Ltd. It therefore seems *likely* that the Environment Agency would have concluded that no further action is necessary, particularly as work is currently on-going to determine the likely source of this pollution.’ (C14) (Italics are my emphasis)

In a similar vein, the Public Information Bulletin (C15), reported the following with regard to environmental monitoring: ‘...Although these results indicate the presence of certain pollutants, the levels detected were considerably below those levels *likely* to affect the health of residents....’ The same bulletin reported on the preliminary findings of the first Epidemiological Survey. Using a similar language it explained: ‘Although further research is necessary before a final conclusion is reached, the report offers *further reassurances* that the health of residents in the four Wards closest to the landfill site is no worse than in other Rhondda Wards.’ In a letter written the following year, after the publication of the final report, the Council similarly attempted to deny or downplay any health risk, this time claiming: ‘...Contrary to

<sup>212</sup> Public Information Bulletin, 8/09/1997 (C15), Letter from Council to RANT 12/08/1998 (C16)

<sup>213</sup> Letter from Council to RANT 14/07/1997 (C14).

your organisation's views there is *no direct evidence* linking the landfill site with health effects (C16).'

A similar 'downplaying' can also be seen in the texts of the Environment Agency and Health Authority. For example, in their initial press release reporting on the publication of the Entec report, the Agency began by emphasizing the 'typical' findings, before highlighting the exception: hydrogen sulphide (which was found to have high levels). They concluded this paragraph, however, with the statement: 'Results of monitoring in the community found that levels of hydrogen sulphide in the air were *unlikely* to be high enough to cause health effects but were capable of causing annoyance to residents.'<sup>214</sup> An Environment Agency News Release similarly reported finding low levels of the radioactive substance Tritium in locations near the landfill. But it concluded this passage with the statement: 'However, the radiation dose from the tritium, even if some of the leachate is inadvertently consumed, is *considered insignificant*.'<sup>215</sup> (EA8) A Health Authority response to a query regarding potential carbon monoxide poisoning similarly reported: 'It is possible that the site will give off some carbon monoxide as part of the degradation and combustion processes but the levels are *likely* to be so low that it would not have any significant health effect in the community.'<sup>216</sup> (HA1)

When they reported the results of the local health profiling that they carried out in April 1997, however, the Health Authority didn't engage in explicit claim making. They reported only 'that the health parameters of the population close to the landfill site (so, more exposed) are not consistently worse than those living further away....' They also expressed limitations with the investigation, pointing out that 'caution is needed in interpreting the health profile which is based on small area statistics.'<sup>217</sup>(HA2)

Not surprisingly, one set of resources used by the authorities to support their claims is the findings of local investigations. In a Council Information Bulletin it is reported:

<sup>214</sup> Environment Agency Press Release: Agency Places Report on Public Register, 05/02/1998 (EA7).

<sup>215</sup> Environment Agency News release: Radiation water samples taken from Nant-y-Gwyddon Site, 25/03/1998 (EA8)

<sup>216</sup> Letter from Health Authority to RANT, 29/09/1998 (HA1).

<sup>217</sup> Letter from Health Authority to RANT, 06/06/1997 (HA2)

‘This preliminary conclusion falls in line with the findings of the health profile previously prepared by Bro Taf Health Authority.’ (C15) In a letter responding to several questions by RANT, the Council expanded their argument of ‘no direct evidence’ by explaining: ‘[The Director of Public Health’s] report was quite specific on this point and that is why the Authority requested that Bro Taf Health Authority and the Welsh Office determine the likely cause for the cluster of congenital malformations identified in his report. This is particularly important as some of the individual cases pre-date the opening of the landfill site.’ (C16)

In a later letter (May 1999) responding to various questions posed by RANT, the Environment Agency also drew on aspects of the first epidemiological report, and the subsequent Health Authority investigation to contest RANT’s statement: *‘The site has been statistically linked to certain health problems.’* They made the following argument:

‘...Again, I would suggest that you are misinterpreting the findings of the ... reports. The broad finding of both these reports was that there was no direct causal link between the perceived incidence of ill-health within the local community, and the presence of the landfill site....Paragraph 1.3 of the (Bro Taf) report states that “We cannot prove that the higher frequency of (self-reported) symptoms was caused by the landfill site, because concurrent environmental data is not available”. Para 1.5 states that “Frequency of reporting of chronic diseases was not related to distance of residence from the site”. Given these findings, it is therefore not possible to agree with your statement....<sup>218</sup> (EA9)

Both the Environment Agency and the Health Authority also cited the findings of the Entec Report (which found high levels of hydrogen sulphide at the site, but much lower levels in the community) to minimize perceptions/ messages of risk. In a letter responding to RANT’s questions on ‘Toxicological implications of Hydrogen Sulphide and Carbon Monoxide’ the Agency reply that it is for the Health Authority to take the lead in commenting on health issues, but also comment:

‘....I would point out, however, that the Entec report (P170) found that the levels of hydrogen sulphide found in the community were below any relevant air quality and toxicity standards known to cause ill health....’<sup>219</sup>

<sup>218</sup> Letter from Environment Agency to RANT, 27/05/1999 (EA9).

<sup>219</sup> Letter from Environment Agency to RANT, 04/09/1998 (EA10)

In their response to a query from RANT regarding carbon monoxide poisoning, the Health Authority similarly cited how the Entec report has not identified carbon monoxide in the community, as they stressed the unlikelihood of this kind of poisoning being connected with the landfill. (HA1)

In certain of these texts the Council and Environment Agency also cited the findings of non-local reports. After citing the findings of the first epidemiological study, the Council response continued:

‘... The report published in the latest edition of the Lancet also concluded that there was insufficient evidence to make the causal link between the health of local populations and the various landfill sites.’(C16)

The Environment Agency also drew on other ‘non-local’ reports to support their claims. For example in their News Release regarding radioactivity they gave technical calculations of radiation doses based on testing results and reference the ‘MAFFA report on Radioactivity in the Environment for 1996’ which ‘assumes that a person may inadvertently ingest 2.5 litres of leachate in a year.’ This reference then lead into the statement: ‘Even this is unlikely, but if it happened at Nant-y-Gwyddon it would result in a radiation dose 10,000 to 100,000 times less than the dose limit.’ (EA8)

In certain of the texts the Council also developed alternative explanations to rival activist claims that the tip was causing local health problems. The letter cited directly above continued to explain:

‘These findings are encouraging as the landfill sites in question differ from Nant-y-Gwyddon in that all of them were licensed to accept hazardous waste and presumably therefore present a greater risk. There is therefore a need to fully understand the relationships between deprivation, low maternal age, diet, alcohol and drug abuse together with the various environmental factors thought to be associated with the incidence of these conditions...’ (C16)

As well as suggesting lifestyle factors as possible causal factors, another approach was to draw attention away from the ‘Nant-y-Gwyddon’ problem, to landfill sites per se as a problem, as seen in the following account by the Council:

‘....I have always taken the view that the relationship between landfill sites and health is not just a Nant-y-Gwyddon issue. You will recall that the Entec study concluded that with the exception of hydrogen sulphide gas, emissions from Nant-y-Gwyddon were representative of landfill gas measured at other sites in the UK. In addition the results of their environmental monitoring within the community could find no compounds including hydrogen sulphide in concentrations that exceeded existing health standards. It therefore follows that if landfill sites present a health risk it is a national problem requiring local solutions...’<sup>220</sup>(C18)

In their response to questions regarding carbon monoxide poisoning the Health Authority also offered up an alternative explanation:

‘In the domestic properties the most important source of carbon monoxide is incomplete combustion of carbon-containing fuel, gas or oil. Road traffic may be an additional source....In suspected poisoning the sources of the gas in the house should be checked before initiating further medical or environmental investigations.’ (HA1)

As well as referencing suitable report findings the authorities also engaged with ‘expert’ principles to strengthen their own arguments and dismiss those of RANT, as in the following comment:

‘...I am also unaware that (the epidemiologist) stated that his report is “ringing the alarm bells...” I have certainly not seen this quote attributed to him, and would suggest that it is highly unlikely that a scientist of (his) caliber would make a subjective statement like this, especially where his report did not contain objective results to support it.’ (EA9)

By asserting the ‘caliber’ of this scientist, and pitting the flawed notion of subjectivity against the esteemed principle of objectivity, this text was thus reaffirming the superiority and validity of mainstream scientists and scientific approaches.

### *Credible approaches*

These next texts were engaged in defending or justifying the different authorities’ approaches to scientific investigation. All of the documents are responsive letters in that they were responding to particular questions or criticisms. These included, for example: a controversial press release which followed the publication of the findings of the first epidemiological survey; queries regarding sampling exercises and

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<sup>220</sup> Letter from Council to RANT, 14/12/1998,



criticisms of testing programs. Although each letter was responding to particular issues it is possible to note some common discursive resources being used, as the authorities cited expert reports and expert opinions, drew on dominant scientific language and principles, along with understandings of the different roles of the different actor groups.

The authorities cited expert reports and expert opinion to add support to their approaches. In their justification of the limited monitoring that took place in the Entec study the Council explained how ‘the findings of the report did provide the Authority with sufficient evidence to justify carrying through its commitment to undertake further investigations’ (C16). The Health Authority also cited the first epidemiological study as a basis for their future approaches, suggesting it to be ‘...extremely helpful in trying to look at what the Health Authority can usefully and reasonably do in respect of the local resident population...’<sup>221</sup> (HA3).

The Council similarly cited the opinions and credentials of its appointed experts to legitimate their approach. In a defense of their controversial Press Release relating to the findings of the first epidemiological survey (November 1997), they explained how it was: ‘prepared by (the Epidemiologist) on behalf of the Authority. As such there were no steps taken by the Authority to minimize important facts and figures as you suggest’.<sup>222</sup> (C20). In their response to a letter from RANT requesting further water and dust sampling around the landfill site, and the use of an independent expert, the Council also asserted the credentials of their own analyst:

‘...He is a statutory appointee who meets the rigorous standards set by Central Government. This guarantees that his duty is to represent the interests of the public and consumers and to give unbiased scientific advice....The laboratory is UKAS accredited to analyse water and is headed by two scientists who hold the highest qualification available in this field in the UK (if not the world). There is no better analysis available. We shall therefore continue to use the Public Analyst to provide the best possible scientific advice to us. In so doing, we shall be best placed to serve local people.’<sup>223</sup> (C21)

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<sup>221</sup> Letter from Health Authority to RANT, 03/12/1997 (HA3).

<sup>222</sup> Letter from Council to RANT, 25/11/1997 (C20).

<sup>223</sup> Letter from Council to RANT, 19/01/2000 (C21)

Dominant scientific language and principles are also displayed in this extract as the Council cited: ‘rigorous standards’, ‘unbiased scientific advice’ and ‘UKAS accredited’ as the justifying principles for their choice of analyst. In their response to the statement ‘We believe that the Agency should adopt a more Precautionary Policy’, the Environment Agency also drew on dominant scientific principles. Here the Agency asserted the precautionary principle to be ‘one of the cornerstones of the Agency’s policy’, and developing the idea of objective research versus public perception explain: ‘we cannot act simply on the basis of public perception when our objective research shows that this perception may be an overestimation of the real position,’ They then cited published reports to support this position with the statement ‘as has been demonstrated by the two previously mentioned reports, as well as the Casella and Entec studies.’ (EA9)

Another ‘scientific’ resource used to justify approaches was, ironically, systemic or technical limitations. For example, in a letter from the Health Authority stressing their ‘concern’ with local health, it was explained: ‘You will know from reports of the health population over the last number of years that specific issues, given the data that we have available, have not shown up within our surveillance statistics.’ (HA3)

The authorities also reference interpretations of procedures, roles and relationships to justify their approaches. For example, the Council cited bureaucratic procedures and statutory acts, as in their response to the press release incident they write:

‘With regard to the points raised by (activist GP) I am of the opinion that these matters were fully addressed at the Special Environmental Services Committee held on 20<sup>th</sup> November 1997.’ (C20)

In their defence of the extension of the Casella investigation (and the extra cost to the taxpayer) the Council also cited their statutory obligations: ‘It is my view that the Authority had little alternative bearing in mind its statutory obligations as defined in the Environmental Protection Act 1990.’ (C16)

The different authorities also referenced their understandings of each others’ responsibilities as a means of asserting the appropriateness of their method and the

legitimacy of their conduct. For example in the letter regarding stream water testing the Council explained:

‘Responsibility for the protection of the stream from pollution lies with the Environment Agency. As such the sample results were faxed to the Waste Regulation Officer in accordance with our agreed procedures.’ (C14)

In the letter responding to a query regarding hydrogen sulphide/ carbon monoxide, the Environment Agency explained:

‘The Agency has agreed with Bro Taf Health Authority that they take the lead in commenting on health issues. I have, therefore, forwarded a copy of your letter to Bro Taf Health Authority, requesting that he considers your comments and responds accordingly.’ (EA10)

In the following extract the Health Authority also stated where they saw their own responsibilities lying and how they were meeting them (ie through collaboration), whilst also trying to distinguish the responsibilities of the Environment Agency:

‘I think the study carried out by (the epidemiologist), which was done in collaboration with the Health Authority (which is important for you to know), will be extremely helpful in trying to look at what the Health Authority can usefully and reasonably do in respect of the local resident population, and what is truly the responsibility of colleagues within the Environment Agency.’(HA3)

The different ways in which the authorities negotiated their relationship with RANT to try to strengthen or justify their position is also interesting. In one example, the Council stressed the agreement that they had with RANT, explaining: ‘These water samples were taken as part of the on-going sampling regime *agreed* between the Authority and your organization.’(C14) However, in the next few texts they can be seen to be asserting their privileged and superior position in relation to these investigations. In their defense of their choice of analyst they stated bluntly: ‘We have chosen to use this service because that is what we want.’ (C21) In an earlier letter they were on the defensive and called for a retraction of RANT’s advisors ‘interpretation of the Public Analyst’s findings, which questioned the analytical integrity, professionalism and expertise of the Analyst’<sup>224</sup> (C22). The Environment Agency

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<sup>224</sup> Letter from Council to RANT, 08/10/1998 (C22)

similarly asserted their superior knowledge rights in response to a query regarding the suitability of the site for the disposal of animal waste. They wrote: 'It is for the Agency to decide whether or not a site is "badly operated", "in contravention of its licence conditions" or "located too closed to human habitation."' (EA9)

In the following communication on the details of the working party to be set up to discuss the investigations the Council more actively denied RANT any kind of special role or status above that of ordinary member of the public.

'...You will note that at ii c the proposed working party is to comprise "the Council, the Environment Agency and representatives of the public..." Accordingly your reference to RANT and to (the Epidemiologist) and his colleagues is incorrect. So far as RANT is concerned, obviously, since members of RANT are themselves members of the public they are not precluded from being on the working party...' <sup>225</sup> (C23)

The following passage, from the letter responding to criticisms of the Casella investigation could also be seen to be discrediting the resident's position and undermining any special status or expertise that they were trying to claim for themselves:

'In terms of nuisance I find it interesting to note that Casella have received complaints from residents about the site on occasions when the wind was in the wrong direction. The reasons for this type of inconsistency must be determined to ensure that the Authority proceeds on a rational basis thus enabling it play a full part in any national debate on the alleged dangers associated with landfill sites.' (C16)

In the following much later communication, the Health Authority, however, seemed purposively to be according RANT recognition of a special role in the investigative process.

'Thank you for you and your group's hospitality .... I am impressed by the knowledge and understanding that many members of your group displayed and I am sure that there was more knowledge that was not revealed. As you know I am interested in trying to assist your group's understanding of the health investigation issues, as I am sure some misunderstanding has arisen owing to our different approaches. To this end I wonder if your group would

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<sup>225</sup> Letter from Council to RANT, 18/12/1997 (C23)

consider suggesting one or two members undertaking some intensive training in epidemiology....I hope that we can continue to have productive and educational meeting for both sides in the future and may I reiterate my gratitude for your hospitality...'<sup>226</sup> (HA4)

In what appears to be a more positive, complementary approach (by a new member of the Health Authority) this letter thus acknowledged the knowledge and understanding of local people, and even suggested that both sides may yet be able learn from the other.

### **Canvassing public and political support**

RANT also engaged in more conventional means of struggle to achieve their dual objectives of closure and remediation and a public health inquiry. These efforts included legal 'nuisance' cases brought against the tip, the forced revaluation of council tax bandings to reflect the devaluation of properties in the area<sup>227</sup> and more conventional protest tactics designed to sustain popular support and apply political pressure, such as courting media attention, protest marches, targeting MPs and other representatives.

As in the picketing days, RANT understood the importance of maintaining a wide base of public support, and thus continued to hold public meetings<sup>228</sup>, issue leaflets and newsletters<sup>229</sup>, and engage the press as much as possible. In addition to circulating their own newsletters and pamphlets RANT clearly also sought to promote their cause through the popular press. This included numerous letters to paper editors, in which they responded to criticisms or negative messages<sup>230</sup>, more proactively put forward particular messages, issued press releases or provided commentaries on specific issues<sup>231</sup>. More generally, they continued to work to maintain a positive and sympathetic media interest, willingly taking part in news reports and documentaries<sup>232</sup> and writing letters of thanks, appealing for continued support from the news

<sup>226</sup> Letter from Health Authority to RANT, 27/06/2000 (HA4)

<sup>227</sup> Activist Interview (01); Western Mail, 16/03/1998; Letters from RANT to Solicitor, 16/03/1998; 03/09/1998.

<sup>228</sup> Letters from RANT to Solicitor 25/03/1998; 16/09/1998; Letter from RANT to MP for Rhondda, 03/03/98.

<sup>229</sup> Letter from RANT to Headteachers, 24/09/1997; RANT pamphlet: Urgent Action for Rhondda Children, November 1997.

<sup>230</sup> Letter from RANT to Editor of Y Gloran, 11/09/1998.

<sup>231</sup> Letter from RANT to Rhondda Leader, 14/05/1999.

<sup>232</sup> Letter from RANT to BBC, 30/03/1999.

organisations<sup>233</sup>. In addition to playing an important promotional role, it seems the media also played a useful informative role for RANT, for example, reference was made to how journalists have informed RANT of the waste company's efforts to win back their waste contract with Glamorgan Council.<sup>234</sup>

In their efforts at promotion RANT also engaged directly with specific individuals and groups as they sought to cultivate potentially useful relationships. Such groups included community groups and unions, such as the Women's Institute<sup>235</sup>, the Rhondda Presidents<sup>236</sup>, the Boilermakers Union<sup>237</sup>, Tower Colliery<sup>238</sup> the Labour Executive Committee<sup>239</sup>, and other environmental protest groups<sup>240</sup>. RANT also looked for support from within public bodies and organisations, including Glamorgan Council, who were persuaded to cancel their contract with the tip<sup>241</sup>, GPs<sup>242</sup>, head-teachers<sup>243</sup> and even the education department at the council.<sup>244</sup>

Probably one of the most critical relationships that RANT sought to master were those with their political representatives. The MP for the Rhondda certainly seemed to be on side, attending public meetings, intervening on RANT's behalf to secure responses from the Health Authority and other organisations and setting up and attending meetings with the relevant authorities on RANT's request<sup>245</sup>. RANT also targeted Cardiff MPs by highlighting the pollution problems and stressing their relevance to the Cardiff area, due to the connecting flow of the Taff River<sup>246</sup>, and it seems also found a sympathetic ear with their Euro MPs who made several visits to the site. Seeking political support at the UK level was also a central concern of RANT during this period. Following the reopening of the tip RANT wrote immediately to the Prime

<sup>233</sup> Letter from RANT to Rhondda Leader, 14/05/1999; Letter from RANT to T.V company, 12/12/1997.

<sup>234</sup> Letter from RANT to Glamorgan Council, 12/12/1997.

<sup>235</sup> List of Women's Institute clubs held by RANT; 16/10/1997.

<sup>236</sup> Letter from RANT to Rhondda Presidents, 24/09/1997.

<sup>237</sup> Letter from RANT to Boilermakers Union, 13/11/1997.

<sup>238</sup> Letter from RANT to Tower Colliery, 22/10/1997.

<sup>239</sup> Letter from RANT to Labour Executive Committee, 16/01/1998.

<sup>240</sup> Letter from RANT to C.A.T (activist group), 20/05/1999.

<sup>241</sup> Letter from RANT to Glamorgan Council, 12/12/97.

<sup>242</sup> Letter from RANT to Health Authority, 25/11/1997.

<sup>243</sup> Letter from RANT to Headteachers, 24/09/1997.

<sup>244</sup> Letter from RANT to Council, 11/09/1997.

