

'Expertise and Complexity in the Policy-Making Process'

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ABSTRACT

Expertise is undoubtedly a feature of policy areas in contemporary societies; inputs of formal knowledge are important components of the policy process. The post-1945 period, in Britain, has witnessed a proliferation and diversification in both the number and type of expert, and expert group used in policy areas. This situation poses both theoretical and empirical difficulties for any analysis of the role and influence of expert groups. The thesis focuses upon expert groups in the policy process, the nature and reasons for their influence, and the subsequent democratic and normative implications raised by such an analysis.

The thesis makes an assessment of the various definitions of the expert, as well as a thorough examination of technocracy. Moreover, the nature of expertise is examined to demonstrate how expert influence may alter at different levels in the policy-making process. It is contended that complexity, and a corresponding requirement of legitimacy, are the primary reasons for the use of experts in policy areas. This analysis is placed in historical context since 1945, a period that has witnessed alterations in both the nature and type of expert and expert group, the level of demand for expertise, and the reasons for that demand, made by policy-makers for expert input.

This theoretical and historical overview is utilised in the analysis of two diverse case studies of policy sub-sectors: the case of air pollution and asthma, and the siting of the route of the Channel Tunnel Rail Link. Although distinct in nature, it is shown that within both of these policy areas expert groups operate on a formal mandate, as a result of complexity and a requirement of legitimacy. And furthermore, that the primary effect of the complex nature of the policy-making process, and the corresponding use of expert knowledge to legitimate policy, is on the level and type of political participation.

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PREFACE

This thesis represents a culmination of over five years work that started life as a personal whim on a sunny Sunday afternoon. It turned into a project of self-discovery, to explore the reasons for my own personal political apathy. Time will tell if the endeavour will prove fruitful. During the preparation and writing of the thesis the focus of the project certainly altered from its original conception. Nevertheless the desire remained the same.

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Matthew Chiles, September 1999

LIST OF ABBREVIATIONS

| | |
|----------------|---|
| ABC | Ashford Borough Council |
| ACHCEW | Association of Community Health Councils for England and Wales |
| AGMAAPE | Advisory Group on the Medical Aspects of Air Pollution Episodes |
| AMA | Association of Metropolitan Authorities |
| AONB | Area of Outstanding Natural Beauty |
| APEG | Airborne Particles Expert Group |
| ARC | Asthma Research Council |
| ASI | Adam Smith Institute |
| AUN | Automated Urban Network |
| BATNEEC | Best Available Technique Not Exceeding Excessive Costs |
| BLF | British Lung Foundation |
| BMA | British Medical Association |
| BPEO | Best Practicable Environmental Option |
| BPM | Best Practicable Means |
| BR | British Rail |
| BRB | British Railways Board |
| CAP | Common Agricultural Policy |
| CER | Community of European Railways |
| CO | Carbon Monoxide |
| COMEAP | Committee on the Medical Effects of Air Pollution |
| CPRE | Council for the Protection of Rural England |
| CPRS | Central Policy Review Staff |
| CPS | Centre for Policy Studies |
| CSAS | Coal and Smoke Abatement Society |
| CT | Channel Tunnel |
| CTP | Common Transport Policy |
| CTRL | Channel Tunnel Rail Link |
| DEA | Department of Economic Affairs |
| DETR | Department of the Environment, Transport and the Regions |
| DoE | Department of the Environment |
| DoH | Department of Health |
| DoT | Department of Transport |
| DTI | Department of Trade and Industry |
| EA | Environment Agency |
| EC | European Community |
| EEC | European Economic Community |
| EKI | East Kent Initiative |
| EPAQS | Expert Panel on Air Quality Standards |
| EPS | European Passenger Services |
| ERL | Eurorail Limited |
| ERM | Environmental Resource Management |