<sup>245</sup> Letters from RANT to MP for Rhondda, 12/09/1997; 02/12/1997; 23/02/1998; 29/12/1997.

<sup>246</sup> Letter to Cardiff MP, 07/10/1997; 02/07/1998; 04/12/98.

Minister, to stress local anger at the Labour controlled council, placing a particular emphasis on traditional Labour loyalties in the area<sup>247</sup> and in January 1998 made a similar appeal to the deputy John Prescott, this time emphasising the government's supposed commitment to reducing pollution.<sup>248</sup> They also made more specific cases; to the Department of Environment, regarding chemicals on tip, enclosing a list of chemicals, and a map showing proximity to schools and communities,<sup>249</sup> and to the Health Secretary in London requesting advice on how to proceed with their request to have full health risk assessment carried out.<sup>250</sup> In March 1998, fifty protestors travelled to the House of Commons, with a view;

‘...to speak with a number of Welsh MPs and put our concerns to them. It will mean we can answer any of their questions and tell them the story right from the beginning. What we would really like is for them to raise a formal question and eventually get a public inquiry going....Our own MP has offered us great support but obviously the more help we can get the better.’<sup>251</sup>

Ultimate responsibility for any such inquiry, however, seemed repeatedly to point back to the Welsh Office, hence numerous letters written to the Welsh Office, initially requesting a public inquiry to investigate the design, current management and day to day operations<sup>252</sup>, and in later letters and meetings to call for a Public Health Inquiry<sup>253, 254</sup>.

At the local level, a key political alliance was cultivated with the Plaid Cymru Party. These opposition councillors fought alongside RANT, representing their interests in the Labour controlled council sessions, and took a petition to the European Parliament to highlight a breach of law by the UK government<sup>255, 256</sup>. Due to this alliance RANT also frequently found themselves countering local Labour Party accusations that they had become ‘a political group’, a claim they strongly refuted in letters to the press or ‘by distributing our reply throughout Clydach Vale to ensure that the true facts are

<sup>247</sup> Letter from RANT to Prime Minister Tony Blair, 21/10/1997.

<sup>248</sup> Letter from RANT to Deputy P.M. John Prescott, 28/01/1998.

<sup>249</sup> Letter from RANT to Dept. of Environment, 12/03/1999.

<sup>250</sup> Letter from RANT to Health Secretary, 19/05/1999.

<sup>251</sup> Interview with activist cited in Western Mail, 16/03/1998.

<sup>252</sup> Letter from RANT to Secretary of State, Welsh Office, 31/07/97.

<sup>253</sup> Letter from RANT to Welsh Office, 27/08/98; 21/04/99.

<sup>254</sup> Letter from RANT to Friends of the Earth, 2/11/1998.

<sup>255</sup> Letter from RANT to Welsh Office 31/07/1997.

<sup>256</sup> Letter from RANT to Plaid Cymru conference delegates, 25/09/1998.

known.<sup>257</sup> This was particularly the case following Plaid victory in the May 1999 elections. This unprecedented defeat riled the Labour Party, who attributed the victory to scaremongering over the tip, but for RANT it brought a new hope, optimism and sense of opportunity. In a letter to another group they spoke of 'wonderful news on Friday, 6th May-most of the Labour councillors in our area lost their seats to Plaid Cymru. So we shall be moving forward with this party who made a promise to us that they would work with us to close this tip.'<sup>258</sup>

### Summary

One of RANT's most critical areas of work was that connected with scientific investigation. Here, they drew on a basic scientific background of some of their own members, and skills and advice of other 'accredited' experts who were allied with RANT. A considerable amount of effort was also spent engaging specialized experts, seeking their opinions and guidance on specific issues. There were two sides to their approach to scientific investigations: on the one hand they worked with official studies, whilst on the other they conducted their own independent research program. RANT was actively engaged with various 'official' studies at different stages of the research process, but their experiences of these seemed to alter between being seen as friend or foe. From the start they experienced frustration and disappointment in terms of both implementation and outcome. RANT's continued engagement seemed to be due to a combination of perceived dependency but also opportunity in relation to official studies. This was based on experiences of poor and apparently fallible scientific practices, which not only diminished the believability of experts, but in highlighting the manipulability of 'science' also suggested to RANT the importance of exerting some influence over official approaches. This perception was also complemented by a growing confidence in their knowledge, in the face of contradictory 'official' claims and detections of sympathy amongst some of the appointed scientists.

RANT responded to such experiences with a 'critical cooperation'. They sought to impress their local knowledge upon the respective bodies, in particular their 'informant' knowledge, as local people passed on details of their illnesses to RANT in

<sup>257</sup> Letter from RANT to Labour Councillor, 22/04/1999.

<sup>258</sup> Letter from RANT to C.A.T (activist group), 20/05/1999.



their capacity as community representatives. RANT also used 'expert opinion' to support the claims being presented to official/ statutory experts and engaged with and sought to negotiate dominant scientific principles, such as impartiality, to try to secure methods suitable to their interests. RANT also critiqued official methods more directly, again drawing on combinations of local 'informant' knowledge, findings from published research, expert opinion, and in some instances used moral arguments alongside the 'facts' based criticisms. As well as critiquing methods RANT also criticised how the findings of these official studies were handled and presented, again engaging with principles of objectivism and neutrality, by suggesting intentional bias and manipulation.

In addition to seeking control over official investigations RANT also developed a separate program of research. This included: surveys of resident health problems; extensive literature searching; developing hypotheses and causal theories to explain health conditions. Features of this work at a discursive level included an 'empirical' or deductive logic, use of an appropriate technical language, and reference to 'accredited' laboratories, and scientists. Such hypotheses were then progressed through their own dust and water sampling programs and by seeking access to official data sets. As well as developing a campaign which challenged 'science' with 'science', they also challenged the political usage of dominant scientific approaches in public risk management through their advocacy of the precautionary principle.

One notable feature of Authority discourses in this area is in how they limit possible perceptions of risk. Methods here included the use of mitigating 'but' or 'although' statements and words or phrases such as 'likely' or 'unlikely', 'further reassurances', 'no direct evidence'. To support their claims the authorities drew on the findings of local and non-local investigations and reports, as well as developing alternative 'lifestyle' explanations of the alleged health problems. They also engaged with 'expert categories' or principles (eg calibre, objectivity v subjectivity) to strengthen their own arguments and dismiss those of RANT. When it came to defending or justifying their approaches to scientific investigation the authorities again cited the actions and opinions of expert reports and expert opinion, along with systemic or technical limitations, bureaucratic procedures and statutory acts and their understandings of each others' responsibilities. There were also examples where the

authorities were negotiating their relationship with RANT in relation to the investigations. In the main they were asserting their privileged and superior position here, although there was a later example where the Health Authority seems purposively to be according RANT recognition of a special role in the investigative process, on the basis of their local expertise.

RANT also continued to engage in more conventional means of struggle to achieve their dual objectives of closure, remediation and a public health inquiry. These efforts included legal 'nuisance' cases brought against the tip, the forced revaluation of council tax bandings to reflect the devaluation of properties in the area and more conventional protest tactics designed to sustain popular support and apply political pressure, such as courting media attention, protest marches, targeting MPs and other representatives. At the local level, a key political alliance was cultivated with the Plaid Cymru Party, who eventually came to power in the May 1999 elections on a promise to close the tip, providing RANT with a new hope and optimism.

## **Chapter Nine: political change, opportunity and the independent investigation**

### *Introduction*

This is the last of the four findings chapters. The previous chapter detailed two core strategies pursued by RANT, as they sought to gather evidence on the health and environmental effects of the landfill site, whilst continuing to canvass public and political support for their end goals of public inquiry, and the closure and effective remediation of the site. This final chapter charts the sequence of events which led to the commissioning of an independent investigation and following from this the closure of the tip. It also explores in detail some of the key themes to emerge from the evidence submitted to the Investigation.

### **The political story**

This next part of the story returns us to the lobbying activity of RANT and two important political changes that took place in 1999 with regards to this activity. As discussed in the previous chapter two of the main organisations being targeted by RANT in this period were Plaid Cymru and what was then still the Welsh Office; the former as a vehicle for representing and supporting RANT's interest with regards to tip closure and a public inquiry, and the latter, as the appropriate organisation who could order such an inquiry. With the elections of May 1999 came '....wonderful news....most of the Labour councillors in our area lost their seats to Plaid Cymru. So we shall be moving forward with this party who made a promise to us that they would work with us to close this tip....<sup>259</sup>.' Later that year, on the 1<sup>st</sup> July 1999 the Welsh Office was disbanded and most of its powers were transferred to the National Assembly for Wales.<sup>260</sup>

In spite of these political turning points, both tip closure and the desired public inquiry were far from being a *fait-accomplis*. In response to criticisms made by a

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<sup>259</sup>Letter from RANT to C.A.T (activist group), 20/05/1999.

<sup>260</sup>Although in its infancy the Welsh Assembly had no powers to initiate primary legislation, it was argued by the new Labour government that an Assembly would be more democratically accountable than the Welsh Office.

Labour councillor in the press<sup>261</sup>, RANT retorted angrily ‘our pressure to close this abominable site will be unceasing, regardless of what political party has a majority within the Rhondda Cynon Taff Council. If anyone thinks otherwise, they will be quickly disillusioned’<sup>262</sup>. RANT were thus quick to hold their new representatives to account<sup>263</sup> and the aftermath of this new optimism was marked by increased campaigning and pressure, as the new Council proved themselves unable or unwilling to close the tip, and it was a further year before a final decision (and negative one at that) was reached on a full public inquiry, leaving RANT with a sense of ‘still hitting a brick wall with the Assembly.’<sup>264</sup>

Fully aware of the now heightened importance of public support, RANT continued to hold weekly meetings open to the public, publicise and update on developments in newsletters<sup>265</sup> and publish letters in local newspapers<sup>266</sup>. They also stepped up the pressure on the Welsh Assembly to hold a public inquiry, in July 1999 requesting an urgent meeting with the Assembly Business Manager to ensure that ‘he is in possession of all of the facts’ before they carry out their cost-benefit analysis with regards to a possible inquiry.<sup>267</sup> On learning of the Assembly’s refusal to consult on a public inquiry, for reasons of ‘best value’, RANT not only lodged their complaint with the Assembly<sup>268</sup>, they also wrote to the Rhondda Leader asking that they run a feature on this decision, explaining ‘we would appreciate you doing an article on this as we are very concerned that despite all the government posturings about consultation, being wide, open and genuine, the Welsh Assembly is obviously making decisions before consultation.’<sup>269</sup> Nor did they leave it at this. Following the appointment as first secretary of Rhodri Morgan, they requested a meeting with him to persuade him to reconsider the decision.<sup>270</sup> A Plaid Cymru Assembly Member and longstanding local sympathiser was then successful in sponsoring a debate on the proposal set for the 10<sup>th</sup> May 2000. In preparation for this debate RANT sent in

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<sup>261</sup> South Wales Echo, 08/05/1999.

<sup>262</sup> Letter from RANT to Councillor, 14/05/1999.

<sup>263</sup> Letter from RANT to Councillor, 08/09/1999.

<sup>264</sup> Letter from RANT to MEP, 14/09/1999.

<sup>265</sup> RANT Newsletters, 14/07/99; 08/08/2000.

<sup>266</sup> Letters from RANT to; Editor, Western Mail, 16/07/99; 17/07/99; 03/05/2000; Editor South Wales Echo, 13/09/2000; Editor, Rhondda Leader, 03/10/2000.

<sup>267</sup> Letter from RANT to Welsh Assembly, 01/07/1999

<sup>268</sup> Letter from RANT to Welsh Assembly, 07/10/1999.

<sup>269</sup> Letter from RANT to Editor, Rhondda Leader, 07/10/1999.

<sup>270</sup> Letter from RANT to Rhodri Morgan, First Minister, 18/02/2000.

various documents as evidence for the need for a full public inquiry,<sup>271</sup> and arranged to lobby the Assembly on the day of the debate, calling on local and national support networks to attend.<sup>272, 273</sup>

Ultimately, however, to the disappointment of RANT and their Plaid AMs, the motion for a public inquiry was rejected by the Assembly in favour of an independent investigation<sup>274</sup>. The disillusionment and disappointment that set in this period was expressed in the following comment to a Labour councillor; that ‘all the RANT members, are totally and absolutely disillusioned by all the political parties. Promises are now so discredited that they are deemed worthless....’<sup>275</sup> In response to the prospect of a public inquiry without immediate tip closure RANT had already explained in a news interview;

‘Previous to the last election most of the Plaid Cymru councillors and supporters were with RANT fighting to close the tip, which was our main concern. We’ll go along with a public inquiry but if a Public Inquiry takes two years, maybe five years, they’re still tipping on whatever rubbish is up there now. I think that they should close it straight away, right this minute and find out what’s been tipped up there. And have a public inquiry on who tipped it and hold people responsible for it.’<sup>276</sup>

The prospect of no tip closure and no enquiry must have been doubly disappointing. In the following Public Update RANT write; ‘The National Assembly have refused RANT’s request for a full public inquiry and have instead decided to hold its own investigation into the past mismanagement of the site. This is all to do with cost. It’s a sad day that the people of the Rhondda are not worth the cost of a public inquiry.’<sup>277</sup>

However, in spite of these negative feelings, RANT did agree to participate, albeit reluctantly and with scepticism. In accepting the invitation RANT expressed ‘unanimous caution that the investigation will not provide all the requirements the

<sup>271</sup> Letter from RANT to Welsh Assembly, 22/04/2000.

<sup>272</sup> Letter from RANT to Friends of the Earth, 24/04/2000.

<sup>273</sup> Letter from RANT to Clout, 19/04/2000.

<sup>274</sup> Local Plaid Cymru AM, BBC interview, 06/06/2000; News Wales, 05/07/2000; Letter from RANT to Liberal Democrat AM, 30/06/2000.

<sup>275</sup> Letter from RANT to local critic, 03/05/2000.

<sup>276</sup> Resident/ RANT BBC interview, 06/06/2000.

<sup>277</sup> RANT Newsletter ‘Up-date on Nant-y-Gwyddon tip’, 08/08/2000.

group felt essential for a just result to the lengthy campaign.....the decision to participate remains very unpopular with RANT.<sup>278</sup> In the preliminary and opening sessions of the investigation RANT expressed the following doubts and disappointments: 'I do not agree with this investigation, as all this committee wants to do, in my opinion, is cover up what the Council has done in the past and safeguard what the tip company will want to do in the future.'<sup>279</sup> And more extensively:

'We, as an organisation, knew from the legal advice that we had been given that an investigation did not have the power to subpoena witnesses nor to make them answer questions placed before them....What needs to be done is to find out who the guilty parties are, why they did what they did and who profited from the abysmal way in which the site has been run, and then make the individuals responsible for their actions. That requires powers that you do not have....This investigation is a prime example of doing something on the cheap....It is a joke, a sick joke at our expense. The investigator will have expert advice. Where from? The civil servants, the Environment Agency, BroTaf Health Authority and the University of Wales? Those organisations or bodies are the ones that should be investigated, not the ones providing expert advice to the investigator. I hate to say it, but as things stand, this will be a whitewash.'<sup>280</sup>

### *The investigation*

The year long investigation began on the 1<sup>st</sup> November 2000. The investigation entailed collecting written and oral submissions of evidence from a wide range of parties who had experienced varying degrees of involvement with the landfill site or the related protest. Not surprisingly, the most extensive submissions of evidence came from residents, the Environment Agency, the Council, the Health Authority, the researcher at Friends of the Earth and the University Scientists. The hearings were open to the public and held in council owned premises in Pentre. They extended over thirty six days in total.

The overall remit was described as 'an investigation into aspects of the Nant-y-Gwyddon Landfill Site with the intention of learning any relevant lessons and informing future policy on waste disposal.' The final report considered evidence relating to: the history of the landfill site, the choice of site, the management of the

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<sup>278</sup> Letter from RANT to AM, 21/09/2000.

<sup>279</sup> Resident, oral evidence (RD) (05/11/2000)

<sup>280</sup> Resident, oral evidence (WT) (05/11/2000)

site, lessons for the future operation of the Nant-y-Gwyddon landfill site and additional investigations or actions necessary at Nant-y-Gwyddon, as well as for the future of waste management in Wales generally. It also considered evidence of adverse health effects attributed to the site, along with the responses of the different authorities to the concerns of residents.<sup>281</sup>

The evidence presented by local residents to the investigation built upon the same discursive areas which have so far been charted and explored across the struggle. The two key areas of discourse were around the misconduct of the various authorities and local and expert knowledge of the health and environmental effects of the tip. Although the evidence presented by the authorities covered a broad range of issues relating to the tip, for the purposes of this research the focus was restricted to argumentation with regard to these same areas: relationships with the local community and health related investigations.

### **The evidence submissions: local relationships**

#### *Resident Activists: mistreatment and disrespect*

The long list of incidents of mistreatment and disrespect which residents described in their evidence to the investigation has already been detailed in Chapter Two. To recap briefly, residents across the board described their outrage and upset at what they regarded as the level of misinformation on the original application for EU funding, the leasing of land, being barred from meetings, what were seen as dubious planning decisions and processes, unanswered calls by the Agency and the Health Authority, including being treated with contempt and ‘mostly being made to feel a neurotic women with nothing better to do’<sup>282</sup>. They also spoke of a series of unfulfilled promises and broken agreements, in particular in relation to the recent failure of the authorities to secure a financial bond from the new waste company.<sup>283</sup>

In the final report the Investigator also usefully listed the ‘objectionable behaviour by the authorities’, as reported by residents. These were characterised as:- professional

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<sup>281</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee.

<sup>282</sup> Resident, oral evidence (BC), 19/12/2000.

<sup>283</sup> Resident, oral evidence (DS), 19/12/2000.

arrogance, professional disdain, a simple failure to do what could reasonably be expected of public servants or bodies, persistent obstruction, obfuscation, claiming perceived confidentiality, claiming privilege, threats of legal action, failure to take notes for the file, failure to keep records, failure to respond to letters and telephone calls, deliberate destruction of files and records, failure to minute important meetings, failure to answer formal correspondence, delays in responding generally, supporting/encouraging legal action to restrain protest.<sup>284</sup>

As well as reporting and detailing these events, several residents also developed and delivered more extensive political and social critiques as part of their evidence. The following extracts from different residents all point to seeing Nant-y-Gwyddon as part of a much wider problem than simply mismanagement or a series of errors. As one resident claimed: ‘Our biggest problem, apart from the tip, is convincing the authorities that we have got a problem, the problem being obviously the tip’<sup>285</sup>, whilst another gave the following theory on why the Council never take positive action, or critically consider the ‘evidence’ presented to them:

‘...Very rarely do councillors read the booklet presented to them for the meeting; when it comes to voting, they have a look at the leader, he puts his hand up and like a lot of zombies, they follow and put their hands up-and this is what normally happens. Now there’s no way they were going to read that and understand it.’<sup>286</sup>

Similarly suggestive of a flawed democratic and political process, another resident explained: ‘now who can the people of Rhondda turn to for help, when the councillors of the Rhondda residents were voted to run our council on promises to close Nant-y-Gwyddon tip, voted to keep the landfill site open.’<sup>287</sup>

Other residents also developed more moralistic and rights based arguments. One resident argued: ‘I wish to record that in the pursuance of the Human Rights Act, that the members and inhabitants across the Rhondda be accordingly accorded and

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<sup>284</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee.

<sup>285</sup> Resident, oral evidence (LL), 18/12/2000.

<sup>286</sup> Resident, oral evidence (AT), 12/12/2000.

<sup>287</sup> Resident, oral evidence (TB) 19/12/2000.



respected, the considerations due to all its members of the society.<sup>288</sup> Whilst another asked ‘Why should the council tax payer become liable because the local authority own the land, especially as the tax payer nor the council have any say in what wastes are allowed. Surely the environment agencies are morally bound to accept blame alongside the operator?’<sup>289</sup> In a similar contestation of responsibility and ownership it was also described how ‘the countryside council have apparently authorised the landfill operator not to replace the trees. Now the trees are not theirs-who gives them the right to give authorization not to replace something that isn’t theirs?’<sup>290</sup>

Another resident discussed the problems of landfill in an even wider national context:

‘The air we breathe I know it isn’t clean, it isn’t pure through all the traffic and other pollution. But this is a man-made waste dump, and it is made out of greed. They put money before they put anybody’s health....It is greed on the part of the Government. We’re fighting the Government. We know this because when we went to London there were twenty groups fighting the same thing. So we know-they know it’s wrong and they know it’s a disaster, but they’ve got so many disasters over the country...they won’t give in to us.’<sup>291</sup>

In other words, through networking with other similar groups, it seems they gained a sense of the broader political and economic factors at play.