| | |
|-----------------------|---|
| ES | Environmental Statement |
| ESRC | Economic and Social Research Council |
| ETC | East Thames Corridor |
| EU | European Union |
| EUN | Enhanced Urban Network |
| FoE | Friends of the Earth |
| GNP | Gross National Product |
| HC | Hydrocarbons |
| HMAPI | Her Majesty's Air Pollution Inspectorate |
| HMIP | Her Majesty's Inspectorate of Pollution |
| HSN | High-Speed Network |
| HST | High-Speed Train |
| IEA | Institute of Economic Affairs |
| IPC | Integrated Pollution Control |
| IPS | International Passenger Services |
| KCC | Kent County Council |
| KIS | Kent Impact Survey |
| KJCC | Kent Joint Consultative Committee |
| LAIA | Lung and Asthma Information Agency |
| LCR | London and Continental Railways |
| LPAC | London Planning Advisory Council |
| LRC | London Regeneration Consortium |
| LSE | London School of Economics |
| MAFF | Ministry of Agriculture Fisheries and Food |
| MEA | Manual for Environmental Appraisal |
| MRC | Medical Research Council |
| MRCIEH | Medical Research Council Institute for Environment and Health |
| NAC | National Asthma Campaign |
| NAQS | National Air Quality Strategy |
| NEDC | National Economic Development Council |
| NETCEN | National Environmental Technology Centre |
| NHS | National Health Service |
| 'NIMBY' | 'Not In My Backyard' |
| NO_x | Nitrogen Oxides |
| NSCA | National Society for Clean Air and Environmental Protection |
| O₃ | Photooxidants |
| Ofwat | Office of Water Services |
| PFI | Private Finance Initiative |
| PM | Particulate Matter |
| POST | Parliamentary Office of Science and Technology |
| PPBS | Planning Programming Budgetary System |
| PPG | Planning Policy Guidance |
| QUARG | Quality of Urban Air Review Group |
| RAC | Royal Automobile Club |
| RACHEL | Rainham to the Channel Tunnel |
| RAQN | Rural Air Quality Network |

| | |
|-----------------------|--|
| RCEP | Royal Commission on Environmental Pollution |
| RDA | Regional Development Agency |
| REPAC | Regional Environment Protection Advisory Committee |
| SDP | Social Democratic Party |
| SEA | Single European Act |
| SEM | Single European Market |
| SERPLAN | South-East Regional Planning Conference |
| SNCI | Site of Nature Conservation Interest |
| SO_x | Sulphur Oxides |
| SPA | Special Protection Area |
| SSRC | Social Science Research Council |
| SSSI | Site of Special Scientific Interest |
| TALIS | Thames Alternative Link International System |
| TEN | TransEuropean Network |
| TGV | Trans-Grand Vitesse |
| UK | United Kingdom |
| UR | Union Railways Limited |
| US | United States |
| VOC | Volatile Organic Compound |
| WHO | World Health Organisation |

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Expertise is an important element of policy-making in contemporary societies. The use of either scientific, technological, or expert input is seen as a key ingredient in the success of policy formulation and outcomes, not least because of the prevailing dominance of technology and complex systems that define the nature of contemporary society. This almost endemic requirement of expertise is widely acknowledged, although the exact nature of its influence in specific areas of policy is not clear. In recent years attempts have been made to assess this complex nature of the policy-making process. One perspective that places greater emphasis on the individual element of expertise, is provided by the theory of technocracy. Technocracy usually refers to assessments of entire societies, or centralised structures of government. It is defined as 'rule by expertise', whereby political and ideological debate is removed from policy debate. Policy is determined by an apolitical, administrative and technical process by technocrats. However, in addition to its use at a systemic level, the concept is also useful in policy analysis by employing its core characteristics in empirical assessments of specific areas of policy.

This thesis uses the theoretical concept of technocracy as the basis for an analysis of expertise, and more specifically the nature of expert influence in two areas of policy-making in Britain. It argues that expert groups will operate at different levels within policy areas. The exact level will depend on the nature of the expert group itself, and the characteristics of the policy area. Moreover, technocracy is remodelled to demonstrate that technocratic structures may exist at specific levels in the policy-making process, and not just at a systemic level. In addition, the thesis also contends that the primary reasons for the use of expertise in policy areas are the inherent complexity of both the policy-making process, and the nature of the policy area, and a corresponding requirement on behalf of policy-makers to legitimate policy decisions before a wider public.

The thesis analyses what is meant by the terms 'expert' and 'expertise', and places these definitions within the historical context of policy-making in Britain since 1945, to demonstrate not only that the definition of the expert has altered, according to circumstances, but that the demand for expert input by policy-makers has varied during this period, a period that has witnessed an expansion in state activities. The final part of the thesis examines these issues within two distinct areas of policy-making in contemporary Britain: the siting of the route for the Channel Tunnel Rail Link, and the relationship between air pollution and asthma. In these case studies it is shown: that both policy areas demonstrate a high level of expert input into policy-making, due primarily to the highly complex nature of both the subject matter, and the process for policy delivery, and a corresponding requirement of legitimacy on behalf of policy-makers. Both areas show a tendency towards technocratic management, whereby political and normative debate is removed from policy decisions, and that the main implication of such an assessment is the effect on democratic processes, particularly political participation.

The development and expansion of state responsibilities since 1945 has led to an increased use of research and expert opinion. At the present time governments are responsible for the welfare state, the provision of favourable economic conditions, and the regulation of various areas of human activity, amongst many others. Advice is certainly a characteristic of policy-making in contemporary society. It is considered acceptable and desirable for policy-makers to be seen to be receiving as much advice as possible. This development in state responsibility has witnessed a number of different phases. The immediate post-war period and the 1950s was a time of limited confrontation on ideological grounds. Instead a post-war settlement produced an era that allowed experts to influence, to a large extent, policy detail. This could be described as technocratic influence, but it was more an example of delegation due to political necessity, because of the need for post-war reconstruction, rather than a proactive transfer of responsibilities. This situation altered during the 1960s and 1970s, when a perceived lack of input from experts into policy processes enabled the development of new professions and an expansion in the number of social and policy scientists. This period itself waned in the late 1970s. Since then the use of experts has been geared, primarily, towards providing legitimacy to commercial and political interests. There has also been a backlash against the notion of 'big government' and a challenge to the public sector from private sector methodologies, providing the conditions for the

rise in new forms of expert group such as think-tanks, and the development of regulation in many areas of policy, an administrative and institutional response to policy-making.

Regulation is itself a dominant element in the two case studies. Although they are two distinct areas of policy they share common traits, including a trend towards regulation in terms of policy formulation and outcomes, an incrementalist approach to the provision of policy solution, an increasingly centralised policy domain, and a focus on the environment. The issue of air pollution and asthma is not a new policy concern. In terms of policy response it is an area dominated, historically, by regulatory mechanisms. This altered slightly during the 1980s when moral themes became an important element in the policy area. This period saw a greater incorporation of environmental issues within political debate in general. Today, the area can be described as possessing a combination of moral and regulatory themes, with a tendency towards technocracy. Policy is determined, to a large extent, by administrative regulation, the use of standards and agencies created to enforce them. Nevertheless, the moral element of environmental policy-making remains present. Consensus on many issues has not been reached sufficiently to remove this feature from the policy process. The policy area is a highly complex one, dominated by the use of quantitative research, and, as a result, by a high level of involvement by experts. As a result expertise determines the nature of the political discourse.

The air pollution policy area is large and as such is a concern of environmental policy in general. The potential relationship between air pollution and asthma forms a primary sub-sector of the policy area. The institutional response to environmental issues in the 1970s produced new actors and organisations in the policy process, primarily the Department of the Environment, but also at a higher level, most notably the European Union. It also saw a greater professionalism from pressure groups and non-governmental organisations. The expanding and inclusive nature of the policy process signalled a trend towards technocratic management of the environment, that continues today with the creation of the Environment Agency, and the use of Environmental Assessment. Furthermore, this technocratic element is evident in this issue because of the cross-sector nature of air pollution and asthma. Air pollution and asthma is as much, if not more, a health issue as an issue of the environment. A link between air pollution and asthma has, therefore, serious implications for policy because air pollution is a

cross-sector policy area. In addition to its cross-sector nature asthma is important as it represents one of the most common chronic diseases in the western world. Expertise is crucial to this area because it covers both technical health issues and environmental issues, which are beyond the knowledge of the lay public. As a policy area air pollution and asthma reflects the difficulties presented by the relationship between technology and policy. This is because it is a highly complex policy area, resulting from *inter alia* the collection of data, in which governments have been involved for over a century, the determination of whether or not a problem exists, and the provision of policy solution. Expertise is crucial in this respect as important issues are considered to be those requiring special knowledge.