### *The authorities: public relationships*

On the whole not much space was given by the authorities to account for their relationships with the public. The Council placed particular emphasis on its openness with regards to the investigation, but rather than attempt to explain or justify particularly contentious events or issues of the past, tended to just list these in a very factual reporting of events. The Environment Agency and Health Authority engaged in a limited defense of their relationships with the public, with reference to what they considered to be good practice in relation to established procedures. For example, in their written submission to the investigation the Health Authority write: ‘in response to correspondence and telephone calls from the residents of the area and others, the Health Authority at all times endeavored to be as informative and helpful as possible,

<sup>288</sup> Resident, oral evidence (RD), 18/12/2000.

<sup>289</sup> Resident, oral evidence (GO), 19/12/2000.

<sup>290</sup> Ibid.

<sup>291</sup> Resident, oral evidence (AJ), 18/12/2000.

in accordance with agreed procedures...’ They similarly explained how ‘the Health Authority co-operated with all requests for information within the regulations governing data confidentiality....’ In a later statement which would appear in contradiction of these claims, however, the Health Authority also begrudgingly acknowledges ‘it is a fact that the Health Authority was slow to respond to correspondence during a three month period September-November 1997. I regret this but cannot change the facts’.<sup>292</sup>

The Environment Agency also explained how ‘...As a public body the Agency is committed to being open, efficient, accessible and responsive to its customers.’ They then also provided details of their activities in this area such as ‘customer service centres in area offices where public registers containing information on authorisations, inspections and enforcement can be inspected’ and ‘a variety of methods... used to ensure each person receives sufficient feedback, for example telephone calls, letters, periodic information bulletins for complainants and personal visits to homes to monitor air quality.’ The Environment Agency also cited how they attended public meetings organised by RANT and participated in a variety of multi-working/ liaison groups associated with Nant-y-Gwyddon.<sup>293</sup>

Whereas the Environment Agency and Council didn’t get drawn on explicitly negative aspects of their relationship with RANT, the Health Authority was much more defensive arguing:

‘The Health Authority at no time obstructed access to information nor sought to interfere with actions taken by other organisations including the community. Indeed, there were many instances when staff received verbal and written abuse and threats. Staff remained professional and committed to the population throughout.... mistrust of the Health Authority, and allegations about the Health Authority, its use and openness of data were expressed. None of the allegations were substantiated and most related to areas outside the power of the Health Authority or which would breach regulations governing individual patient confidentiality.’<sup>294</sup>

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<sup>292</sup> Health Authority, written evidence to the investigation (December 2000)

<sup>293</sup> Environment Agency, oral evidence (12/04/2001)

<sup>294</sup> Health Authority, written evidence to the investigation (December 2000)

The Investigator obviously remained skeptical of such claims, and in the final report noted how ‘the open government and transparency often aspired to in theory has not applied in the case of Nant-y-Gwyddon.’ It was also recommended that:

‘The National Assembly issue mandatory guidance to the Environment Agency Wales to require all the openness and transparency permitted by current legislation and furthermore press UK government to espouse freedom of environmental information generally and certainly removing “commercial confidentiality” as a barrier to public accountability.’<sup>295</sup>

### **Local and expert knowledge claims: Contesting the truth.**

#### *Resident activists: local knowledge*

In much the same way as in their earlier engagements with science and expertise, RANT developed several kinds of claim making to try to persuade the investigator of the veracity of their own claims regarding health effects and the flaws in so called official findings and opinions. The first of these was through presenting pieces of evidence, which were founded upon their locally rooted knowledge and experiences, and which to varying extents were woven into causal narratives or logics to implicate the tip as a health risk. The kinds of local knowledge presented here can be split further into the following categories: observed problems at the tip; knowledge of local geographical conditions; past experiences of environmental hazards; and most extensively, observed changes in local peoples’ health and the environment.

Several residents gave evidence on problems which they observed at the tip, which heightened their sense of risk to the local environment. These included witnessing tears in the liner when it was put down,<sup>296</sup> suggested to be caused by the dumpers running over it<sup>297</sup>, along with the fact that the liner cannot be found.<sup>298</sup> Several residents also reported witnessing leachate bubbling up through the drains, and one described how they witnessed the pumping of leachate into the river by council

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<sup>295</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee

<sup>296</sup> Resident, oral evidence (LL, GT) 18/12/2000; 20/12/2000.

<sup>297</sup> Resident, oral evidence (DS) 19/12/2000.

<sup>298</sup> Resident, oral evidence (LL) 18/12/2000.

workmen.<sup>299</sup> It was also noted how the current tip management and authorities are unable to say what has been deposited in the tip.<sup>300</sup>

Residents also described their lifelong familiarity with the local area and used this as a basis to comment on geographical features which they considered to interact with and exacerbate the risks associated with the tip. One resident described how a housing estate on the opposite side of the mountain is moving and also explained:

‘People in RANT they are very conversant with this mountain-people in the way they walk the mountains and they are conversant with the fissures that abound on that mountain, and their considered opinion is that these have opened over the years which means that the effectiveness of HDPE liner is going to be very suspect.’<sup>301</sup>

In addition to concerns with movement and stability, residents spoke of the high wind speeds and levels of rainfall on the site<sup>302</sup>, with one resident explaining how ‘many were astounded at the wisdom of experts wanting to sight this landfill on one of the most exposed areas in south Wales.’<sup>303</sup>

Residents also recalled past environmental hazards or incidents which, in their view, added to the uncertainty of the situation. The most common of these was Aberfan, which was mentioned in reference to fears of landslips,<sup>304</sup> in particular given that a slip occurred during the construction of the access road. It was also used as an example of flawed expert advice. As one resident put it;

‘Everybody is certain that nothing is going to happen and it’s as you were told by one of the witnesses yesterday, I mean, this is a problem that was found in Aberfan and everybody-NCB officials, engineers, surveyors, everybody-said that mountain site at Aberfan, the coal tip at Aberfan was safe, it would never give a problem. And yet there are reports that have since come out where engineers and people employed up there had voiced concerns many times. Now I don’t think anybody at Aberfan has voiced more concerns about their

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<sup>299</sup> Ibid

<sup>300</sup> Resident, oral evidence (AJ) 18/12/2000.

<sup>301</sup> Resident, oral evidence (GO) 19/12/2000.

<sup>302</sup> Resident, oral evidence (LL,GO) 18/12/2000; 19/12/2000.

<sup>303</sup> Resident, oral evidence (WT) 20/12/2000.

<sup>304</sup> Resident, oral evidence (AJ, GO) 18/12/2000; 19/12/2000.

problems than we have about our problem, and we are receiving the same stony silence: everything is all right.’<sup>305</sup>

In a similar vein, the problems surrounding the incinerator at Dinas were also described as ‘another monumental authority cock-up’ with ‘the same engineer responsible for the incinerator and Nant-y-Gwyddon and no one blamed for either.’<sup>306</sup>

By far the largest kind of local knowledge based evidence related to residents’ observations of changes or incidents in their health and their local environment. Within this kind of evidence it is possible to distinguish four logics or rationales being developed to directly connect the tip to local health problems. In the first the residents connect pollution incidents with immediate and apparently direct health responses. A second rationale was based on examples of how everyday health had worsened over time, since the opening of the tip, whilst observations of health improvements upon leaving the area constitutes a third. A final logic is displayed in evidence given on more severe and rare illnesses in the area, which were argued to occur too commonly in the area to be mere coincidence.

A first of these is in descriptions of various pollution incidents and their immediate, apparently direct health responses. Several residents described the case of a local child falling in the stream; how ‘when they were pulled out was covered in blisters like they had been dipped in acid’ and explained how ‘so that alerted me to the way everything was happening around on the field with people cutting themselves, it wouldn’t heal so I believe everything from that tip’s been washed onto that grass, killed all the wildlife.’<sup>307</sup> And several others also mentioned the loss of wildlife and animal illnesses in the area.<sup>308</sup> Residents also described some of their worst health experiences and explained how these directly corresponded with the worst of the pollution incidents.<sup>309</sup> One described how, overnight, after the tyre fire, his wife lost the sight of one eye and fifty percent of sight in the other eye, and commented ‘I can’t get medical proof, but it’s a bit of a coincidence.’<sup>310</sup> Another described an occasion

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<sup>305</sup> Resident, oral evidence (GO) 19/12/2000.

<sup>306</sup> Ibid.

<sup>307</sup> Resident, oral evidence (AJ, BC) 18/12/2000; 19/12/2000.

<sup>308</sup> Resident, oral evidence (AJ,AT) 18/12/2000; 12/12/2000.

<sup>309</sup> Resident, oral evidence (BC) 19/12/2000

<sup>310</sup> Resident, oral evidence (TB) 19/12/2000

when their son returned home gasping for breath with a ‘suspected chemical asthma attack.’<sup>311</sup> The following passage similarly describes extreme sickness responses following the worst incidents of odour pollution:

‘We’ve had to run and I’m not exaggerating: we’ve had to run down that hill because the smell has gone into our noses down to our stomachs and we have stood there retching and vomiting. Then we’ve been ill for 24 hours or more after with an ill stomach, headaches. Now, I’m sorry, that’s not acceptable...That pungent aroma, there could have been a cloud of gases, I don’t know, I’m not a scientist, I’m just a mother and a human being but that is not acceptable. There is something in the air coming from the tip that is making us ill on a daily basis.’<sup>312</sup>

Residents also gave longer term examples of how their everyday health had worsened over time, since the opening of the tip, as seen in the following example, from a resident already compromised by existing health vulnerabilities;

‘Over the last few years, my health has deteriorated very much. I suffer from asthma, hayfever, psoriasis and, like a lot of sufferers, I am affected more from the gas emissions and smells than a healthy person. And as I can’t keep my windows and doors open all the time, I suffer all the more and I have to go outside for air. Sometimes, my eyes water and run, my throat is dry, I suffer from headaches and on times I get sores and some pimples on my face and arms.’<sup>313</sup>

Another resident (also with existing health problems) similarly charted the deterioration in their health. They described how it began with them noticing unpleasant odours, and then their health began to suffer with occasional sore throat, eye irritation and occasional voice loss. They also directly linked the installation of new flares in November 1998 with a further deterioration of their health, describing how their asthma became unmanageable, how they suffered from constant respiratory infection, bad eyes, a blocked nose and an itchy throat.<sup>314</sup> As well as these kind of personal narratives residents also gave evidence on the health of other groups. This included the problems caused to local rugby players who experienced sickness following training, and problems with their wounds not healing, as well as the

<sup>311</sup> Resident, oral evidence (WT) 20/12/2000

<sup>312</sup> Resident, oral evidence (KH), 23/02/2001.

<sup>313</sup> Resident, oral evidence (RD), 18/12/2001.

<sup>314</sup> Resident, oral evidence (BC), 19/12/2000.

comments of a secretary at a local school (which experienced awful odours), that they now have a cupboard full of asthma pumps.<sup>315</sup>

A third implicating logic being developed by several residents, was not only in claims of deteriorations in their health, but also that their own and their families health improves when they leave the area. One resident stated that they only feel well when they are away from home,<sup>316</sup> whilst the resident who provided the above account of their illnesses ended this account by stating ‘I try to get away from the areas as much as possible. When I do I find that my health improves very much, but as soon as I come home again, I feel worse again.’<sup>317</sup>

As well as worsening health in general, several residents also gave evidence on more severe and rare illnesses in the area, which they argued to occur too commonly to be mere coincidence. The following extracts are from one of the most graphic accounts of a mother’s experience of a baby born with gastrochisis. It charts the voyage of discovery, as the family move from thinking of themselves as unlucky or even partly responsible, to suspecting the tip as the causal factor:

‘Clydach Vale turned into a stink bomb, didn’t it? We couldn’t open our doors and window for the smell...we had to evacuate our house a number of times because I couldn’t leave my baby in the crib because it was like living in India. She was covered in flies, constantly covered in flies. We had to evacuate the house and spray the house with fly spray-now what health issues are we facing just from that issue?’

Right, so after the flies and the smell problem, there was a local meeting, and it was rather like an awakening in that meeting, after listening to (...) from Friends of the Earth, because in his discussion he spoke about problems that had arisen around landfills and places like that. I just sat there and I thought to myself, this is so familiar, is this why? Because up until that point you blame yourself-is it something I drank, is it food, was I eating the wrong foods? I’ve always been a pretty health conscious person. I found that very hard to believe, so I looked into the problem...<sup>318</sup>

This resident also described how she came to discover two children in a small school with gastrochisis, how there was a third in the street below, and on her visits to

<sup>315</sup> Resident, oral evidence (AJ), 18/12/2000.

<sup>316</sup> Resident, oral evidence (BC), 19/12/2000.

<sup>317</sup> Resident, oral evidence (RD), 19/12/2000.

<sup>318</sup> Resident, oral evidence (KH), 23/02/2001

Cardiff University Hospital in the first few years was told that there had been a remarkable increase in Rhondda people being diagnosed with gastrochisis and other conditions like that. Similarly, it was explained how ‘in the case of another birth abnormality the mother was told by experts that they were extremely unlucky-that there was one in a million chance-that they (the consultants) would ever see it again-yet three weeks later, in Gelli, the very same thing occurred.’<sup>319</sup>

### *Contesting the science*

As well as developing causal logics based around their locally rooted experiences, RANT also engaged critically and reflexively with mainstream scientific approaches and research to pre-empt or contest the counter-arguments and approaches of the authorities. These activities included: countering dominant explanations of health conditions; claiming and embracing their situatedness; contesting ‘what matters’ and directly critiquing scientific approaches.

One such contestation took place around explanations which attribute poor health, in particular the high cancer rates in the valleys, to deprivation and the lifestyles associated with it. One RANT member gave the following account, which as well as directly challenging deprivation and lifestyle arguments, is also interesting for its use of ideas drawn from dominant discourses in the field of environmental and public health, for example reference to league tables; low-level chemicals and the health status of a ‘third world country’(italicised):

‘Everyone here must surely realise that the poor of any society die younger than the affluent. My contention is, however, that in the Nant-y-Gwyddon areas there must be contributory factors which make chronic ill health and premature death a more likely scenario for many of the residents. My mother and most of her friends died in their late 80s after many years spent in abject poverty. These days it is commonplace to hear the death of people in their 50s and 60s. No one could realistically say that the degree of poverty experienced by these individuals was on parity with that experienced by my mothers’ generation. As a realist I know that smoking, excessive drinking and drugs are contributory factors in disease and premature death but people have always smoked and drunk in this area and people smoke and drink throughout the UK. These factors do not explain why *Rhondda now heads the league tables for premature deaths and morbidity statistics*. Another factor has entered the equation. It is my firm contention that this factor is the Nant-y-Gwyddon

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<sup>319</sup> Ibid.



landfill. Daily that toxic time bomb spews out *low-level chemicals* into our environment. Until it is closed and rendered safe we will accelerate faster and faster into a community with the *health status of a third world country*.<sup>320</sup>

As well as detailing the kinds of in depth forms of local knowledge, as given earlier, in places the residents also explicitly claimed the exclusivity of this knowledge, thus embracing their 'situatedness'. When describing their illness experiences one resident insisted: 'No one apart from my family can say how bad these things were', whilst another explained 'okay, we're only ordinary working class people. Like I said, I was educated in the thirties in an elementary school. But there's not much in the mountains that I can't tell you about. That was one of my interests.'<sup>321</sup> Such arguments not only challenge dominant scientific principles of impartiality and objectivism, but in engaging critically and reflexively with such ideas they are also pre-empting a predicted expert dismissal.

Residents also asserted higher moral and humanistic values in the face of, and as a direct critique of scientific approaches and principles. One activist quoted directly from a paper which discussed mathematical models to calculating risk levels.

'In risk assessment, long-term chronic exposure, the aftermath of a disaster or in worker compensation hearings, these same techniques cloud reality and work effectively against justice for the victims. The elegant mathematics must not be allowed to cover the injustices.'<sup>322</sup>

The following evidence given by a resident and mother of a baby born with gastrochisis, also illustrates this more humanistic approach.

'...That map over there, if that's not serious, those gastrochisis cases alone without all the other health issues-something should be done. It shouldn't be all those surveys and dots and dashes. We're human beings, we're living in Clydach Vale and we're suffering daily...' And on describing the horrific smells, and the sickness caused by it, similarly argued '...That pungent aroma, there could have been a cloud of gases, I don't know, I'm not a scientist, I'm just a mother and a human being but that is not acceptable.'<sup>323</sup>

<sup>320</sup> Resident, oral evidence (JB), 23/02/2001.

<sup>321</sup> Resident, oral evidence (LL), 18/12/2000.

<sup>322</sup> Resident, oral evidence (AT), 11/12/2000.

<sup>323</sup> Resident, oral evidence, (KH) 23/02/2001.

Moreover, although in the run up to the investigation more attention was given to serious illness, in the investigation itself considerable time was spent detailing the severity, stress and suffering caused by ‘everyday illnesses’ as well as ‘quality of life’ complaints. Some of the detail in residents’ descriptions of burning eyes, vomiting and runny noses was given earlier, and numerous residents also spoke of the stress and anxiety which they’ve experienced. Residents also described their experiences of what could be considered an assault on their ‘way of life’ and their connection to the local environment as they raised matters important to them which included: the spoiling of the countryside, the fact that the site is ‘the first thing we can see’ (despite promises to the contrary)<sup>324</sup>, loss of rights of way<sup>325</sup>, no longer being able to take their daily walk in the mountains because of the smells<sup>326</sup>; not being able to pick the blackberries<sup>327</sup>, go in the water or have their grandchildren to stay<sup>328</sup>. Another resident and member of RANT described how they ‘no longer have the enjoyment of their home and feel very sad about it.’<sup>329</sup> Although less explicit than the more direct attacks on ‘amoral’ science, the voice given to such complaints in the official investigation similarly raises important value orientated questions about what really matters and in doing so fundamentally challenge the core of mainstream scientific approaches to risk management.

Another key area of discourse, which followed along similar humanistic lines, was in RANT’s advocacy of the precautionary principle. Their interpretation of this approach is given in the following extracts:

‘Our present environmental decision makers persist in their asking, what level of risk is acceptable?, how much contamination can a human or ecosystem assimilate without obvious evidence of adverse effects? The precautionary principle asks a different set of questions. How much contamination can be avoided while still maintaining necessary values? What are the alternatives to this activity that achieve the desired results? Does society need this activity?’<sup>330</sup>

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<sup>324</sup> Resident, oral evidence (AL) 18/12/2000.

<sup>325</sup> Resident, oral evidence (LL) 18/12/2000.

<sup>326</sup> Resident, written evidence to investigation (JN), December 2000.

<sup>327</sup> Resident, oral evidence (JC) 18/12/2000.

<sup>328</sup> Resident, oral evidence (AJ) 18/12/2000.

<sup>329</sup> Resident, oral evidence (BC) 19/12/2000.

<sup>330</sup> Resident, oral evidence (JB) 18/12/2000.

In a later hearing, the following rationale is also given: the precautionary principle ‘recognises there are times when risks are too important to wait for scientific knowledge before taking action...we may need to take action before we fully understand the risk.’<sup>331</sup>

A similar argument was also made in the evidence of the Friends of the Earth advisor who gave the example of a ‘precautionary’ approach in the US. It was explained how:

‘...Epidemiological evidence in the United States was considered as significant enough, strong enough, and highly suggestive if you like, but it wasn’t conclusive, but it was considered in 1995 as sufficiently strong enough for taking action. Now this might be what you call taking a precautionary approach-you don’t wait until you’ve got absolute proof before you know but nowhere in the paper (by the CMO, Welsh Assembly) did we find reference to a precautionary approach.’<sup>332</sup>

RANT not only challenged dominant approaches through giving voice to alternative knowledges, approaches and values. They also directly criticised some of the practices of official scientists and the authorities, to try to demonstrate the fallibility of their claims and the flaws in their approaches and their findings. As well as providing evidence which detailed some of the earlier criticisms of official studies at the time (and discussed in the previous chapter), RANT also gave new evidence on what they considered dubious scientific practices.

Probably the most frequent area of complaint was concerned with environmental monitoring practices, with regards to dust, water and air. One activist explained: ‘you’ll find when you go through these so called experts analytical reports that there’s a lot to be desired on their methodology.’ With specific regards to the Council’s dust sampling exercise he described how ‘when I enquire how the samples were collected from the attic, the residents told me that she had put her head and shoulders into the attic and put a handful of the dust in a bag.’ He considered this to be problematic as ‘single grab samples are not the correct method to be used by someone who should have known better, as she knew the dust was not homogenous.’ Moreover, he suggested the choice of the control to be flawed as the sample was collected in

<sup>331</sup> Resident, oral evidence (JB) 28/02/2001.