The second policy area, the siting of the route for the Channel Tunnel Rail Link, is also a highly prominent policy area in contemporary society, but for different reasons. The final route has now been selected, but construction has yet to commence, with current difficulties surrounding the funding of the scheme. It has certainly been a protracted project, taking over 12 years from conception to the production of a final route alignment. The Channel Tunnel Rail Link scheme highlights the interaction between policy and planning. This is because politics is concerned with resource allocation and is, therefore, not something that can be removed from technical planning issues; the two elements are connected. As with air pollution and asthma, the environment has become an increasingly dominant theme in transport provision, especially with large infrastructure projects. Today, environmental debate is concerned, primarily, with universal issues, as opposed to the specific problems that were characteristic of environmental policy solution during the 1970s. Again, as with air pollution and asthma, this highlights a technocratic tendency in policy provision. This is demonstrated by the institutional response of governments: the creation of the Environment Agency and later the Department of Environment, Transport and the Regions (DETR); the high level of influence of the European Union; and the practice of Environmental Assessment. This trend is in keeping with the development of planning since 1945, a period that has witnessed an increasing politicisation of processes, and an increasing complexity of land-use planning procedures. These issues have been brought to the attention of the public in such a dramatic fashion because the Channel Tunnel Rail Link represents the first mainline railway to be constructed in Britain for over a century. As a result, it presents unique difficulties, not only in its construction, but also in its impact on a policy process not used to dealing with such schemes. Public opposition to railways schemes is not new. However, the difference

between protest during the nineteenth century and the present day is that the policy process for planning such large infrastructure projects is more complex. As a result the route alignment of railways is a relatively new area of academic study. Complexity is an inherent element within the policy process, provided primarily by the topographical profile of Kent. This is portrayed most starkly when it is compared to the north-west of France, where the connecting section of a high-speed link to Paris has already been completed. Because of the uniqueness of the project and the complexity created by such a scheme, expert input is instrumental in the planning process.

In order to explore the use of experts within these two case studies a number of issues need to be addressed. The concepts of expert and expertise require analysis to provide definitions to test within the policy areas. In addition, an assessment is needed of the exact role that experts play in policy areas in contemporary Britain. A related issue is the nature of expert influence; this will vary between policy areas and will be dependent on the nature of the political climate. Therefore, analyses of definition, role, and nature of expert influence will provide a clear approach for assessing the use of experts in the two case studies. In addition to these three elements a thorough examination is required of the reasons for expert involvement in policy. This is an important area as it leads us to ask questions about the democratic implications of expertise in contemporary society.

In addition to the assessment of these theoretical concepts an historical context is also important. Expertise has certainly been a key element in policy-making since 1945. This provides the historical background against which to judge contemporary events and permits the evaluation of trends. An assessment of the exact nature of expert influence is therefore, both a theoretical and empirical endeavour. In order to provide this a review of the relevant literature is required.

1.2 LITERATURE REVIEW

As has been discussed above the primary theoretical framework for this thesis is provided by theories of the expert and technocracy respectively. This literature review demonstrates that technocracy can be applied at specific areas of the policy process, and not just at a systemic level. The literature review also examines the definitions of expert and concludes that only a comprehensive definition,

encompassing more than one perspective, is sufficient for use in empirical analyses of policy areas. It goes on to look at the how expertise manifests itself in policy areas through an assessment of the types of mandate that expertise will operate under, concluding that, to a large extent, experts operate on either moderate or extensive mandates, which translate into a formal influence on policy outcomes. The reasons for the use of expertise in policy areas are also examined. The review reveals that complexity and legitimacy are the primary reasons for a significant use of expert knowledge in policy decisions. In addition to this review of theoretical literature, an assessment is made of the historical development of experts in policy areas, in Britain, since 1945. It is shown that since 1945 there has been a diversification and proliferation in the number and type of expert group operating in policy areas. Moreover, that the nature and demand for expert knowledge from policy-makers has altered significantly.

The traditional conception of expertise is located within theories of technocracy. Historically this has been with the normative aspect, illustrated by observers such as Bacon, Comte, and Veblen, that experts *should* rule. The contemporary form, however, centres on whether experts *do* rule, or at least have extensive influence. As Fischer (1990) and Williams (1971) indicate, technocracy can be defined as 'rule by expertise'. Yet, this will vary between institutional settings (Williams, 1971). Therefore, 'technocracy' is best utilised as an approximation to which empirical assessment may be made (Centeno, 1993). To do this an evaluation of the central themes of technocracy is needed. Fischer (1990) highlights the core characteristics of technocracy: a neglect of normative reason, and an apolitical ideology. By taking these core characteristics examination may be made of specific policy areas to assess the level of technocratic tendency within them. Therefore, technocracy can be described as an ideal, or logical end-state of rule by experts. It is a transfer of control from political or democratic processes to technical ones. However, its more important use is through its key themes, and their application at specific levels of the policy process.

The exact level of specialised knowledge and organisational control are important factors (Burris, 1989; Aberbach et al, 1990; Meynaud, 1968). This means the influence of technocrats will depend on the degree of deference to technical concerns (based on assumptions that there is objective knowledge) over and above political considerations within policy areas, and the level of cohesion and consensus between technocrats in policy-making organisations. This consensus

and cohesion will, in turn, affect the way in which technocrats may have influence. Centeno (1993) is instructive in this respect. If experts are able to transfer complex technical issues to political ones then political discourse will limit participation within policy areas to those conversant in technical languages. Moreover, expert opinion will be viewed as possessing greater legitimacy than that of uninformed opinion. Therefore, although this theoretical assessment of technocracy is important, it leads to the conclusion that it is more beneficial in a theoretical sense as an ideal, against which empirical approximations may be made.

Empirical assessment of policy areas has become an important area of political analysis, not least because the notion of 'policy' is the primary focus for political debate. As Wright (1994) shows, individual elements such as expertise, legitimacy, and complexity should become the focus of attention. A result of this is the need to define 'expert'.

The definition and role of the expert are necessarily linked. This is because when analysing expertise in policy areas one cannot be separated from the other, since they cannot operate as isolated purveyors of pure science or advice. This points towards a combined definition of the expert. Experts are possessors of formal or technical knowledge, whether pure or applied (Friedson, 1986; Etzioni, 1968). However, in order to operate within policy areas experts require legitimate status. Therefore, they operate as agents of formal knowledge subject to occupational control (Aberbach et al, 1990; Brint, 1990; Johnson, 1979, Laffin, 1984; Collins, 1990a). Expertise is thus a product of position achieved through a combination of training and a professional career system. In addition to this, the nature of the policy area itself will help to determine the exact role of expertise (Barker and Peters, 1993), because policy-makers require different types of information according to circumstances and could be technical or non-technical. Barker (1993) suggests that the role of experts within policy areas is primarily for the provision of technical information. Yet, the demarcation line between technical and political issues is often blurred (Parsons, 1995). It results in the fact that experts may be employed to provide information that is beyond strictly technical information, and more like advice that involves normative opinion and political considerations.

What is more important, over and above that of the definition and role of expertise, is the relationship of experts to the policy process, their methods of influence, and the reasons for it. It is contended that the most important level of influence is at the systemic level, or more specifically, the way policy-makers attempt to alter public

opinion on the basis of expert influence (Benveniste, 1973; Fleming, 1988; Habermas, 1976). This structural influence is similar to a pervasive professional or expert social ideal (Perkin, 1989), whereby society as a whole tends towards the acceptance of expert over political or lay opinion. In addition to this system-level influence, experts also may have influence in specific policy areas (Brint, 1990). For example, this influence can be as merely 'servants of power' to policy-makers, where experts operate as withdrawn advisers. They may alternatively have a technocratic influence, whereby expertise is central to the policy area and where there is complete delegation of power to experts (Brint, 1990; Benveniste, 1973). There will also be other levels of influence along a continuum with servants of power and technocratic influence at the two extremes. This differentiation between types of influence is important because it permits an empirical assessment of the type of influence exercised in particular policy areas.