<sup>332</sup> FoE, oral evidence, 23/02/2001.

Aberdare, from an area close to the Furnacite plant, of which residents had been complaining for years.<sup>333</sup>

The practices of Environment Agency experts seemed in particular to give cause for concern amongst residents. As reported earlier, one resident spoke of how the Agency carried out water testing when it was pouring with rain, and hence diluted, meaning that they found nothing wrong, and referred to a separate occasion when the Agency took a sample and then forgot about it for a week.<sup>334</sup> Another RANT member recalled how incomplete information was recorded when tests were carried out, how it was ‘unscientific’, and how there were often delays between complaint and testing. In addition he recalled one occasion where measured readings on one visit were high and immediately withdrawn because their equipment may be faulty, but noted that equipment was never recorded as faulty when there were low readings.<sup>335</sup> Issues were also raised by RANT’s resident and FoE advisors with the selection of control wards for the first epidemiological survey. It was argued that ‘if they’d used the definition of the Dolk Study, the Euro Hazcon study, they would have put Trealaw within the exposed wards but it was called unexposed...’<sup>336</sup>. This issue with the categorisation of exposed and unexposed wards was also picked up on by the Investigator who commented on how ‘the distances adopted have been arbitrary and ignore topography that could be critical in exposure terms.’<sup>337</sup>

Whereas some of these examples of bad practice could potentially be attributed to incompetence, residents also recalled experiences which helped demonstrate some of the ways in which ‘science’ could be used to achieve political objectives. One of the main activists opened his evidence by asking the audience:

‘...to bear a formula in mind because throughout all my evidence you will see this formula cropping up time and time again. If you’ve got a problem the normal thing is the problem, which is the question. Then you get the truth and from analysing the truth you get an answer. Unfortunately, what all the authorities—that is the Environment Agency, the Councils, the Welsh Office,

<sup>333</sup> Resident, oral evidence (AT), 11/12/2000.

<sup>334</sup> Resident, oral evidence (AJ), 18/12/2000.

<sup>335</sup> Resident, oral evidence (GW), 19/12/2000.

<sup>336</sup> FoE, oral evidence, 23/02/2001.

<sup>337</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee.

Bro Taf Health Authority etc-they get the query, the question, they find out the answer that they want to give you and then they put part truth to accommodate that answer. That is the formula that they use all the time, and you will find this coming through continually.<sup>338</sup>

In support of this formula the activist later on raises an issue with water testing:

‘If you’re looking to see if a stream or patch of water is polluted, you don’t say, well, just look for eight (pollutants). You tell them to look for whatever is in the thing....When seeing all the analytical reports I have given, it makes one wonder. One sample has only 3 to 4 determinants and the others have 45....they only look for what is requested....In other words then, what you are actually saying is the man who pays the piper calls the tune...and if the man does not want the general public to know what is killing them, they instruct the sampler not to tell them.’<sup>339</sup>

To highlight further the inadequacies of this approach it is explained how ‘samples taken at exactly the same time as what the Public Analyst did in water, where you only got a small amount of metals recorded, on the other sample technique, you’ve got forty odd of chemicals so there has been a cock up.’<sup>340</sup>

As was discussed in the previous chapter (section 8.1.1), residents also described issues with how findings were presented and acted on, including official usage of the word ‘unlikely’, and the concept of ‘average’. The failure of the respective authorities to co-ordinate simultaneously the air quality testing and health clinics (as recommended in the first epidemiological report) was similarly presented, at best to be an example of incompetence but also, at worst, an intentional move to undermine any chances of conclusive findings. Likewise, the recent and unexplained withdrawal of a team of experts on sarcoidosis due to visit the area was similarly cited as another example suggestive of political manipulation.<sup>341</sup>

Another key source of frustration was in how the authorities responded to the findings of such investigations. In his evidence, the Friends of the Earth advisor argued: ‘our case is the authorities did not really address the uncertainties and issues that were

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<sup>338</sup> Resident, oral evidence (AT), 11/12/2000.

<sup>339</sup> Ibid

<sup>340</sup> Ibid

<sup>341</sup> Resident, oral evidence, (GW, JB) 19/12/2000; 18/12/2000.

raised by the Palmer Report with a view to clarifying and consolidating the statistical findings.’ Instead, in response to a statement ““indicate possible not conclusive”... the Council then just says, “well nothing to worry about””. This advisor also described how the recommendations of the Coleman Report for a full risk assessment were kept secret and never acted on, and how a similar paper by a colleague at Friends of the Earth, which paralleled the Coleman study, was ‘hardly discussed’ at a meeting that took place between RANT, Friends of the Earth and the Welsh Office in November 1998.

*Supportive science: developing credible explanations.*

Although RANT challenged the approaches of the authorities, we know from the struggle so far that they also engaged with and developed ‘science based’ explanations to support their cause. This was also true of the evidence submitted to the Investigation. Alongside their personal accounts of their troubles, and the critiques of official approaches, RANT presented the findings of past pieces of research, submitted pamphlets produced in earlier years, and summarised some of their already discussed hypotheses on birth defects and sarcoidosis. One resident also presented the findings of their MSc dissertation titled: ‘A critical analysis of Sarcoidosis and the Nant-y-Gwyddon Site’<sup>342</sup>, and the medical co-ordinator described some of their recent research into endocrine disrupting chemicals, (as identified in certain fungicides, herbicides, insecticides and pesticides), and the implications that this has for low level and synergistic exposures. This activist explained how:

‘The presence of non-monotonic dose-response curves in endocrine chemicals means that many toxicological tests have led to erroneous conclusions about their safety. One of the most important assumptions made by the regulators is that there is a threshold level below which no effect occurs. Endocrine disrupting chemicals have altered this assumption.’

It was also explained how:

‘Exposure to most of the chemicals presents a new challenge to toxicologists. Current toxicology examines one chemical at a time, but it is the synergistic effect which is the most problematic. Scientists have demonstrated that the

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<sup>342</sup> Resident, oral evidence (GT) 20/12/2000.

effect of chemicals working synergistically produces greater effects than could be predicted from merely adding the individual effects together.’<sup>343</sup>

The value of this work was also explicitly acknowledged in the response of the Investigator who commented:

‘It doesn’t matter that you’re mainly raising questions, rather than conclusions because that’s really all anyone’s able to raise at the moment. And raising the questions and concerns will of itself give a commentary on what’s currently UK policy and EU policy....I think we’re right at the leading edge of what’s known here and we can only learn as we go along.’

In other words RANT were contesting and contributing to the knowledge base on landfill sites and illnesses not only by drawing on local knowledge and experiences, but also by combining such knowledge with scientific enquiry and learning, to produce both critiques of official practice as well as alternative explanations and theories of unusual local illnesses.

*The authorities and the specialists: managing uncertainty*

Some of the most interesting features coming out of the evidence related to how the acknowledged uncertainty or inconclusiveness in the official studies was being handled. This was a main concern of the residents in their evidence, as they described the authorities’ preference for the word ‘unlikely’. This ‘risk minimisation’ approach is also apparent in some of the evidence of the authorities.

One point of dispute highlighted by residents was with regards to the interpretation and presentation of pollution monitoring results. For example, in response to the Chairman’s suggestion that people would think ‘persistent’ a more appropriate description of leachate contamination, than the Environment Agency’s choice of word, ‘intermittent’, the Environment Agency responded; ‘...we’ve provided a summary of the monitoring data which statistical summary indicates the range of contamination and the-you can read from that the length of time, you know when incidents have occurred. And I would stick to that. That it is intermittent.’<sup>344</sup>

<sup>343</sup> Resident, oral evidence (JB), 23/02/2001.

<sup>344</sup> Environment Agency, oral evidence, 28/02/2001

On the subject of the Entec report and hydrogen sulphide levels the Council also engaged in a ‘downplaying’. They reported the finding that ‘the odour of the landfill gas is dominated by hydrogen sulphide and that this potent odorant was found to exceed its odour threshold on site by a factor of 194 million’ and that ‘the predicted levels of hydrogen sulphide in the community around the site were above the odour threshold and this was borne out by monitoring, which validated the model.’ This statement was concluded, however, with the observation that ‘the level of hydrogen sulphide found in the community was thought to be unlikely to cause any adverse health effects.’<sup>345</sup> This apparently relaxed attitude to hydrogen sulphide pollution is all the more interesting when contrasted with the Investigator’s observation in his final report that ‘the “calcium sulphate” water pollution filter cake, mixed with household waste, would appear to have rapidly generated large volumes of hydrogen sulphide, a very odorous, toxic, flammable gas in addition to the usual, largely methane and carbon compound, landfill gases....’<sup>346</sup>

Overall, the Health Authority seem more cautious in their use of the term ‘unlikely’, and in their overall summing up of the health studies avoid making any such claims. They report ‘it must be clear by now to all of you that the available evidence to date raises more questions than it answers. The evidence to date does not confirm or refute a causal link between health and landfill sites. The evidence to date, cannot, does not and will not give a clear answer to a necessary course of action.’ That said there are a couple of instances in which likely risk is being ‘played down’. This can be seen in their commentary on the ‘teratogenicity of gases and assessment of personal exposures’. On the one hand they acknowledge a lack of knowledge and need for rigorous research in relation to long term low-level exposure in the community, along with the complexities and uncertainties of assessment of personal exposure. However, as seems to be a pattern, they conclude their statement with the observation ‘the independent Entec report considered the exposure to be at a “nuisance level” only’<sup>347</sup>.

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<sup>345</sup> Council, oral evidence, 23/02/2001

<sup>346</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee.

<sup>347</sup> Health Authority, written evidence to the investigation (December 2000)



In their commentary on the endocrine disrupting potential of chemicals emanating from the landfill site it is also possible to observe a more subtle ‘minimisation’. Rather than make any explicit observation on likely risk level, through the structure of the following points, the audience is led towards this ‘natural’ conclusion:

- There is no agreed model for endocrine disruption in humans.
- The environmental agency continues to undertake experimental work on flora and fauna, which will help to establish the models for humans.
- It is unlikely that the young, old or immuno-compromised are at particular extra risk of endocrine disruption, though they may have more difficulty in removing such chemicals from their bodies.
- One of the first endocrine systems to be disrupted in a noticeable manner is the reproductive systems, as it is very dependent on the proper functioning of all the other endocrine systems.
- The time to pregnancy study did not demonstrate any evidence of disruption of this system in the community near the site.<sup>348</sup>

The discussions that took place during the investigation were also interesting for the ways in which the Investigator acknowledged issues with the representation of findings. The investigator questioned the conclusions drawn by certain scientists. On the subject of attic dust sampling a Council officer reported the conclusion of the Public Analyst ‘...that the general exposure to dust is controlled and does not present a significant risk to health, even though it does contain toxic metals....’ The Investigator queried this statement on the basis that ‘an analyst would not be able to reach that conclusion from examining dust, I would suggest...’<sup>349</sup> This apparent willingness to jump to conclusion was again queried with regard to a paper by the Health Authority which stated ‘exposure to the pollutants from the landfill site did not account for the differences observed.’ To this the Investigator responded ‘as the paper only looked at hydrogen sulphide, just referring to pollutants in general, seems to me to be totally unjustified.’<sup>350</sup>

The Investigator also commented on how scientific reports were used by authority officials. In response to an exchange between a member of the public and the appointed epidemiologist regarding unfounded conclusions the Chairman sums up: ‘Yes, I think this is always a problem, when an academic produces a report and

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<sup>348</sup> Ibid.

<sup>349</sup> Council, oral evidence (21/03/2001)

<sup>350</sup> Independent Investigator, commentary (28/02/2001)

conclusion. Other people make use of it, and I think we can see examples of that in all the reports that are listed with the Chief Medical Officer's evidence. It's the use people make of reports that can be questionable.'<sup>351</sup>

Within the evidence it is also possible to observe differences between specialist, appointed experts (ie the epidemiologists) and local authority employed scientists or officials in terms of how uncertainty is handled, in that amongst the specialists, uncertainty was seen more as a cause for concern, as opposed to comfort. One aspect of this was in their more extensive discussions of limitations with the investigations, than seen in the Environment Agency and Council examples given earlier which used these studies to try to minimise perceptions of risk. The Health Authority, the epidemiologists and the Investigator (in his final report) commented on the poor quality of routine data, and the methodological problems inherent in small number studies. All therefore acknowledged that the first epidemiological study could only have been an exploratory assessment, and further research would be required to establish causality. The following in depth description of the severe limitations with routine data was given by the epidemiologist:

'Up to 1995 40% of admissions of elderly people had no diagnostic code, 21% of gynaecological admissions had no diagnostic code. So there are big problems for people worried about sarcoidosis, which was one of the diseases of concern, was that they tend to be treated as outpatients, rather than as inpatients, and there is no routine data for outpatients, so we couldn't even look at sarcoidosis. General practice data, one might think, ought to be able to answer some of these questions, but GPs differ in whether they use computers or not, and in fact we couldn't get any GP data for the area and that's a big gap.'<sup>352</sup>

In contrast with the authorities apparent preference for the word 'unlikely', this epidemiologist denied having ever 'said that the fumes are unlikely to damage our health (in your report)', as claimed by a member of the public. This inter-change led the Chairman to propose 'I think the conclusion may have been a conclusion the council officers reached, but we can certainly research that.' The epidemiologist also acknowledged a potential limitation of the 'time to pregnancy' study, as it was 'done

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<sup>351</sup> Independent Investigator, commentary (30/04/2001)

<sup>352</sup> Epidemiologist, oral evidence (30/04/2001)

in 1998, which was after some of the tipping had stopped in landfill, so it doesn't refer to...the problem period, perhaps, when the nuisance was the greatest.'<sup>353</sup>

Limitations caused by issues with accessing data for this study were also raised by the epidemiologist. Reference was made to the privileged position RANT held with regard to certain types of information, in this instance the three additional babies that were reported by RANT as having been therapeutically aborted. The epidemiologist explained 'we certainly couldn't get—for confidentiality reasons we weren't privileged to know that information....I mean you can know these things, but I can't know them.' A need for an approach which accommodates different types of evidence was also acknowledged in the final report:

'Experience and observation, "empirical evidence", is at least as good as other evidence and should be used by regulators. In my experience, courts value lay opinion, testimony and observations and can be sceptical of "expert evidence" and monitoring data unless personal observation and testimony support it'.<sup>354</sup>

As one of their identified implications for future work in this area the Health Authority also acknowledged that 'the routine data available to health authorities is not detailed at a local level and methods to improve this, as well as utilising local knowledge are required.'<sup>355</sup>

This concern with uncertainty can also be seen in calls for further investigation. For example, the epidemiologist and environmental scientist make much more of the need, and their recommendation at the time, for a formal risk assessment following their review of environmental monitoring, given the identified problems with the data. They explained:

'Our conclusion on that was that this monitoring data had not been undertaken for health purposes, it had been done for other specific purposes, and really didn't inform very much about the risks to human health, because we can't say what was coming off, how it was coming off, where it was going.... So, we-our conclusion was we can't say but certainly further work needs to be done and we recommend that a full risk assessment of the site be undertaken, looking at the chemicals being released and the way in which they released

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<sup>353</sup> Ibid

<sup>354</sup> Ibid

<sup>355</sup> Health Authority, written evidence to investigation, (December 2000)

them, and that population at risk from those releases, and that was a recommendation of our report.’<sup>356</sup>

However, it seems this recommendation had been resisted by the authorities. The epidemiologist described ‘a number of conversations trying to push the carrying out of what we recommended, which was a formal risk assessment of the site.’ Summing up in the final report the Investigator also noted the inadequacies of past studies as having ‘been inadequate to offer any explanation for the empirical observations of health problems noted by residents or to resolve the concerns raised by epidemiological studies.’ He thus also recommended health studies to be site specific, substance(s) specific and person specific.<sup>357</sup>

The Investigator, in line with the appeals of residents and others, went beyond advocating further studies as a response to uncertainty, but also a different political/practical response in the shape of a precautionary approach. The report thus criticised the approach of the Environment Agency, in its advocacy of “sound science” on the basis that:

‘...“sound science” is spectacularly difficult in the area of environmental pollution and in assessing the impact of pollutants on the environmental determinants of health. ....Extrapolation of experimental data from one chemical’s toxic effects to assessing how mixtures of chemicals may affect vulnerable people, chronically exposed to low levels of those mixtures is fraught with scientific problems. A precautionary approach must be paramount, as opposed to acting only where proof or very strong suspicion of harm can be demonstrated.’<sup>358</sup>

It is interesting here to contrast the Investigator’s (as similar to the residents) take on the precautionary principle, with that of the Health Authority, as this again highlights some of the differences in perspective on the handling of scientific uncertainty. In response to a question on how the Authority might apply this principle with regard to congenital anomalies, they write:

‘The precautionary principle is well accepted in the health care arena, after all Hippocrates stated that the first duty of the Physician is to “do no harm”. It has

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<sup>356</sup> Epidemiologist, oral evidence (30/04/2001)

<sup>357</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee.

<sup>358</sup> Ibid.

transferred to the environmental arena recently. The action that should be taken within that arena needs to be addressed to those partner organisations who have responsibility for environmental control, such as Governments and their agencies. In this case the Health Authority has undertaken a lot of work both locally and in the rest of Bro Taf to address these issues. Although we act to reduce risk, our action is limited to our powers of persuasion based on the available evidence. Where evidence is lacking we seek to persuade researchers to undertake studies to provide the evidence and if resources permit, they may be available to assist in such work.<sup>359</sup>

In other words, a need for affirmative evidence still seems to be at the foundation of their approach.