Saward (1992) and Topf (1993a) highlight that this influence will be dependent on supply, that is, the level of cohesion between expert groups, and consensus and agreement on information and theories demonstrated by experts. This can occur not only in policy at a local level, but also at an international level (Haas, 1990), where a consensus on particular issues may be found between leading experts in the field on a global scale. The corresponding demand for expert opinion is also an important element in determining the type of mandate that is provided to experts by policy-makers, and the subsequent level of influence on policy that is exercised. The demand is the nature of the political climate at that time, or on a more practical level, the level of co-option of experts by policy-makers (Saward, 1992; Torstendahl, 1990). The important result of this assessment is that the exact levels of both mandate and influence are determined by the interaction between supply and demand of expert opinion, and can be determined empirically in particular policy areas. Therefore, the level of agreement or consensus between experts will determine the level of influence of expertise within the policy area. Similarly, the prominence of the policy problem on the political agenda, and the desire or need for expertise by policy-makers, will impact on the type of influence. It is beyond any question that expertise does have influence despite claims to the contrary (Collingridge and Reeve, 1986). It is the level within specific policy areas that is important. A related factor to the level of influence is the reason, or reasons for the need for expert input into policy areas.

The existence of complexity and a requirement of legitimacy on behalf of policy-makers are the primary reasons for the use of expertise in policy areas. Saward (1993; 1992) highlights the importance of legitimacy. He demonstrates that it is required not only for the basic political survival and credibility of governments, and policy-makers, but also because expert advice must satisfy both the public, and participants in the policy area. Beetham (1991) has also pointed to legitimacy as an important element in policy-making. He shows that expertise is utilised by policy-makers because of the premise that matters of the public interest must be concerned with special knowledge. Moreover, as O'Riordan and O'Riordan (1993) show, this is important in areas of technical debate such as the environment, because policy-makers must at least be seen to be providing thorough public examination of all relevant issues. In return, policy-makers must seek regular reaffirmation of their policies through institutional mechanisms (O'Riordan, 1976; Beetham, 1991) as legitimacy is conferred, first and foremost, by the public.

The other primary reason for the use of expertise in policy areas is complexity and is related to legitimacy as the latter can spring from the former. However, legitimacy may exist also as an independent factor. Zolo (1992) shows that complexity is not a trivial matter in policy areas. Rather than being a thing in itself, that is to say, representative of an increasingly diverse and interrelated society, it is a cognitive situation in which agents find themselves. Complexity within policy areas takes two forms: epistemological and social. The latter is generated from the notion of inter-dependency and the increase in the selection of possible outcomes evident in policy areas. The former is determined by the inability of policy-makers to comprehend the policy process in its entirety (Zolo, 1992). Policy-makers are unable to remove themselves from the historical or social circumstances of the policy areas (Etzioni, 1968). This complexity leads to demands not only for new forms of knowledge (Fischer, 1990), but also permits the use of expert opinion to deal with complex issues (Dennis, 1977). As Dryzek (1990) illustrates, the notion of complexity in policy areas is the major factor in accounting for the rise in the use of expertise, as societies diversify, but co-ordination increases. As a result, because complexity cannot be eliminated this poses democratic difficulties for societies, as there is no objective observation language free from social or cultural bias. Value judgements cannot be avoided (Etzioni, 1968; Zolo, 1992).

An important factor in the development and growth in expertise in policy areas has been that of the welfare state. It heralded new institutions in areas such as health and education (Gough, 1979). The immediate post-war period saw the increased use of experts because of political necessity, a delegation of power to experts in terms of policy detail, as a result of the post-war political settlement. Professional expertise was crucial in this area. Professionals and experts provided legitimacy as the transition was made to the managed welfare state (Heidenheimer, 1989). Indeed, during this transition the development of the welfare state was directly dependent on experts and professionals. They were the mediators between the state and the public (Bertilsson, 1990). Indeed, the public sector is still an important area for professional influence (Brante, 1990). In addition to the expansion in the number of traditional professionals, the post-1945 period also witnessed the development of new types of expert and expert group, such as the creation of policy units, parts of the policy process dedicated to providing technical input into policy areas (Prince, 1983). These were formed as a response to the complexity of policy areas and sought to achieve objective input, because of the perceived inadequacies of administration in the 1960s. This period also saw the development of policy sciences, a discipline of knowledge in and of the policy process (Lasswell, 1970; DeLeon, 1991; Hogwood and Gunn, 1984). Part of the reason for this was a response to the complexity of events, and a desire for a generalised approach to policy formulation, through what was termed a 'systems-based' approach (Heclo, 1972). Therefore, it was the scale of the use of expertise that altered. Social science expertise became a form of professional activity (Wagner et al, 1991) and career paths were generated through state control of a number of these new professions (Johnson, 1979; Perkin, 1989).