#### *Accountable approaches*

Also of interest were the ways in which the authorities and experts sought to justify their approaches and methods. They did this largely with reference to established procedures and interpretations of their own and the roles and responsibilities of others. One such set of procedures were those governing confidentiality and data protection. For example, in the defensive statement quoted earlier the Health Authority cite 'regulations governing individual patient confidentiality' as a basis for blocking requests for data. Similarly, on the issue of congenital anomalies, the Health Authority stated 'we support the work of CARIS (congenital anomaly registration information service) and, when sufficient robust data is available, we will encourage research in this field, provided the confidentiality issues can be addressed.'<sup>360</sup>

Difficulties with accessing data were also raised by the epidemiologist who explained: 'the public wants to know about its health, but also it's very keen on data protection, and one of the major issues is that the Data Protection Act prevents people like me getting hold of that data and identifying individuals. And I can only work on it when the Health Authority is part of the team, because they have the right to look at the data.'<sup>361</sup>

Reference was also made to scientific principles. The Health Authority described how they were accused 'of deliberately misinterpreting beryllium level results in dust sampling and not believing results from the Greenpeace laboratory'. In their defence

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<sup>359</sup> Health Authority, written evidence to investigation (December 2000)

<sup>360</sup> Ibid

<sup>361</sup> Epidemiologist, oral evidence (30/04/2001)

they wrote ‘it was professionally explained that in comparing results between laboratories one had to understand what tests and calibrations and gold standards were used by the laboratories concerned. The Health Authority requested this information but it was never forthcoming.’ In their defence of their choice of method in the “Time to Pregnancy Study” they referenced factors such as sensitivity ‘as this is an area of life that is both charged with emotion and fundamental to normal life.’ They also explained how ‘whilst volunteers may have been available in the area to study, they would not be representative of the community as a whole (Volunteer bias).’ Factors such as ethical approval, validity and reliability were also referenced, as the Health Authority explained ‘It was also considered unlikely that ethical approval would have been given to studies such as prospective diary studies as validating the data would have been impossible. Time to pregnancy is a respected method used throughout the world. It is both practical and acceptable to the community, as well as being reliable and well validated.’<sup>362</sup>

The other main area of argument being developed related to the roles and responsibilities of the different organisations, and the barriers this seemed to create for investigative agendas. This was certainly picked up on by the Investigator, who in the final report explained: ‘I do not think there is now any doubt as to which authority does what but that clarity took some time to develop. Formal liaison now appears to be regular and thorough although it has not resulted in what I could yet regard as an adequate response to the issues.’<sup>363</sup>

The Environment Agency explained their role as such:

‘Since 1996 the Agency has worked closely with Bro Taf Health Authority to respond positively to the health concerns of residents living near Nant-y-Gwyddon. Until recently, the agency had no in-house medical expertise. However, it has a specific duty under Section 42 of the Environment Protection Act to prevent license waste management facilities causing harm to human health, pollution of the environment and serious detriment to the community....To avoid duplication of effort and confusion to the public, Bro Taf Health Authority agreed to take the lead in commenting upon the alleged public health concerns of Nant-y-Gwyddon. In practice, this meant that the

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<sup>362</sup> Ibid

<sup>363</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee

Agency will agree to carry out monitoring to determine levels of pollutants in the environment and Bro Taf Health Authority would lead on assessing the health status of residents surrounding Nant-y-Gwyddon.’<sup>364</sup>

The Council also assigned a lead role for the Health Authority on health issues, explaining:

‘Those elements for which the local authority has statutory responsibility do include nuisance and prejudice to health, and we have both these allegations being made. And we had three years between the complaints building up and an abatement notice being served. But we contacted the Health Authority as soon as that became an issue, and were advised by the Welsh Office that the Health Authority should take a lead.’<sup>365</sup>

Such arguments were clearly seen as questionable by the Investigator, who commented: ‘for an environmental health authority it was rather a contentious statement that health protection of public health was a matter for the Health Authority.’<sup>366</sup>

Budgetary issues in relation to ambiguous responsibilities were also raised by the Council, as it was explained: ‘reading between the lines, the Council was anxious to do whatever was necessary to investigate the matter and there was at that time the issue of whether or not the Council was able to spend money commissioning something for which it had no responsibility...’<sup>367</sup>

With regards to issues of odour and statutory nuisance there also appears to have been some cross over and confusion with the Environment Agency:

‘I think my colleagues were concentrating on the statutory nuisance element and of course the odour. The effect of the odour was what my colleagues, I think, were initially looking at, and the Environment Agency had, as you know the waste regulatory function and we felt it was a matter for them to be determining precisely what other chemicals were coming out of the tip.’<sup>368</sup>

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<sup>364</sup> Environment Agency, oral evidence (12/4/2001)

<sup>365</sup> Council, oral evidence (21/03/2001)

<sup>366</sup> David Purchon, Independent Investigator (12/12/2001) Independent Investigation Nant-y-Gwyddon Landfill Site, Investigator’s Report, Environment, Planning and Transport Committee

<sup>367</sup> Council, oral evidence (21/03/2001)

<sup>368</sup> Ibid

Given the lead role assigned to the Health Authority for leading on health issues it is perhaps ironic to note how this authority also deferred on its responsibilities, explaining:

‘It is very important to point out that the Health Authority had then and has now, no jurisdiction over local authorities, the responsible body for local environmental issues, but works collaboratively with authorities. In terms of the environment, until August 2000 (the introduction of the Integrated Pollution Prevention Control Act) the Health Authority had no specific or statutory or common law duty of care.’<sup>369</sup>

The Health Authority did, however, identify the following key areas relevant to their work in trying to understand links between health and this landfill site: Population health surveillance and monitoring using routine data sources; working to constantly improve such data sources; translating surveillance and monitoring information into assessment of health need, and formulation of specific ad hoc studies; using others sources of information to supplement routine data sources such as ad hoc surveys, listening to the population and determining appropriate policy and action required. Issues with capacity and resources were also referenced, in terms of how the Authority could respond to the new Act to meet their statutory obligation.<sup>370</sup>

### **Conclusions and closure**

The final report, published in December 2001 was highly critical of the choice of site, the management and regulation of the site, and the ways in which the authorities communicated with the public. It also concluded that ‘the public health studies have so far been inadequate to offer any explanation for the empirical observations of health problems noted by residents or to resolve the concerns raised by epidemiological studies.’ It made numerous recommendations with regards to further health studies and monitoring at the site and in the local area, but the most significant and headline grabbing recommendation was the first: ‘that there should be an end to household waste disposal at Nant-y-Gwyddon.’

Not surprisingly the report appears to have been well received by the residents. It is described in the Press how ‘when asked by the Environment Planning Transport

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<sup>369</sup> Health Authority, written evidence (December 2000)

<sup>370</sup> Ibid.



Committee (Assembly) to clarify when the site should close, Mr Purchon prompted loud applause from assembled residents on declaring, “this afternoon”.<sup>371</sup> At a meeting in February 2002 this committee took the decision to back the Purchon findings and recommendations, and also explicitly acknowledged a role for RANT in ‘that their expertise, energy and enthusiasm should be harnessed in promoting greener alternatives to landfill locally.’<sup>372</sup> A month later the tip gates were finally closed for business following an almost unanimous vote by the Plaid Cymru councilors (who now held a majority in the Council) to permanently shut the site<sup>373</sup>

The closure of the site brings to an end this part of the story, for the purposes of this research. However, it should be noted that from RANT’s perspective, the struggle continued. RANT remained active on a range of issues relating to the financing of the tip closure, remediation of the site and continued monitoring and health investigation.

### Summary

This final part of the story returned us to the lobbying activity of RANT and two important political changes that took place in 1999: the defeat in May of the local Labour Party by the RANT sympathizing Plaid Cymru Party, and devolution and the birth of the Welsh Assembly Government. In spite of these political turning points, and the new hope optimism that they delivered to RANT, both tip closure and the desired public inquiry were far from a *fait-accomplis*. To the disappointment of RANT and their Plaid AMs, the motion for a public inquiry was eventually rejected by the Assembly in favour of an independent investigation. Although RANT participated in the investigation they did so reluctantly and with high levels of initial scepticism and suspicion that it would be a ‘whitewash’.

This research focused on those aspects of the investigation relevant to social and political problems and the alleged health impact of the tip. In terms of ‘social problems’, residents detailed the controversial events listed in previous chapters, but also developed and delivered more extensive political and social critiques as part of their evidence. The problems at Nant-y-Gwyddon were thus conceptualized as part of

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<sup>371</sup> Western Mail, 13/12/2001.

<sup>372</sup> Western Mail, 19/02/2002.

<sup>373</sup> South Wales Echo, 07/03/ 2002.

a much wider set of problems than simply mismanagement or a series of errors, and included a flawed democratic and political process, greed at a national level, and a breach of fundamental moral principles and human rights.

On the whole not much space was given by the authorities to accounting for their relationships with the public. The Council placed particular emphasis on its openness with regards to the Investigation, but rather than attempt to explain or justify particularly contentious events or issues of the past, tended to just list these in a very factual reporting of events. The Environment Agency and Health Authority engaged in a limited defence of their relationships with the public, with reference to what they considered to be good practice in relation to established procedures and policies.

RANT developed several kinds of claim making to try to persuade the Investigator of the veracity of their own claims regarding health effects and the flaws in so called official findings and opinions. A first of these was through presenting pieces of evidence, which were founded upon their locally rooted knowledge and experiences, and which to varying extents were woven into causal narratives or logics to implicate the tip as a health risk. These included: observed problems at the tip; knowledge of local geographical conditions; past experiences of environmental hazards; and most extensively, observed changes in local peoples' health and the environment. Within this latter category four distinct rationales were developed. In the first the residents connected pollution incidents with immediate and apparently direct health responses. A second rationale was built around examples of a deterioration of health over time, whilst observations of health improvements upon leaving the area constituted a third. A final logic was displayed in evidence given on more severe and rare illnesses in the area, which were argued to occur too commonly in the area to be mere coincidence.

As well as developing causal logics based around their locally rooted experiences, RANT also engaged critically and reflexively with mainstream scientific approaches and pieces of research. They contested explanations which attributed poor health, in particular the high cancer rates in the valleys, to deprivation and the lifestyles associated with it. The residents also asserted the value of their locally rooted knowledge and experiences and in places explicitly claimed the exclusivity of this knowledge, as they mounted a challenge to dominant scientific principles of

impartiality and objectivism. Higher moral and humanistic values were similarly claimed in the face of, and as a direct critique of scientific approaches and principles. Considerable time was spent detailing the severity, stress and suffering caused by 'everyday illnesses' as well as 'quality of life' complaints. Residents also described their experiences of what could be considered an assault on their 'way of life' and their connection to the local environment. As in the previous chapter, and reflecting broader humanistic concerns, RANT again reiterated their support for the precautionary principle. RANT not only challenged dominant approaches through giving voice to alternative knowledges, approaches and values, they also directly criticised some of the practices of official scientists and the authorities, to try to demonstrate the fallibility of their claims, approaches and findings. However, although RANT challenged the 'science' of the authorities, they also engaged with and developed 'science based' explanations to support their cause, and submitted these as evidence to the investigation.

For the authorities, some of the most interesting features of the investigation related to how the acknowledged uncertainty or inconclusiveness was being handled. As in the previous chapter, a 'risk minimisation' approach was again apparent in some of the evidence of the authorities, as they engaged in a 'downplaying', using much of the same methods as in their correspondences discussed earlier. Overall, the Health Authority seemed more cautious here, although a more subtle 'minimisation' was also observable, which, through the use of argumentative structure as opposed to explicit claim making was able to infer a conclusion of limited risk. The Investigator also questioned some of the conclusions 'jumped to' by certain scientists, and commented on how scientific reports were misrepresented by authority officials. Amongst the specialists, however, uncertainty was seen more as a cause for concern, as seen in their more extensive discussions of limitations with the investigations, and their calls for further intensive investigations. The Investigator, in line with the appeals of residents and others, went beyond advocating further studies as a response to uncertainty in calling also for a different, more 'precautionary' approach to these situations. When it came to justifying their approaches to scientific investigation the authorities drew on established procedures such as those governing confidentiality and data protection, along with scientific principles such as gold standards, test, ethics, validity, reliability. They also developed arguments in relation to the roles and

responsibilities of the different organisations, and the barriers this seemed to create for investigative agendas.

Ultimately, the investigation led to the closure of the tip in March 2002, following the publication of a highly critical report by the independent investigator, which included a principal recommendation that the tip be shut down. The closure of the tip is mirrored by the closure of this part of the story and the period under study for this particular piece of research.

## **Chapter Ten: Discussion and conclusions**

This final chapter starts by summarizing the overall thesis before moving on to consider the relevance of the findings in terms of theory, practice and implications for further research.

### **Summary of thesis**

#### *Summary of literature*

This example of a local environmental protest is an interesting case study in both the sociology of public health risks, as well as in the study of collective action and mobilisation. As such there were two literature review chapters corresponding to these two distinct but related areas of sociological inquiry.

The first of the literature review chapters (chapter two) considered the literature on the role of risk, science and expertise. Within this literature, there was considerable critical debate on what has been termed the 'flawed objectivism' of science and the role of lay knowledge and processes of 'popular epidemiology'. It made reference to empirical studies of local disputes surrounding the human impact of events or interventions. In these disputes, official scientific or professional accounts have been seen as attempts to deny local claim making by virtue of scientific 'fact'. These accounts have been contested and fought over in often localised contexts, where perceptions of deceit, corruption, and 'bad science' are combined with alternative, sophisticated and sometimes empirically supported lay accounts of illness causation. These served to undermine claims pertaining to the objectivity and superiority, as well as the trust and credibility, of scientific accounts. This literature was seen to have fit with Beck and Giddens' accounts of reflexive modernisation, uncertainty and the loss of automatic trust in experts. However, there was also a further body of literature which, whilst recognising 'flawed objectivism' as a source of contention, questioned this idea of loss of automatic trust as being the main source of conflict. In line with the arguments of Wynne, this work suggested that relationships of trust are heavily influenced by local histories, conditions and, in particular, dependency relationships.

In suggesting the importance of local contexts, identities and relationships in influencing investments of trust and perceptions of risk, these studies also lend themselves to more socio-cultural explanations of risk experiences than simply that scientific accounts lack believability and credibility due to perceived and exposed flaws in their objectivist claims. Such explanations by Wynne (1996a/b) and others, have emphasised the cultural, and fundamentally unequal, nature of lay-expert interactions (something which Beck and Giddens are criticised for overlooking), and suggest that a key source of conflict is located in the exclusionary consequences of these interactions for local identities and ways of knowing.

The second of the literature review chapters (chapter three) has focused on the literature on collective action and social movements, most extensively on framing approaches and theories of hegemony and counter hegemony associated with Gramsci. Through an exploration of this literature the review noted the interpretive, framing and networking processes that are integral to the formation, direction and development of protest movements. Attention to such processes has helped to explain how initially isolated experiences of risk over time are developed into organised and cohesive opposition movements, characterized by higher levels of collective and critical consciousness and counter-hegemonic discourses among movement participants. This chapter also considered the main factors influencing collective actions processes, which included institutional and process factors, networks, cultural and local knowledge, and political and historical contexts.

#### *Summary of methodology*

The first of the methods chapters (chapter four) considered epistemological and methodological questions and choices. It was explained how the research follows a pragmatist approach. In common with interpretivist traditions and constructivist approaches it is primarily concerned with the discursive processes involved in the construction of belief and knowledge claims, but it also recognizes 'lived experience', and the existence of 'real' risks and environmental problems. The research is a retrospective case study, which has relied on documentation to access the perspectives and accounts of residents, officials, experts and other important actors. Following the principles of the *extended case method* this research has been positioned to extract the general from the unique, to move from the "micro" to the "macro," and thus extend

out from the field. In its approach to analysis this research sought to follow a more discursive, dialogic approach to the study of collective action discourses, recognising discourse as a joint product of actors' agency and discourse dynamics and as influenced by changes in time, context and contradictory usages (Wetherall and Potter 1992; Steinberg 1998).

The research process was described in detail in chapter five. Drawing on a diverse and extensive range of documentary evidence (drawn largely from the Assembly archives of the independent investigation), the research has investigated the key processes and relationships involved in the evaluation of perceived threats to public health in the period up to the closure of the tip in 2002. It has followed four main objectives:

- To describe and analyse the development of a community protest about a landfill site.
- To investigate the interpretive and framing activities of community members in developing evidence, and seeking and obtaining redress.
- To examine the response of the statutory authorities and their utilisation of specialist expertise.
- To explore the relationships between competing bodies of evidence in the production of public health knowledge about health risks

The analysis of the documents was split into two main stages. The objective of the first stage of the analysis was to construct an historical account of the protest, which focused specifically on the actions and perspectives of the residents who became local activists. Through an exploration of how chronological events intersected with patterns of interpretive and strategic activity, a narrative story was constructed which defined and shaped the four findings chapters. In the second stage of analysis the positioning and claim making of the key actor groups was investigated via a more in-depth, discursive analysis of selected texts. Following the methodological perspectives and techniques discussed in the previous chapter, attention was paid to the key claims and frames being produced, the types of resources being used to construct these claims and how these resources were being linked together. Throughout all stages of the analysis, a top down, theory driven approach was used to

build the basic coding frameworks, but to remain open to new issues and the finer detail specific to this case study, codes and concepts were developed as grounded in the data. The final coding categories were thus developed via an iterative process, moving between the data and the analytical concepts. Finally, the discursive observations from the second stage of analysis were integrated into the appropriate sections of the narrative account to produce the four findings chapters.

### *Summary of findings*

The first of the findings chapters (chapter six) explored the origins of protest. It was explained how the first protests against Nant-y-Gwyddon Landfill Site dated back to its initial planning stages in the late 1980s. However, it was not until 1996 that organised protest began to re-emerge and lay the foundations for the concerted community campaign that would lead ultimately to the closure of the tip in March 2002. In the months of late 1996 much of local residents' efforts were focused on seeking statutory intervention to prohibit non-household refuse as residents produced what could be considered a 'moral' case, emphasising their suffering and lived experiences of the effects of the tip and pointing to ways in which their community expectations of local living standards had been breached. Before long though the rationale being developed was of a breach in the law and assumed statutory standards, and the activists began to introduce 'evidence' to support their case and use 'technical', knowledge based categories, over more moral or political arguments. Following the January public meetings more serious illnesses also started to be detected and suspected of being linked to the tip and communicated to the authorities, as key health concerns in need of thorough investigation. Activists also carried out two of their own surveys in these early months; one of adult health and the other of child health in the locality. Residents also began to engage in various forms of direct action, which included planned marches to the council headquarters in Clydach Vale and picketing at the gates of the tip. These methods secured an early victory in February 1997, as the waste company was forced to stop dumping filter cake at the site. Spurred on by this victory the newly formed RANT demanded of the Council that a full independent survey be carried out and that the Nant-y-Gwyddon tip must only accept normal household refuse from the Rhondda Cynon Taff area. In this set of communications, rather than reason via technical or science based explanations, the activists invoked protest and moral/ political categories as they sought immediate



responses and practical support for their specific actions. Meanwhile the continued picketing of the tip, combined with continued meetings and efforts at co-operation, led at the start of April to a new mandate being agreed with the waste company who agreed to accept only household waste from Rhondda Cynon Taff and Glamorgan, pending the results of the newly commissioned studies into the effects of the landfill site on local health.

In the second of these chapters (chapter seven) it was described how a series of events in the months that followed the new mandate served as turning points at a psychological as well as strategic level. As the issues began to take on more of a social and political dimension, the residents again took to the tip gates. An accumulation of events prompted suspicions of a cover up and brought into question the assumed loyalties and obligations of the public bodies and caused the residents considerable disrespect and upset. Such experiences seriously brought into question assumptions of even basic dependability, worked to erode the consensual orientations of protestors and encouraged them to take on new social roles and identities. In this changing context protest action became not simply a question of getting the authorities to fulfill on their perceived obligations, but it also brought into contestation the boundaries and rules by which previous expectations had been shaped. RANT also began to take on a 'watchdog' role in the community, developing a critical eye and discourse on environmental, social and political matters. Such political and social critiques were also developed and delivered as part of their evidence to the investigation (as described in the final findings chapter, chapter nine) as the problems at Nant-y-Gwyddon were conceptualized as part of a much wider set of problems than simply mismanagement or a series of errors. These included a flawed democratic and political process, greed at a national level, and a breach of fundamental moral principles and human rights.

In terms of authority responses, in chapters six and seven it was noted how the Council's communications with the public in the earlier period tended to be very 'factual' in their style. The information bulletins seemingly tried to fulfill an 'update', rather than an explicitly claim-making function, as through a 'neutral reporting' the Council worked to produce an impression of impartiality. When the Council did start to engage in more explicit claim making, one of their key repertoires to be developed

was around 'evidence', in terms of repeated claims of 'no evidence', 'waiting for/ need for evidence' (before taking action) and also a role for themselves in 'gathering evidence'. The other main discursive resource used by the Council at this stage was their legal position in relation to the operation of the site which was used to support claims of limited responsibility for the site itself. In chapter seven, in response to the picket and their controversial decision to lease the land outside the tip to the waste company, the Council also cited their legal obligation to allow the company 'free and unrestricted access to the tip'. The Council would also reference features of bureaucratic or democratic process to support or expand their arguments, and a couple of examples were also given in which the Council engaged in a kind of denying activity, refusing to give RANT the recognition they were seeking.

The Environment Agency was, in this period, more explicitly claiming a role for itself in relation to the site and was developing four distinct action repertoires to account for their roles and responsibilities. These were 'technical assessments' (expressed throughout in the technicist nature of proposed ways forwards and possible solutions), accounts of 'investigative work', 'regulation and enforcement activity' and their role as 'public servant'. As the issues became more politicized in chapter seven the Environment Agency, like the Council, was also forced to engage in more direct claim making in response to particular events and complaints. In their refutation of 'cloak and dagger' tactics, the Agency made particular use of 'public servant' categories, such as openness and transparency. They also placed more emphasis on 'enforcement actions' in seeking to refute the suggestion that they have not been 'tough'. To help justify their positions they also drew on legal categories, and their interpretations of different organisational responsibilities.

Chapter eight explored one of RANT's most critical areas of work; that connected with scientific investigation. Here, they drew on a basic scientific background of some of their own members, and skills and advice of other 'accredited' experts who were allied with RANT. A considerable amount of effort was also spent engaging specialized experts, seeking their opinions and guidance on specific issues. There were two sides to their approach to scientific investigations: on the one hand they worked with official studies, whilst on the other they conducted their own independent research program. RANT was actively engaged with various 'official'

studies at different stages of the research process, but their experiences of these seemed to alter between being seen as friend or foe. From the start they experienced frustration and disappointment in terms of both implementation and outcome. RANT's continued engagement seemed to be due to a combination of perceived dependency but also opportunity in relation to official studies. This was based on experiences of poor and apparently fallible scientific practices, which not only diminished the believability of experts, but in highlighting the manipulability of 'science' also suggested to RANT the importance of exerting some influence over official approaches. This perception was also complemented by a growing confidence in their knowledge, in the face of contradictory 'official' claims and detections of sympathy amongst some of the appointed scientists.