Further change occurred during the 1980s and 1990s, with expertise being tailored to suit particular interests and political standpoints. Rather than focusing on administrative adjustments, expertise was employed to reinforce the introduction of new ideas into the policy process (Wittrock et al, 1981; Smith, C. S., 1991). This emerged out of a demand from policy-makers facing seemingly intractable policy conditions during the 1970s (Larson, 1990), and an expanding social science education sector focusing its attention on specific policy issues (Ham and Hill, 1993). A related theme was the backlash against the notion of 'big government', and a challenge to the public sector by the private sector, such as the demand for policy efficiency, and new methods for management (Wilson and Doig, 1996; Parsons, 1995; Perkin, 1989; Tarschys, 1993; Ham and Hill, 1993). The most

important issue was that policy became focused on policy ends and not only the nature of the policy process. This signalled changes in the relationships between professionals and experts to policy-makers (Siegrist, 1990; Smith, J. A., 1991), altering the nature of the way experts were employed, from a sense of pragmatic purpose, to one of ideologically-oriented advice, through new mechanisms such as think-tanks. Groups such as these provided the intellectual legitimacy for political decisions (Parsons, 1995; Stone, 1995; Hames and Feasey, 1994). This orientation also provided a more pluralistic environment for expertise. Therefore, the 1980s and early 1990s represented an alteration in type *and* level of expert involvement in policy. Majone (1994) argues that this can be seen with the development of regulation, and the increase in the use of agencies, a response across Europe in general to the problem of complexity.

In addition to placing the theoretical and empirical elements of the thesis in the context of the relevant literature and historical events, an outline of the methodology of the thesis is also necessary.

1.3 METHODOLOGY

The thesis employs three main methodological approaches: qualitative research, discourse analysis, and case studies.

The nature of policy-making is a complex area for political analysis. Qualitative research is the most appropriate method as it can provide the descriptive detail that makes complex systems, such as policy areas, comprehensible (Finch, 1982, p. 162). Indeed, the reason for the use of qualitative research in policy areas is,

‘... underpinned by the persistent requirement in social policy fields to understand complex behaviours, needs, systems and cultures.’ (Ritchie and Spencer, 1994, p. 173)

Despite the unwieldy nature of the material analysis is still possible. This is achieved by *inter alia*, defining concepts, understanding the internal structures of the policy area, mapping the range of the material, and analysing the nature and dynamics of the subject. This facilitates the creation of typologies, categorising ‘types’ that have been discovered, and finding associations, such as the generation of new theory (Ritchie and Spencer, 1994, p. 176).

This thesis concerns the notions of expertise, technocracy, complexity, legitimacy, and more precisely, the nature and level of expertise utilised in the policy-making process. It asks both empirical and normative questions about the role of expertise, and about the democratic implications of its presence in policy areas. This is achieved through an assessment of what is meant by the central concepts above, and by the use of these to assess the nature and level of expertise in two case studies. The final area, to assess the implications of such an analysis, is an examination of the case studies in the light of the theoretical assessment of these concepts in both empirical and normative ways.

One qualitative method that will be employed throughout the thesis is discourse analysis, the idea that individuals participate in forms of understanding, comprehension, or consciousness of the relations and activities in which they are involved. This can be maintained through signs and language transmitted between people and institutions (Purvis and Hunt, 1993, p. 2; Potter and Wetherell, 1994, pp. 48-49). Discourse analysis can take the form of assessing how individuals construct their talk and texts to display their ideas and arguments as acceptable in a particular setting. It may also take the form of an assessment of how institutions, practices, and individuals can be understood through the working of a particular set of discourses. The former is considered the more appropriate because it allows empirical assessment of the political questions, rather than merely linguistic questions. Therefore, this thesis concerns the procedure in which texts are constructed and made to appear factual, and also what makes the arguments provided by experts persuasive. This approach represents a dual emphasis: the procedure by which texts are constructed and made to appear factual, and the general resources used to construct the discourse in order to make the arguments persuasive.