RANT responded to such experiences with a 'critical cooperation'. They sought to impress their local knowledge upon the respective bodies, in particular their 'informant' knowledge, as local people passed on details of their illnesses to RANT in their capacity as community representatives. In their evidence to the investigation (in chapter nine) residents similarly presented pieces of evidence, which were founded upon their locally rooted knowledge and experiences, and which to varying extents were woven into causal narratives or logics to implicate the tip as a health risk. These included: observed problems at the tip; knowledge of local geographical conditions; past experiences of environmental hazards; and most extensively, observed changes in local peoples' health and the environment. RANT also critiqued official methods more directly, again drawing on combinations of local 'informant' knowledge, findings from published research and expert opinion; they criticised how the findings of these official studies were handled and presented; and they engaged critically and reflexively with mainstream scientific approaches and pieces of research to try to demonstrate the fallibility of official claims and the flaws in their approaches and their findings. In addition to seeking control over official investigations RANT also developed a separate program of research. This included: surveys of resident health problems; extensive literature searching; developing hypotheses and causal theories to explain health conditions. Features of this work at a discursive level included an 'empirical' or deductive logic, use of an appropriate technical language, and reference to 'accredited' laboratories, and scientists. Such hypotheses were then progressed through their own dust and water sampling programs.

RANT also challenged dominant approaches through giving voice to alternative knowledges, approaches and values. This could particularly be seen in the evidence presented to the investigation which was discussed in chapter nine. Here they asserted the value of their locally rooted knowledge and experiences and in places explicitly claimed the exclusivity of this knowledge as they mounted a challenge to dominant scientific principles of impartiality and objectivism. Higher moral and humanistic values were similarly claimed in the face of, and as a direct critique of scientific approaches and principles. Considerable time was spent detailing the severity, stress and suffering caused by 'everyday illnesses' as well as 'quality of life' complaints. Residents also described their experiences of what could be considered an assault on their 'way of life' and their connection to the local environment. Reflecting broader humanistic concerns, RANT also challenged the political usage of dominant scientific approaches in public risk management through their advocacy of the precautionary principle.

For the authorities (chapters eight and nine), specialists and the Investigator (chapter nine), some of the most interesting features of their discourses in this field of scientific investigation related to how the acknowledged uncertainty or inconclusiveness was being handled, and how they sought to limit possible perceptions of risk. Methods used by the authorities included the use of mitigating 'but' or 'although' statements and words or phrases such as 'likely' or 'unlikely', 'further reassurances', 'no direct evidence'. To support their claims the authorities drew on the findings of local and non-local investigations and reports, and developed alternative 'lifestyle' explanations of the alleged health problems. They also engaged with 'expert categories' or principles to strengthen their own arguments and dismiss those of RANT. Overall, the Health Authority seemed more cautious, although a more subtle 'minimisation' was also observable in places, by using argumentative structure as opposed to explicit claim making, for example, which had the effect of inferring a conclusion of limited risk. The Investigator also questioned some of the conclusions 'jumped to' by certain official scientists, and commented on how scientific reports were misrepresented by authority officials.

Amongst the specialists, however, uncertainty was seen more as a cause for concern, as seen in their more extensive discussions of limitations with the investigations, and their calls for further intensive investigations, which could better accommodate local knowledge. The Investigator also explicitly acknowledged the valuable contribution that RANT was making to the knowledge base on illnesses such as sarcoidosis and in their research on endocrine disrupting chemicals, through their raising questions and producing new lines of inquiry. In line with the appeals of residents and others, the Investigator also went beyond advocating further studies as a response to uncertainty in his advocacy of a different, more 'precautionary' approach to these situations.

When it came to justifying their approaches to scientific investigation, the authorities cited the actions and opinions of experts and expert reports, systemic or technical limitations, bureaucratic procedures and statutory acts, scientific principles (eg gold standards, ethics, validity, reliability) and established procedures such as those governing confidentiality and data protection. They also developed arguments in relation to the roles and responsibilities of the different organisations, and the barriers this seemed to create for investigative agendas. In certain texts they could also be seen to be negotiating their relationship with RANT in relation to the investigations and evidence base, in the main by asserting their privileged and superior position.

Having discussed the political changes which led up to the independent investigation; the Plaid Cymru election victory and political devolution, and the evidence presented to the investigation (discussed above), it was noted at the end of chapter nine how the investigation led to the closure of the tip in March 2002. This followed the publication of a highly critical report by the independent investigator, which included a principal recommendation that the tip be shut down. The closure of the tip marked the end of this part of the story and the period under study for this particular piece of research.

### **Implications for theory and knowledge**

This next section considers how these findings fit with the body of literature discussed in chapters two and three. As a piece of case study research it offers useful opportunities for developing theoretical insight (Prior 2003). Following the *extended case method*, as conceptualized by Burawoy (1998) this discussion aims to extract the general from the unique, to move from the 'micro' to the 'macro', (Burawoy 1998)

and to situate the individual case with the wider social fields that structure the processes unfolding within that case (Sullivan 2002:265). The thick description generated by this case study research affords three distinctive but interlinked areas of theoretical contribution. The first section on 'knowledge and expertise' explores the different kinds of knowledge and expertise brought into play by both residents and the statutory bodies in relation to the literature on types of expertise, local knowledge and popular epidemiology, and floats the theoretical possibility that at one level the conflict could be seen as a struggle over the truth. In the next section the limitations of such a narrow interpretation are highlighted in favour of an approach which locates such struggles in their broader social and cultural contexts, drawing out examples of dependency and hegemony, and the usefulness of these concepts for understanding lay-expert relationships. The final section continues to work within this thicker contextual framework, making further use of the concepts of hegemony and counter-hegemony and providing various examples to suggest the development of several counter-hegemonic features of the campaign, across epistemological, social and political domains.

### **Knowledge and expertise**

Through a discursive exploration this research has illustrated the different kinds of knowledge and expertise brought into play by both residents and the statutory bodies, and the relationship between these kinds of knowledge in public health risk assessments. By charting across time the activists' journey into the world of scientific investigation, this research also illuminates some of the key stages and factors influencing this journey.

### *Local knowledge*

At one level this research is illustrative of the unique value of forms of local knowledge in such disputes. Four basic 'types' of knowledge were being articulated by local residents, and were being woven into causal narratives or logics to implicate the tip as a health risk (see table 9, p.207). The first three of these 'types' have been categorized as: observed problems at the tip; knowledge of local geographical conditions and past experiences of environmental hazards and exploitation, which as in the case of the sheep farmers (Wynne 1996 a/b), the Jarrow residents (Walker et al. 1998) and the low income residents of Salem, near Boston (Scammell et al. 2009),

impacted negatively on local peoples' trust in the authorities and their 'experts'. The fourth and most extensive type of local knowledge corresponded to observed changes in local peoples' health and the environment. The process of making sense of these changes, seeing patterns emerge and drawing some conclusions about causality is a phenomenon, referred to as popular epidemiology, which is also described in detail in the work of Phil Brown (et al) (1992; 2000; 2003; 2007).

Within this latter category a further four types of lay evidence were developed by residents (see table 10 overleaf). In the first of these the residents connected pollution incidents with immediate and apparently direct health responses such as absyesses, vomiting and the deterioration of wildlife. This situated expertise fits with Walker's description of the rich contextual understandings and knowledges developed by the residents of Jarrow as a result of living and working in the area; for example, the effects of local pollution on fish in the nearby river and the connection between routine gas releases and children's respiratory problems (Walker et al. 1998). A second rationale was built around examples of how everyday health had worsened over time, since the opening of the tip, whilst observations of health improvements upon leaving the area constituted a third logic. A final logic was displayed in evidence given on more severe and rare illnesses in the area, which were argued to occur too commonly in the area to be mere coincidence. A further distinction can also be made in terms of the 'source' of illness knowledge, between what could be described as personal 'observational' knowledge, borne out of residents articulating their own experiences, and an 'informant' knowledge, whereby activists possessed and articulated knowledge (eg of illness) passed to them by local people, in their capacity as community representatives.

Table 9: Types of local knowledge

Knowledge type	Examples	Short/long term learning
1. Problems at the tip.	Eg Tears in the liner, treatment of waste	Short term observations
2. Local geographical conditions	Eg Wind conditions, land movements	Long term
3. Past experience of hazards and exploitations	Eg Aberfan, mining history	Long term
4. Observed changes to local health and environment.	Eg Pollution incidents, health conditions	Short term observations

Table 10: Four types of lay evidence.

Knowledge type	Rationale	Source of knowledge
Observed changes in local health and the environment	1. Pollution incident = health incident	Personal 'observational' knowledge.
	2. Worsening health over time	
	3. Time away= health improvement	'Informant' knowledge.
	4. Rare and severe illnesses	

Such observations could be considered a form of contributory, experience based expertise, to use the categories of Collins and Evans (2003). They also serve to illustrate Popay and Williams (1996) argument that through a more or less systematic process whereby experience is checked against life events, circumstances and history, lay people acquire an 'expert' body of knowledge, different from but equal to that of professionals in the public health field (Popay and Williams 1996). As such this knowledge was certainly recognised and taken on board by the Investigator, and was also acknowledged as useful and important by the epidemiologists, if not amenable to the established procedures of their official investigations.

### *Engaging with science*

As well as developing causal narratives based around their locally rooted experiences, RANT also engaged with mainstream scientific approaches. It has been described how RANT developed a double pronged approach as they campaigned for, engaged



with and sought control over official studies, whilst also developing their own independent program of research. In their engagement with official investigations they drew on combinations of local knowledge, findings from published research and expert opinion to critique official methods. Such critiques were produced initially to try to secure more favorable methodologies, and then later on, when the findings of such studies proved inconclusive, to contest official claims of 'no health link'. In the investigation RANT also sought to discredit official approaches and conclusions as they gave evidence on what they considered dubious scientific practices, most commonly with regards to environmental monitoring practices, which were discussed in terms of 'incompetence', as well as more intentional manipulation. Charges of political bias were also leveled at the ways in which findings were presented by the authorities. With regards to their own program of research they carried out surveys of resident health problems; extensive literature searching; they developed more detailed hypotheses and causal theories to explain health conditions, and then sought to progress these through further empirical investigation, such as dust and water sampling programmes and by making contact with specialists in the field.

This activity thus provides a good example of the process of 'popular epidemiology', (Brown 1992), as one in which 'laypersons gather scientific data and other information, and also marshal the resources of experts in order to understand the epidemiology of disease.' (p269) As in Brown's (1992) model the process began with lay observations of health effects and pollutants, followed by a hypothesising of connections, the forging of a common perspective and a community group, and a quest for answers from government and science. The official studies conducted by experts were found wanting in various ways prompting the activists, with the help of their own experts, to seek to control scientific inquiry. To do this they drew effectively and strategically on combinations of local knowledge and appropriation of scientific methods, to develop a campaign which challenged 'science' with 'science.'

This side to their struggle also provides interesting insights into Collins and Evans (2003) categorizations and discussions relating to contributory and interactional expertise. It has already been noted how the local knowledge offered by the residents represented a valid form of contributory expertise which was valued by the Investigator, if not the authorities themselves. Meanwhile, the science based learning

and investigations carried out by both the activists and their 'accredited' advisors, could be interpreted in terms of interactional expertise. That is, they appeared to have achieved a level of cultural competency which enabled them to engage with and indeed critique mainstream scientific practices as they sought to establish some degree of control over these investigations. What it also appears to illustrate, however, is another form of contributory expertise amongst activists which is based on a synthesis of experience based knowledge (which has contributory status in its own right) and scientific learning (which would be seen as interactional). This is exemplified in their acknowledged contribution (by the Investigator) to 'core set' (Collins & Evans 2003) discussions on sarcoidosis and endocrine disrupting chemicals. Their hypotheses here drew on their interactions with leading experts and expert work in combination with more local and experience based forms of knowledge. This kind of synthesis thus suggests a third form of contributory expertise alongside the 'experience based' expertise of local people and the expertise of 'core-set' specialists, and a blurring of the boundary of interactional and contributory expertise, as conceptualized by Collins and Evans (2003).

### **Social and cultural contexts: dependency and hegemony**

The above section on 'knowledge and expertise' suggests that at one level the conflict could be seen as a struggle over the truth. This aspect of the struggle was certainly of importance: by challenging the science with an effective combination of both 'scientific' and local knowledge RANT refused to be disempowered by official claims and were able to keep the debate alive, in the public eye and it seems contribute in valued forms to the knowledge base on certain illnesses. However, as other commentators have noted, contestation is rarely only about propositional truths, and is, if more obliquely, about what is the proper public meaning and definition of the issue(s) being contested (Wynne 2003) This research certainly suggests the value of an approach which locates such struggles in their broader social and cultural contexts. This section seeks to highlight such contexts, in particular by drawing out examples of dependency and hegemony, and the usefulness of these concepts for understanding lay-expert relationships.

A strong theme emerging from this research has been the complexity and ambiguity of local relationships as the activists shifted between positions of support seeking to

opposition in their relationships with the three authorities. Instead of the critical awakening theorised by Beck and Giddens in their accounts of reflexive modernisation (Beck 1992; Giddens 1990; 1991; 1994), such shifting was responsive to the dynamics of the conflict in terms of changing experiences and needs, whilst also being underpinned by more deep rooted sets of social and cultural relations. There were instances where RANT reported to have 'cut all ties' and described a loss of credibility and trust with regards to all three authorities, generally in response to controversial events. As in Walker's (1998) study of risk perception in the (in some ways) similarly deprived, post-industrial town of Jarrow, historical mistrusts and memories of past exploitations were also cited by the Rhondda residents, including the infamous Aberfan disaster in nearby Merthyr Vale. By contrast there was very little reference made to wider scientific failings in the mass media, as might be expected in reflexive modernization theory, which attributes an important role to publicized cases of scientific uncertainties in undermining trust in experts and producing heightened perceptions of risk (Giddens 1990; 1991; 1994). This in turn lends weight to arguments that the mass media have little effect on personal risk judgements, especially in relation to other information sources (Wakefield 2003, Tulloch 2001) and the 'embedded' (family, class) traditions and short and long term histories which risk individualization (Beck 1992) supposedly replaces (Tulloch 2001).

Alongside this suspicion though, there were also examples of dependency and cooperation as activists seemed to recognize the futility of a wholly oppositional stance and pursued a more pragmatic, 'make the most of it' approach. This was particularly true of their engagement with 'official' investigations. Although the first epidemiological survey was described as having trapped them in a 'Catch 22' situation RANT continued to campaign for and cooperate, albeit critically, with official investigations, as they recognised their dependency on official experts and their 'proofs' to progress their campaign. RANT also appeared to distinguish between 'types' of expert. In contrast with the middle level, 'in-house' experts of the authorities, whose integrity and competence were questioned from early on in the campaign, the independent specialists which were brought in were seen to be a much more likely source of support here. Numerous appeals were made to their suspected

sympathies, and references made to those 'expert' comments which they considered to add support to their case.

The concept of hegemony is also useful here. It was noted how the activists quickly shifted from making arguments or appeals on moral grounds, to develop a repertoire of discourse which took on the science largely on the terms of a scientific epistemology which was felt increasingly to be problematic. As their earliest 'moral' appeals failed to find resonance with the local authorities, and the opportunities for direct action were restricted by the leasing of the land outside the tip, the activists shifted their attentions to a field defined by discourses of science and technology. Their campaign thus became dominated by their efforts to establish links between the tip and serious illness conditions, and in their discourses they appropriated a technical language, mainstream scientific ideas and made reference to 'accredited' connections. Following from this there was something of a selective 'silence', as more everyday and mundane health complaints and other issues were left largely outside the sphere of discourse in the struggle to secure a public inquiry (though were included in the actual investigation). In this respect the activists, like Steinberg's nineteenth century spinners, could be seen as struggling within a particular hegemonic genre to establish the legitimacy of their claims (Steinberg 1999).

For their part the authorities could be seen to be exercising their power in various ways. Most obvious, were in the examples where they were directly negotiating their relationship with RANT and were explicitly claiming their privileged and superior position in relation to the investigations, whilst denying and discrediting RANT's role in the process. These included instances where the Council asserted their 'right to choose' the specialists, claimed special access rights over the studies which *they* commissioned and refused to give RANT any kind of special role or status above that of ordinary member of the public in discussions over the convening of working groups. More subtle but more hegemonic were the ways in which the authorities exercised what could be termed the cultural power of science (in so far as hegemony is considered rule by consent and the 'common sense' acceptance of dominant cultural norms and practices) (Kebede 2005). Firstly, all three authorities claimed a commitment to positive proofs, as they linked prospective actions to be taken on the tip to affirmative 'scientific' evidence of nuisance, pollution or health effects. The

Council thus engaged in public claim making only when it was directly challenged or when it had 'evidence based' resources from investigations with which to support its claims. The Environment Agency's agenda for enforcement action was similarly linked to the results of site inspections and investigative studies, with both the problems and the solutions relating to the tip being discussed almost entirely in technical terms.

Further to upholding a commitment to evidence, the authorities also negotiated their relationship with the emergent 'evidence', through familiar techniques of risk communication and repeated reference to dominant scientific norms and values. One notable feature of authority discourses was in how they limit possible perceptions of risk, through the discursive management of uncertainty. Brown et al. explain how without the benefit of exposure histories, accurate dose-response predictions, knowledge of synergistic effects, valid etiology models, and diagnostic capabilities, establishing any proof of causation within accepted scientific levels is highly problematic (Brown et al 2000). The ways in which public bodies respond to such uncertainty appears a key feature of these kinds of disputes. In a study of official responses to the debate on the links between air pollution and health in the deprived industrial Teeside region Phillimore et al (2000) noted how the well recognized difficulties of establishing 'proof' in environmental epidemiology were used politically to suggest inconclusiveness and play down any evidence of adverse health effects. This could similarly be seen in this case study as the authorities engaged in a 'downplaying' of investigation findings (as also noted by the Investigator) with words such as likely or unlikely and mitigating 'but' or 'although' statements. As with the Teeside authorities, the authorities in this study also developed alternative explanations of the alleged health problems (eg lifestyle factors) which might discount the effects of pollution, and asserted core principles such as objectivity, validity and reliability to strengthen their own arguments and dismiss those of RANT. Of the three authorities the Health Authority seemed more cautious, although a more subtle 'minimisation' was observable in places, through the use of argumentative structure or 'sequencing' (Prior 2003). Rather than explicit claim making, 'sequencing' is suggested to provide a narrative where conclusions are arrived at, and are therefore presented as inevitable. (Prior 2003) In other words, through the use of these 'taken for granted' apparently common sensical ideas, methods and devices, the

authorities were legitimating their own knowledge claims, whilst at the same time reaffirming such approaches as the 'proper' way to resolve such issues.

However, although these resources and techniques were used to minimize perceptions of risk and create an impression of confidence, there were also other apparently contradictory features of authority discourses. By acknowledging systemic or technical limitations, and obstacles connected with confidentiality, data protection and ethical practice, such discourses also provided some of the space and resources through which claims could be contested and this hegemony challenged. Indeed, this serves to illustrate Steinberg's point that although 'discourse is a conduit for hegemony, discursive domination is prey to its own internal contradictions and thus is never complete' (Steinberg, 1999: 747). There were also observable differences between the appointed specialists (ie the epidemiologists) and the intermediate officials in terms of how uncertainty was handled, a phenomenon also described by Collins and Evans (2003) in their distinctions between 'core set' and other scientists or experts. Amongst the specialists, uncertainty was seen as a greater cause for concern, as demonstrated in their more extensive discussions of limitations with the investigations, and their advocacy of further intensive investigation and approaches which accommodate different types of evidence. Thus although the authorities frequently cited the findings of the epidemiological surveys, the uncertainty contained in specialist discourses also provided further resources for contestation by activists, that is, an expert opinion which could be aligned with their cause; that the tip cannot be considered 'safe'.

### **Multiple contestations: an emergent counter-hegemony?**

The above considerations suggest features of dependency and hegemony in the relationships of the activists with scientific investigations. It was argued that in this 'scientific' dimension of their struggle the activists were to some extent 'trapped' within the established boundaries of this hegemonic genre. In this section, however, various examples are given to suggest the development of several counter-hegemonic features of the campaign, across epistemological, social and political domains.

At an epistemological level, a first observation is of the various features in activist discourses which marked out the 'citizen' side to 'citizen science', and in so doing

contradicted and challenged the mainstream. The most salient aspects of this position are seen in their embrace of their situatedness, and the privileged grounds which this gave them. Not only did they claim, with growing confidence, an exclusive knowledge of their community's problems, they were also constructing a moral position as legitimate community representatives and asserted higher moral and humanistic values in the face of, and as a direct critique of scientific approaches and principles. Technical and empirical explanations were thus used alongside more emotive claims of being horrified, sad, losing hope, despair, fear, despondency and desperation. In the investigation considerable time was also spent detailing the severity, stress and suffering caused by 'everyday illnesses' and their experiences of what could be considered an assault on their 'way of life' and their connection to the local environment. This connects with Kebede's (2005) example of the environmental campaigns of Native Americans and also the reasoning of the Cumbrian hill sheep farmers, as discussed by Wynne (1996a/b). In this side to their protest they were raising value orientated questions about what really matters and in doing so challenged the core of mainstream scientific approaches to risk management. Such examples thus also demonstrate the emotion which lay knowledge, as 'practical wisdom', may embody (Popay and Williams 2009:15), as well as the *collective-psychological context of action* (Erimbayer and Goldberg 2005: 470) relating to Melucci's (1996) claim that '...passions and feelings, love and hate, faith and fear are all part of a body acting collectively.' (p.71) Another key area of discourse, which reflected broader moral concerns, was in RANT's advocacy of the precautionary principle, as like other groups before them they asserted the inherent uncertainty of scientific knowledge, and demanded that indication of harm, rather than proof of harm should spur action (Williams and Popay 2006 [1994]; Potts 2004a). This negotiation of situated moral appeals with wider moral discourses also exemplifies the argument of Chesters and Welsh that, in Bateson's terms, there is competition between appeals to universals such as humanism and intensely experienced individual affects, in what is an active negotiation of meta and micro-frames (Chesters and Welsh 2001).

This emotive, moral and partial aspect of their engagement with science, stands in contrast to dominant scientific principles of objectivism and neutrality, and on the face of it may seem a juxtaposition of the 'citizen' with the 'scientist'. However, this research also revealed amongst activists a critical awareness of the limitations of

mainstream approaches (as described earlier), which when articulated alongside their 'situated expertise' challenged the supposed objectivism and neutrality of science. In so doing they were not only undermining the claims and core principles of expert communities, they were also renegotiating what scientific investigation meant to them, as something which is political, partial and problematic, if also a potentially useful and necessary tool. Indeed, through their persistence with scientific investigation RANT were able to keep the debate alive and in the public eye. Nothing was proved but nothing was disproved either and the need for further investigation was effectively sustained. Arguments which amounted to a 'fallacy of proof', combined with emerging 'moral critiques', and increasing advocacy of the precautionary principle, helped create a discursive repertoire which challenged the status and validity of dominant risk management approaches in public life. In this respect the activists could be seen in Habermasian terms to be contesting the 'scientism' of such approaches (Habermas 1970), and more broadly as appropriating and subverting 'the dominant discourses that legitimate power' (Steinberg 1999:736). Although such appeals fell on deaf ears within the local authorities, they were heard by the Investigator who advocated an approach which was both precautionary and accommodating of local expertise, and which recognized the limitations of conventional scientific approaches. This side to the activists' struggle could thus also be argued to represent 'a political challenge to biomedical knowledge in so far as they were refusing to permit the authority of scientists to be used to disempower them' (Williams and Popay 2006 [1994]: 145), whilst also lending itself to an alternative epistemology whereby 'the personal, the subjective and the partial count' (Potts 2004a:133).

As has been repeatedly noted, the conflict was far more than a struggle over the 'truth', or even the meaning and value of 'truth'. This is amply demonstrated in the findings of this research which have described how the struggle and forms of contestation fairly rapidly spread into social and political terrains or, to use Bourdieu's language, spread across different fields (Bourdieu 1990; Crossley 1999). As such it sits particularly well with Kebede's (2005) argument that although these movements deal with an issue limited in scope, viz environmental crisis, over time their movement participants have been forced to recognize the broader, underlying political, economic and cultural issues and hence contest the multiple dimensions of



existing hegemony (Kebede 2005). The series of events in the months that followed the new mandate appear to have served as kinds of Gramscian ‘crisis events’ or ‘belief-shattering social moments’ (Kebede 2005), acting as turning points at a psychological as well as strategic level. Events such as the handling of the CL Associates report and Environment Agency and Council press releases, which were seen to deny or downplay the problems with the tip, prompted suspicions of a cover up. Likewise, the perceived slowness of the Environment Agency to take action against the site operator, and most strikingly the decision of the Council to lease the land to the waste company, brought into question the assumed loyalties and obligations of these public bodies. Further experiences of missed meetings and unanswered communications, and other controversial incidents, caused the residents considerable disrespect and upset. The authorities made various attempts to justify and account for such controversial events, by combining hegemonic genres of evidence, the law and technical assessment in their emergent repertoires of ‘appropriate behavior’. However, such arguments were unable to be reconciled with residents’ experiences of the unfolding crisis. These experiences could thus be interpreted as demanding ‘an insufficient response through hegemonic discourse’ (Steinberg 1999: 747), opening up space for counter-hegemonic possibilities.

It is in this context then that the already charted dependency of protestors could be seen to give way to an increasing reliance on themselves (and supportive others), and an increasing mistrust and challenging not just of what the respective authorities were saying, but of the system as a whole. Experiences such as those described above, which seriously brought into question assumptions of even basic dependability, worked to erode the consensual orientations of protestors and encouraged them to take on new social roles and identities, which in Bourdieu’s terms might also be interpreted as a ‘resistance habitus’ (Bourdieu 1990; Crossley 1999). In this changing context protest action became not simply a question of getting the authorities to fulfill on their perceived obligations, but it also brought into contestation the boundaries and rules by which previous expectations had been shaped. Indeed, just as RANT spoke of a failure of the statutory authorities to ‘champion the rights of the individual,’ it seems they started to see a new role for themselves here too. Thus, in addition to developing their own alternative research program and mounting an epistemological challenge, RANT also began to take on a ‘watchdog’ role in the community. At an

environmental level examples included surveillance activity at the tip and looking out for the condition of local wildlife, watercourses and the potential safety of children's play areas. It was also observed how they expanded out of their early localism to develop more global orientations and perspectives. They joined up with other groups and national networks opposed to landfill, and developed an interest and knowledge in alternative waste solutions. In this respect they too had moved to a NIABY perspective and an environmental action frame concerned with the interest of society at large (Kebede 2005).

At a social and political level RANT increasingly began to hold the Council to account with regards to planning and other potentially dubious legal decisions. They developed a critical concern for the public pound, criticized political practices and developed a concern for issues much broader than environmental in scope. Whereas the earliest claim making had focused on specific pollution and health problems, it was not long before RANT began to draw on social and political categories in talk of community welfare, solidarity and justice, along with notions of 'bad practice/governance' and (failed) expectations of 'good practice/ governance'. The forms of contestation thus became as much social and political as they were technical or environmental, as activists moved into a field defined by discourses of politics and governance. The activists were producing a repertoire of discourse, which in various ways claimed and constructed the authorities and the system as the problem, whilst also claiming the righteousness and purpose of their own social roles and campaign. To do this they selectively appropriated elements from hegemonic genres of law, politics and governance, combined these with articulations of their own lived experiences of the 'crisis', and also elements from activist genres of 'protest' and 'citizenship' (eg exploitation, standing together, community). These activist genres could in turn be conceptualized as a kind of locally situated 'master frame', which provided a resource of discursive elements that in their connections with the rich heritage of protest and civic action in the Rhondda, found resonance with both the public, local politicians and other actors. As such they were used for 'calls to action' (as most prominent in the early picketing days), as well as for more enduring diagnostic and prognostic framings of the 'problems' and 'solutions.' Likewise their choice of 'action', and the described community mobilization around the picket could be seen to reflect local and transient symbolic associations, which also lends weight to

Poletta's (1997) questioning of the dichotomy of instrumental and normative action that has predominated much of the social movement literature.

### **Implications for policy and practice**

This section considers some of the key implications and recommendations which can be drawn from this research, firstly for policy makers and local officers, and secondly for local communities facing similar situations.

A first implication, and one also recognized by the Independent Investigator, is for local authority officers and their scientists to work with local communities when assessing environmental and public health risks. These bodies need to find ways of recognizing, accommodating, and building on the unique, valuable and situated forms of knowledge which residents bring to situations concerned with their health and the environment, whilst also being prepared to acknowledge limitations with conventional scientific approaches. This is in line with calls for more attention to be paid to the alternative forms of reasoning that citizens bring in disputes over technical questions, and for recognition of the fact that for residents the issue may not just be about avoiding the risk of increased levels of disease but also about assaults on their ability to live well in their home environments (Alaszewski and Horlick Jones 2002; Moffatt and Pless Mulloli 2003, Pless-Mulloli et al 2001; Wakefield 2005). This research also illustrates the argument of Elliott and Williams (2008) that in 'applying their understanding to problems affecting their own life situations, lay people develop an integrative, synthetic, "joined up" approach to knowledge, which contrasts with the reductive and analytic approaches of most scientific research' (p.1112). The research thus also supports their argument that the particularism of lay knowledge is a form of legitimate expertise which, when combined with the perspectives of other professional experts, can become the basis for a powerful form of knowledge production or civic intelligence that contributes to a science which is more inclusive and democratic and more reliable, valid and effective (Elliott and Williams 2008). Brown (2010) similarly describes the value of 'Citizen-science alliance', which he defines as a 'lay-professional collaboration in which citizens and scientists work together on issues identified by lay people' (p.743). Such collaborations are suggested to educate both parties, with researchers benefiting from the input of community members and community members learning about the strengths and

limitations of the scientific process. It is also suggested that collaboration helps ease the apprehensions either party may feel towards each other, although as this research has demonstrated, the strong political contexts often underpinning such investigations, means that there may be limits to how far trust can be obtained.

Another way in which local knowledge can be given space and legitimacy is through health impact assessments (HIA). HIA is argued to have the potential to create deliberative spaces through which contestation of evidence can take place (Elliott et al 2010). It also provides for 'new knowledge spaces' in which 'technical and practical-experiential knowledge come together in a context where effective contributions can be made to policy, politics and the vitality of the public sphere.' (Elliott and Williams 2008: 1113). HIA has been defined by these authors in the following way:

Health impact assessment is a process through which evidence (of different kinds), interests, values and meanings are brought into dialogue between relevant stakeholders (politicians, professionals and citizens) in order imaginatively to understand and anticipate the effects of change on health and health inequalities in a given population ( Elliott et al 2010: 183).

In a paper which compared forms of protest and engagement at the Nant-y-Gwyddon site with those involved in a Health Impact Assessment of a proposed extension to an open cast mine in south Wales, it was argued that the HIA embraced a more hermeneutic model of risk assessment. In this process the meanings of risk in terms of residents own lived experience, were accepted as having validity in their own right. It provided a deliberative space through which to contest and debate the validity and salience of the impacts within a particular local context. It was thus argued that HIA provides an opportunity for officials to identify, debate, and therefore better manage concerns raised by local people about controversial land developments (Elliott et al 2010).

However, although it is important for statutory bodies to find new ways of engaging with and making use of locals' knowledge, it is important also that the underlying social, cultural and political contexts are not forgotten (the salience of which has been amply demonstrated in this research). The research highlighted various critical instances or behaviours by the authorities which caused the residents considerable

disrespect and upset, brought into question assumptions of even basic dependability, worked to erode the consensual orientations of protestors and encouraged them to take on new social roles and identities, in what was described as an emergent counter-hegemony. Although in many respects this is seen as a positive development, for authorities seeking to avoid the level of antagonism, expense and distress experienced by all sides in this case study, they would be well advised to pay particular attention to how they manage their relationships with the public. Meaningful consultation, respect, sensitivity and a critical reflexivity on their own institutional cultures and ways of operating might help reduce the kinds of social and cultural threats experienced by the Nant-y-Gwyddon residents, and indeed provide opportunities to capitalize on the high levels of activist engagement and commitment to the locality, as desired in so much of contemporary local authority rhetoric. The implementation of some kind of HIA process in the earliest stages of the conflict might have helped here, although it is unlikely it would have worked in the later stages when trust relationships had completely broken down and the struggle had broadened out beyond its initial health and environmental remit.

For communities there are also some clear messages to emerge in terms of how to engage in effective struggle. On the one hand this research has highlighted the importance of more traditional methods of protest; of forms of direct and obstructive action such as the picket, of getting an opposition party on side (and ideally into power) and maintaining a wide support base and high profile media campaign. Of critical importance too though was the extensive effort that the activists put into researching the health and environmental effects of the tip and the unique and situated forms of expertise which they developed on these matters. By challenging the science with an effective combination of both 'scientific' and local knowledge RANT refused to be disempowered by official claims and were able to keep the debate alive and in the public eye. Another important factor here was the availability of sympathetic 'experts' who had sufficient levels of interactional expertise to provide guidance, practical assistance and representation to the activists in this side to their campaign. In the later stages of the campaign it was also noted how RANT began to take on an advisory role to other similar groups. Sourcing the support and assistance of organizations such as Friends of the Earth, networks of local activist groups such as RANT and other 'experts' or expert resources is likely to be an important step to any

campaign, and one which should be easier today than in the early RANT years due to the increased availability and progression of internet based resources.

### **Limitations and implications for further research**

There are several ways in which this research could have been improved or developed, time and space permitting. A first limitation of the research methodology was created by relying solely on documentation. Whilst an invaluable source of data, certain questions brought out by this material were also left unanswered as the data were not available to provide this information. Interviews with key actors would have provided a useful opportunity to follow up some of these questions, and in particular provide more information in the following areas of interest: the backgrounds and perspectives of key actors, the organization and operation of RANT, internal conflicts and relationships with the wider community, perspectives on the role and effectiveness of different protest strategies and the influence of local tradition, history and 'place'. The oral evidence submissions were extremely useful here and in some respects acted as a substitute for interview data. As retrospective accounts they could be triangulated with the data from contemporary sources, and helped identify the critical events and turning points in the conflict. However, there still remained some important differences. The talk was pre-prepared, made in public, as opposed to private settings, and crucially afforded the researcher no opportunity to follow up particular lines of inquiry, as interviews would have done.

The decision to construct the story from the community point of view, as based on texts or talk produced by residents, presents another limitation as it meant that insights into the 'stories' of other key actors was restricted. Although key texts were sampled and analysed from these groups, and to an extent offered a range and balance of perspectives, the research did not attempt to chart the shifting motivations, interpretations and experiences of organizations such as the Council, Environment Agency or Health Authority, in the same way that was done for the resident activists. As such this research has given more 'voice' to the community experience. Interviews with all actor groups may have helped redress the balance and enabled a multiplicity of stories to be presented and explored. However, given the time, space and resources available, the theoretical interests in protest and resistance informing this research, and the observation that it was the community 'driving' the process through their

continuing resistance to the situation as it unfolded, on balance this approach is still felt to be justified.

Another limitation with relying on text based documentation is presented by Chesters and Welsh (2001) who call for attention to the non-linguistic communications of movements. They argue that sense making is dependent upon a variety of non-textual signs. Trust and solidarity is built around not just verbal exchanges but also exchanges affected through facial expressions, extent of pupil dilation, tone and rhythm of voice which obviously can't be observed or analysed in non-visual material (Chesters and Welsh 2001). Other researchers in this area have similarly found participant observation to be a useful approach (eg Kroll Smith and Couch 1990). Given the historical nature of this case study and the need to rely on existing documentation (which was almost entirely text based), there wasn't much scope for working with this kind of material or pursuing such methods. However, with the advent of new and widely accessible photo, video and web based technologies it is likely that opportunities of this kind might exist for more contemporary case studies, either as material produced by others, or collected by researchers in a position to directly observe protest activities.

Some observations can also be made on the approaches to the organization and analysis of the data. Due to the large volume of data collected, the organization and management of this data was inevitably a challenging and at times daunting process. The use of an Excel spreadsheet to carry out the first stage of the analysis meant that the thematic coding of the data was not as neatly organized or as complex as it could have been if a software package such as N-Vivo had been used. On balance, however it was felt that the benefits of an easily manipulated, chronological structure outweighed the benefits afforded by qualitative software packages for thematic coding, as for this stage of the analysis the coding was more useful for thinking about the data, rather than retrieving and organising it. Probably the most productive work carried out to construct the narrative was achieved by mapping the different aspects of the story on paper and in Word documents. A more in depth discourse analysis could also have been performed on some of the texts sampled for the second stage of analysis, and this may have proved more illuminating of the different positions and identities being produced by key actors, as well as the linguistic and communicative

strategies which they used to achieve these. It would also have been interesting to sample texts from other actor groups, such as councilors, politicians, the media etc. However, given the time and space limitations the breadth and depth achieved by the adopted approach is still felt to have been appropriate.

There are several recommendations for follow up, or further research. A worthwhile exercise would be to seek actor perspectives on the account of the protest which has been produced in this thesis. 'Member validation' techniques are ideally performed as part of the main research process, as they can correct factual errors, point to additional areas for future research and also fulfill an ethical responsibility to involve community members in the research (Brown 2010). Unfortunately, however, this was beyond the capacity of this project, particularly given the minimal engagement of actors in the research. It would also be interesting to look at how the conflict developed in the later post-investigation period, in particular in connection with the visit of the ATSDR in 2003 and the Health Impact Assessment which was carried out in relation to remediation proposals in 2005. Likewise, it would be useful to explore some of the legacy of the Nant-y-Gwyddon episode in terms of politicization, community engagement and activism in those areas to see if there has been any enduring effect. Interviews with local policy makers and practitioners could similarly be used to explore what, if any lessons have been learnt and approaches changed.

### **Summary**

These research findings contribute to existing theory in several ways. A first contribution is in the detailed insights offered on the different kinds of knowledge and expertise brought into play by both residents and the statutory bodies, and how this knowledge is used in these kinds of disputes. These findings in particular add to the literature on popular epidemiology; through a double pronged approach RANT campaigned for, engaged with and sought control over official studies, whilst also developing their own independent program of research. This feature of the campaign also ties in with Collins and Evans (2003) considerations of contributory and interactive expertise, and illustrates a form of contributory expertise amongst activists which is based on a synthesis of experience based knowledge (which has contributory status in its own right) and scientific learning (which would be seen as interactional). It is suggested that this kind of synthesis may thus provide a third form of



contributory expertise alongside the 'experience based' expertise of local people and the expertise of 'core-set' specialists, and may precipitate a blurring of the boundary of interactional and contributory expertise.

Such insights suggest that at one level the conflict could be seen as a struggle over the truth. This aspect of the struggle was certainly of importance: by challenging the science with an effective combination of both 'scientific' and local knowledge RANT refused to be disempowered by official claims and were able to keep the debate alive, in the public eye and it seems contribute in valued forms to the knowledge base on certain illnesses. However, as other commentators have noted, contestation is rarely only about propositional truths, and this research also suggests the value of an approach which locates such struggles in their broader social and cultural contexts, and in particular suggest the usefulness of the concepts of dependency and hegemony for understanding lay-expert relationships. The research has highlighted the complexity and ambiguity of local relationships, as the activists shifted between positions of support seeking to opposition, at different points acknowledging or accepting positions of dependency on the authorities and their approaches. In terms of hegemony it was noted how the activists quickly shifted from making arguments or appeals on moral grounds, to develop a repertoire of discourse which took on the science largely on the terms of a scientific epistemology even though this was felt increasingly to be problematic. For their part the authorities could be seen to be exercising their power in various ways, including through what could be termed the cultural power of science.

However, although in this 'scientific' dimension of their struggle the activists could be argued to have been 'trapped' within the established boundaries of this hegemonic genre, various examples were also given to suggest the development of counter-hegemonic features, across epistemological, social and political domains. Although activists engaged heavily with mainstream science there was an emotive, moral and situated side to this engagement. There was also a reflexive and critical awareness of the limitations of mainstream approaches, which when articulated alongside their 'situated expertise' challenged the supposed objectivism and neutrality of science. In so doing they were not only undermining the claims and core principles of expert communities, they were also renegotiating what scientific investigation meant to

them, as something which is political, partial and problematic, if also a potentially useful and necessary tool. This research also lends itself to the observations of Kebede (2005) that although such movements deal with an issue limited in scope, viz environmental crisis, over time they are forced to recognize the broader, underlying political/economic/ cultural issues and hence contest the multiple dimensions of existing hegemony (Kebede 2005). The dependency of these protestors could be seen to give way to an increasing self reliance and an increasing mistrust and challenging not just of what the respective authorities were saying, but of the system as a whole. Various 'crisis events' brought into question assumptions of even basic dependability and worked to erode the consensual orientations of protestors. This, in turn, encouraged them to take on new social roles and identities, as manifested in practical 'watchdog' activities and the development of environmental, social and political critiques, in a campaign which not only scrutinized and mobilised around the local but became also much more global in its orientations and outlooks.

Several implications for policy, practice and further research have also been identified in this discussion. A first of these is for local authority officers and their scientists to work with local communities; to find ways of recognizing, accommodating, and building on the unique, valuable and situated forms of knowledge which residents bring to situations concerned with their health and the environment, whilst also being prepared to acknowledge limitations with conventional scientific approaches. It is suggested that HIAs might have a role here as they have the potential to create deliberative spaces through which contestation of evidence can take place, and technical and practical-experiential knowledge can come together to contribute effectively to policy, politics and the vitality of the public sphere (Elliott et al 2010). More generally, authorities need to pay attention to how they manage their relationships with the public, in all aspects of public life and at all times; they should be working to ensure meaningful consultation, respect, sensitivity and a critical reflexivity on their own institutional cultures and ways of operating. For communities, suggestions for effective struggle included more traditional methods of protest, such as picketing and mobilizing a wide support base, but also for a critical and innovative engagement in scientific investigation, in a process which builds on and connects their own situated forms of knowledge with that of established 'scientific' knowledge and practice. In terms of future research, the main implications which were identified

involve carrying out interviews and consulting with the main actor groups. This would enable exploration of different and competing versions of the 'story' and for gaps left unanswered by the available material to be filled in. Such interviews could also be used to investigate the legacies of the period under study in terms of; further contentious episodes, enduring levels of politicization, activism and engagement amongst the local community, and any changes in practice within local authorities.

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# Appendices

### Appendix 1: Glossary of terms.

**Berylliosis, or chronic beryllium disease (CBD)**, is a chronic allergic-type lung response and chronic lung disease caused by exposure to beryllium and its compounds. As an occupational lung disease, it is most classically associated with beryllium mining or exposure to fluorescent light bulbs (which used to contain beryllium compounds). The condition is incurable, but symptoms can be treated. With single or prolonged exposure by inhalation, the lungs become hypersensitive to beryllium causing the development of small inflammatory nodules, called granulomas. Granulomas are seen in other chronic diseases, such as tuberculosis, sarcoidosis, and it can occasionally be hard to distinguish berylliosis from these disorders. (Wikipedia)

**Beryllium** is the chemical element with the symbol **Be** and atomic number 4. It is primarily used as a hardening agent in alloys, notably beryllium copper. Because of its relatively high transparency to X-rays and other ionizing radiation types, beryllium also has a number of uses as filters and windows for radiation and particle physics experiments. Commercial use of beryllium metal presents technical challenges due to the toxicity (especially by inhalation) of beryllium-containing dusts. Beryllium produces a direct corrosive effect to tissue, and can cause a chronic life-threatening allergic disease called berylliosis in susceptible persons. (Wikipedia)

**Calcium sulphate** - a white salt ( $\text{CaSO}_4$ ) found in gypsum - a common white or colorless mineral (hydrated calcium sulphate) used to make cements and plasters (especially plaster of Paris). (The free dictionary.com)

**Calcium sulphate filter cake** – the waste created by processing calcium sulphate. This waste was deposited at the site from a nearby factory and, when mixed with household waste, was believed to cause the emission of hydrogen sulphide, creating considerable odour problems at the site and surrounding communities.

**Gastroschisis** (also called **paraomphalocele**, **laparoschisis**, **abdominoschisis**, or abdominal hernia) is a type of congenital abdominal wall defect in which the intestines and sometimes other organs develop outside the fetal abdomen through an opening in the abdominal wall. (Wikipedia)

**Leachate** is any liquid that, in passing through matter, extracts solutes, suspended solids or any other component of the material through which it has passed. Leachate is a widely used term in the Environmental sciences where it has the specific meaning of a liquor that has dissolved or entrained environmentally harmful substances which may then enter the environment. It is most commonly used in the context of land-filling of putrescible or industrial waste. In the narrow environmental context leachate is therefore any liquid material that drains from land or stockpiled material and contains significantly elevated concentrations of undesirable material derived from the material that it has passed through. (Wikipedia)

**Sarcoidosis** is a disease in which abnormal collections of inflammatory cells (granulomas) form as nodules in many organs of the body. Its cause is unknown. Granulomas most often appear in the lungs or the lymph nodes, but virtually any organ can be affected. Normally the onset is gradual. Sarcoidosis may be asymptomatic or chronic. It commonly improves or clears up spontaneously. More

than 2/3 of people with lung sarcoidosis have no symptoms after 9 years. About 50% have relapses. About 10% develop serious disability. Lung scarring or infection may lead to respiratory failure and death. (Wikipedia)

**Appendix 2: Ethics forms.**

**Cardiff School of Social Sciences**

**Ethical Approval Form**

Staff, MPhil/PhD, Professional Doctorate & Integrated PhD Research  
Projects

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**Recruitment Procedures**

		Yes	No	N/A
1	Does your project include children under 16 years of age?		X	
2	Does your project include people with learning or communication difficulties?		X	
		Yes	No	N/A
3	Does your project include people in custody?		X	
4	Is your project likely to include people involved in illegal activities?		X	
5	Does your project involve people belonging to a vulnerable group, other than those listed above?		X	
6	Does your project include people who are, or are likely to become your clients or clients of the department in which you work?		X	
7	Does your project include people for whom English / Welsh is not their first language?		X	

**Consent Procedures**

		Yes	No	N/A
8	Will you tell participants that their participation is voluntary?	X		
9	Will you obtain written consent for participation?	X		
10	If the research is observational, will you ask participants for their consent to being observed?			X

11	Will you tell participants that they may withdraw from the research at any time and for any reasons?	X		
12	Will you give potential participants a significant period of time to consider participation?	X		

### **Possible Harm to Participants**

		Yes	No	N/A
13	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?		X	
14	Is there any realistic risk of any participants experiencing a detriment to their interests as a result of participation? (see proposal)	X		

**If there are any risks to the participants you must explain in your proposal how you intend to minimise these risks**

### **Data Protection**

		Yes	No	N/A
15	Will any non-anonymised and/or personalised data be generated and/or stored?	X		
		Yes	No	N/A
16	Will you have access to documents containing sensitive <sup>374</sup> data about living individuals?	X		
	If "Yes" will you gain the consent of the individuals concerned? (see proposal for further explanation)	X		

**If there are any other potential ethical issues that you think the Committee should consider please explain them on a separate sheet. It is your obligation to bring to the attention of the Committee any ethical issues not covered on this form.**

<sup>1</sup> Sensitive data are *inter alia* data that relates to racial or ethnic origin, political opinions, religious beliefs, trade union membership, physical or mental health, sexual life, actual and alleged offences.

**Ethical issues.**

The following issues are highlighted on the attached form as requiring further explanation;

Question 14; Is there any realistic risk of any participants experiencing a detriment to their interests as a result of participation?

The main risk here is that although the data will be anonymised as far as possible, individuals may still be identifiable through what they say, particularly given the need for the research to attribute a 'role' to the individual (eg resident, statutory official). To minimise this risk it will be made clear to participants that although they will not be named and references to named individuals will be taken out, people familiar with the 'conflict' may still be able to identify them through what they are saying. Participants will therefore also be offered a copy of their interview transcript and provided with the opportunity to take out or amend any part of it that they do not wish reported in the findings (see Appendix 2: P.8.)

Question 16; Will you have access to documents containing sensitive data (as defined on the form) about living individuals?

It is highly likely that some of the documents will contain some kind of sensitive data, most likely political opinions or information on physical or mental health. If the document contains any of this kind of data consent will be sought from the individuals concerned provided that the document is not already in the public domain (and thus already accessible to any interested party), or could be considered to 'belong' to a group or organisation, as opposed to an individual. These exclusions are in line with the requirements of the Data Protection Act (1998), and have been checked with the data protection officer at Cardiff University. In all cases individuals will not be named, and where consent is sought the participants will be sent a copy of the document and provided with the opportunity to take out or amend any part of it that they do not wish reported in the findings (see Appendix 3: P.10).

## Information Sheet



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### Research participant information sheet

#### Research into contested knowledge in the assessment of public health risks: A case study of the Nant-y-Gwyddon landfill site in the Rhondda Valley, South Wales.

#### Information for participants.

#### Background to the study

I am a PhD student at the School of Social Sciences, Cardiff University, and my research is looking back at the development of community and professional responses to the Nant-y-Gwyddon landfill site in the period up to 2005. A main aim will be to explore how local residents and statutory bodies experienced and dealt with problems associated with the landfill site in this period. The research will seek in particular to examine how residents and statutory bodies understood and used scientific evidence and resources. The role of political parties, the media and other organisations with an interest or concern with the site will also be explored.

The information being collected for this research is the perspectives and accounts of residents, professional groups (such as health professionals, environmental experts), the media, political representatives, and statutory bodies (e.g. Environment Agency, RCT Borough Council, Local Health Board). Much of this data has been collected from existing archives and includes, for example, letters, reports, media articles, transcripts of hearings, meeting notes, pamphlets etc. In addition, the researcher also hopes to interview key people directly involved in the actions connected with the landfill site as well as, residents who lived locally but were not involved in any actions, and representatives from different bodies/ organisations, identified from the documentary work, and key informants, as playing an important role. The interviews will seek to explore participants memories of what went on and their thoughts on how and why events unfolded in the way that they did. Interviews will take place between ..... The study should be completed by October 2009.

The research is funded by the Economic and Social Research Council (ESRC) and the Wales Centre for Health (WcfH). As well as being of considerable academic interest, there are expected to be useful implications for statutory bodies, in terms of how they engage with and respond to local concerns, as well as for other communities in similar situations who maybe interested in learning from the experiences of Nant-y-Gwyddon.

**Confidentiality**

Interviews will be recorded and fully transcribed. The recordings will be stored in a secure location and only the researcher and her two supervisors will have access. People's names or job titles will not be included in reports, but participants should be aware that they may be identifiable through comments that they make. Participants will be offered a copy of their interview transcript and provided with the opportunity to take out or amend any part of it that they do not wish reported in the findings. Participants should also be aware that the researcher has a legal obligation to disclose information relating to unethical or criminal behaviour.

We hope you will be able to help with this important area of research. If you agree to take part please complete the consent form. You are still free to withdraw at any time and without giving a reason.

**How will the results be used?**

The data from this research will be used for:

1. PhD thesis
2. Academic research papers and presentations
3. A summary report to be circulated to all interested participants or participating organisations.

Please indicate on the consent form if you would like to receive a summary of the results.

Please get in touch if you would like further information:

Emily Harrop – 02920870285; Harrope@cardiff.ac.uk

**Thank you.**



**Consent Form for Interviews (A)****Consent Form-Interviews****Research into the Nant-y-Gwyddon landfill site in the Rhondda Valley, South Wales.**

- I am willing to take part in the interview for this research and for the interview to be recorded.
- I understand that no-one will have access to the recording beyond the researcher and her two supervisors.
- I understand that any personal statements made in the interview will be confidential. As far as possible all comments will be anonymised in any reports or papers that are produced as a result of the research. People's names or job titles will not be included in reports, but there is a possibility that I may be identifiable through comments that I make .
- I understand that I will be offered a copy of my interview transcript and provided with the opportunity to take out or amend any part of it that I do not wish to be reported in the findings
- I understand that taking part in the research is voluntary and that I may withdraw at any time.
- I understand that the data from this research will be used for three things:
  1. PhD thesis
  2. Academic research papers and presentations
  3. A summary report to be circulated to all interested participants or other interested parties.

Name of Respondent:.....

Signature of Respondent: .....

Date: .....

Name of Researcher:.....

Signature of Researcher: .....

**Address slip – to receive a copy of the transcript or summary of research findings**

If you would like to receive a copy of your interview transcript please provide your contact details here

Name.....

Contact address: .....

.....

The researcher will provide a summary of the findings from this study. If you would like to receive a summary, please make sure you include your contact details on the provided address slip (if not already provided above).

Name.....

Contact address: .....

.....

**Consent Form for Documents (B)**

**Consent Form-Documents**

**Research into the Nant-y-Gwyddon landfill site in the Rhondda Valley, South Wales.**

Please circle the statement which applies

- I am willing for a copy of the following document .....  
 .....(enclosed) to;
  - a) be used for this research project (no restrictions)
  - b) be used for this research project subject to the following restrictions (please also indicate on the document);  
 .....  
 .....  
 .....  
 .....
  
- I understand that no-one will have access to the document beyond the researcher and her two supervisors.
  
- I understand that any personal statements made in the document will be confidential. As far as possible all comments will be anonymised in any reports or papers that are produced as a result of the research. People’s names or job titles will not be included in reports, but there is a possibility that I may be identifiable through comments that I make .
  
- I understand that taking part in the research is voluntary and that I may withdraw my consent for this data to be used at any time.
  
- I understand that the data from this research will be used for three things:
  1. PhD thesis
  2. Academic research papers and presentations
  3. A summary report to be circulated to all interested participants or other interested parties.

Name of Respondent:.....

Signature of Respondent: .....

Date: .....

Name of Researcher:.....

Signature of Researcher: .....

**Address slip – to receive a copy of the summary of research findings**

The researcher will provide a summary of the findings from this study. If you would like to receive a summary, please make sure you include your contact details on the provided address slip.

Name.....

Contact address: .....

.....

### Appendix 3: Documents sampled for in depth analysis.

Author	Title	Date	Code
Community Group	Letter to Council	06/09/1996	R1
Community Group	Letter to MP	13/12/1996	R2
Community Group	Letter to Council	13/12/1996	R3
Community Group	Notes for meeting titled 'community concern'	27/01/1997	R4
Community Group	Letter to MEP	10/02/1997	R5
RANT	Letter to all 76 councillors	01/03/1997	R6
Community Group	Newsletter: 'Our grave doubts and discoveries.'	01/01/1997	R7
RANT	Letter to Council	01/03/1997	R8
RANT	Letter to Council	19/03/1997	R9
RANT	Newsletter: News from the Front Line	01/03/1997	R10
RANT	RANT's First Newsletter	01/03/1997	R11
RANT	Poster: 'Our Children's Lives are at Stake'	01/04/1997	R12
RANT	Letter to Council	04/06/1997	R13
RANT	Letter to MEP	29/05/1997	R14
RANT	Letter to headteacher	01/07/1997	R15
RANT	Letter to MEP	09/08/1997	R16
RANT	Letter to Environment Agency	08/08/1997	R17
RANT	Letter to Environment Agency	02/11/1998	R18
RANT	Letter to Environment Agency	31/03/1999	R19
RANT	Letter to Council	23/02/1998	R20
RANT	Letter to Council	23/05/1998	R21
RANT	Letter to Welsh Office	08/12/1997	R22
RANT	Letter to Environment Agency	16/07/1999	R23
RANT	Letter to Council	05/08/1998	R24
RANT	Letter to Council	29/07/1997	R25
RANT	Letter to Environment Agency	29/05/1997	R26
RANT	Letter to MP	12/09/1997	R27
RANT	Letter to Environment Agency	21/06/2000	R28
RANT	Letter to Editor, Western Mail.	03/05/2000	R29
RANT	Letter to Labour Councillor	14/05/1999	R30
RANT	Letter to Welsh Assembly	05/08/1999	R31
RANT	Letter to epidemiologist	18/11/1997	R32
RANT	Letter to epidemiologist	20/07/1997	R33
RANT	Letter to Health Authority	13/08/1997	R34
RANT	Letter to Council	09/03/1998	R35
RANT	Letter to epidemiologist	09/09/1998	R36
RANT	Letter to Council	18/11/1997	R37
RANT	Letter to environmental scientist	27/08/1998	R38
RANT	Letter to Environment Agency	23/09/1998	R39
RANT	Letter to Director Scientific Research Centre	02/01/1998	R40
RANT	Letter to TUC	06/03/1998	R41
RANT	Letter to Environment Agency	17/05/2000	R42

Author	Title	Date	Code
Council	Information bulletin: Nyg Landfill Site	19/03/1997	C1
Council	Information bulletin: BTHA profile	24/04/1997	C2
Council	letter RANT	13/05/1997	C3
Council	letter RANT	02/04/1997	C4
Council	letter RANT	09/04/1997	C5
Council	Press Notice Nyg Landfill Site, Gelli	01/07/1997	C6
Council	Letter to RANT	08/07/1997	C7
Council	Press Notice Nyg Landfill Site, Gelli	01/10/1997	C8
Council	Letter to RANT	03/02/1998	C9
Council	Letter to RANT	23/07/1997	C10
Council	Letter to RANT	12/11/1997	c11
Council	Letter to RANT	27/05/1998	C12
Council	Letter to RANT	04/02/2000	C13
Council	Letter to RANT	14/07/1997	C14
Council	Public Information Bulletin; Nyg landfill	08/09/1997	C15
Council	Letter to RANT	12/08/1998	C16
Council	Letter to RANT	14/12/1998	C18
Council	Letter to RANT	27/05/1999	C19
Council	Press release	25/11/1997	C20
Council	Letter to RANT	19/01/2000	C21
Council	Letter to RANT	08/10/1998	C22
Council	Letter to RANT	18/12/1997	C23
Environment			EA1
Agency	Press Release	14/01/1997	
Environment	Press release: Agency move on waste management	24/01/1997	EA2
Agency	licence		
Environment	News Release: Agency Investigates Landfill Site	27/03/1997	EA3
Agency	Complaints		
Environment	Letter to RANT	02/06/1997	EA4
Agency			
Environment	Letter to RANT	02/10/1997	EA5
Agency			
Environment	Agency gives company the all clear	04/08/1997	EA6
Agency			
Environment	Press release: agency places report on public	05/02/1998	EA7
Agency	register		
Environment	News release: Radiation water samples taken from	25/03/1998	EA8
Agency	Nyg site & Q & A document		
Environment	Letter to RANT	27/05/1999	EA9
Agency			
Environment	Letter to RANT	04/09/1998	EA10
Agency			
Health Authority	Letter to RANT	29/09/1998	HA1
Health Authority	Letter to RANT	06/05/1997	HA2
Health Authority	Letter to RANT	03/12/1997	HA3
Health Authority	Letter to RANT	27/06/2000	HA4

Appendix 4: Example of data extraction database and procedure.

Fold.	No	Author/ informant	Audience	Title	Date	Source type	Main action	Substance of action/ brief summary.	Motive/interpretation	Other actions/events ref'd.	R'tive	Act.	Refer.	RANT role	RANT role (2)	Non-prof rels.	Prof/stat rels (non-prof).	Social problem/ prob rels.	Physical prob.	
docs5	10020	RANT	Council: chief exec	Letter to RCT (chief exec)	1997-03-01	Letter	Requests that proposals are considered, and threatens action if they are not agreed.	Letter is requesting that proposals carried forward at public meeting are placed before council members at next full council meeting on 19th March 1997, and to advise (on request of action group) 'that should these proposals not be agreed upon by the council and actioned immediately, the residents of the aforementioned area will have no alternative but to take further action.' Proposal are: 1) A full independent survey must be carried out in parallel with the surveys carried out by Cardiff School of Medicine and Glamorgan University on the safety and management of the tip. 2) The Nyyg tip must only accept normal household refuse from the RCT areas.	These demands are expressed as result of public meeting which was called discuss resident fears; the threat of further action is being linked to the possibility of council inaction on this matter	Public meeting 18th feb 1997 at NUM club, attended by members of public RANT, councillors, MP, solicitor: 'At end of very stormy meeting, a number of proposals were made, seconded and carried.' (see action column for proposals). Motive linked to this meeting; 'The reason for holding this meeting was to enable the residents of Gelli, Ystrad, Clydach Vale, Tonypany and other areas to express their fears over the Nyyg Tip		1	1	request: action	multiple	public meeting				
JE1	10008	RANT	Residents	Our Childrens Lives are at stake (date est)	1997-04-01	Poster	Poster warning off dangers of tip; encouraging action.	Starts: toxic, toxic , toxic; Numerous viruses and diseases are tearing through our valley and jeopardising the lives of us and our children ! Poisonous and harmful gasses fill our homes and streets. It has been proved!! So please unite and stand together to stop, this murdering menace, Nantgywyddon Tip !! Before its too late, please spare some of your time and help stop it at the gates of the tip. Even if it is only half an hour your valley and your children need you !! This notice applies to all residents of RCT. We are all affected. Please help and shut the tip for good! There is shelter, remember we are all at risk, act now!	enlisting support		1	1	Promotion	picket					health	
ref	595			Critical observing at Picket (date est)	1997-06-01		References picketing activity (assuming role as critical observers/watchdogs), references knowledge being acquired in process		Observations that picketers have been making of this waste being disposed, combined with the fact that 'during the course of their picketing they have learned a great deal about the separation of different kinds of difficult waste'.	They would like to know if it is legal to combine these items as we are just as concerned about other communities who have to take potentially harmful waste without it being properly separated & treated.				watchdog	expertise				environ.	