Political discourses can be separated into a number of factors. First, an ontology, a set of entities agreed or accepted as existing within a policy area. Second, the relationships between these entities. Third, motives that are assigned or derived from these entities. And finally, a conception of natural and unnatural political relationships (Dryzek and Berijikian, 1993, p. 51). The ontology is assessed in Chapters 2 and 3, with evaluation in both theoretical and historical terms of concepts such as expertise and technocracy. The relationships between the various entities or elements within the policy areas are explored throughout the thesis.

The motives of these entities are also explored throughout the thesis, but predominantly through the case studies, where the motives of experts and expertise will be examined. The final element, political relationships, concerns the relationships and hierarchies that may be taken for granted, such as wealth, social class, and so on. Where necessary definition and explanation is required this will be provided.

A discourse is a system or structure with its own internal organisation, and in specialised discourses (such as those 'dominated' by expertise) there may be strong cohesion between entities (Purvis and Hunt, 1993, p. 8). In this way the discourse will channel the discursive possibilities, that is, it will facilitate certain statements, and impede others. Thus, it permits and demarcates what is part of the discourse. This is what allows the demarcation of the area for the theoretical overview.

The final methodological tool is case study analysis. Case studies are particularly useful for research into policy-making,

'In the examination of the impact of policy, case studies are increasingly recognised as having an important role ... since they are able to illuminate the effects of implementation on everyday activities.' (Bryman, 1989, p. 172)

In addition to this benefit, case studies are a flexible form of research design. At a simple level they provide descriptive accounts, but at their most vigorous they may achieve isolation of social or political factors, and most importantly, the isolation of these factors in particular settings. In between these two extremes lies a multitude of case studies used to test-out theories, generate new theory, redefine concepts, assess patterns and correlations, and provide replication.

The case study approach adopted within this thesis is that of the 'critical' version of the 'experimental isolation case study', that selects particular social and political factors (the notion of expertise) within a real-life context, to test-out theory or generate new theory (Bryman, 1989, pp. 170-173; Hakim, pp. 62-67). Therefore, the case studies do not examine observed patterns or correlations (as found in the 'causal' version of this type of case study) as the actual process of the policy area is not the primary area of examination. Rather, the case studies explore models of technocratic and expert influence, to examine the exact nature and level of this influence, so that they may be compared and contrasted. Although the examination of observed patterns and correlations may be necessary in the 'critical'

form the primary aim is, in contrast, to test out or generate new theory and for this reason the critical and not causal type is employed here.

Case studies can take a number of forms: individual case histories, providing detailed examinations of individual perceptions of a particular issue; community studies, usually containing descriptive material about a particular area; social groups, where the examination is usually concerned with patterns of relationships; studies of organisations or institutions, such as the relationships of expert groups to the policy process; and finally, the study of events, roles, and relationships, which is, in essence, a combination of the previous two. Policy analysis can encompass all these areas. However, in this thesis, emphasis is placed on the first three of these forms, with less emphasis being placed on spatial communities, although the extent to which this is so varies between the two studies.

In addition to the complexity within the policy areas under examination as discussed above, there is the inherent complexity in the very nature of an analysis of a complex area, not only in terms of perception and understanding of the material involved, but also in terms of the material providing an adequate representation of the policy area. Time constraints affect significantly the amount of material that may be considered. It is hoped that if the case studies are not 'totally' representative they may be illustrative of the case study area.

In summary it may be argued that qualitative methodology is particularly pertinent in policy research, because it permits the analysis of complex social, political, and economic factors. Qualitative research is the most appropriate methodological approach for this thesis as policy areas are complex and deal with empirical and normative issues. The objectives of any research need to be directed towards answers or conclusions. The nature of these answers will have influence over the form, and indeed function, of the analysis undertaken. It is because of the nature of both the expected conditions and the objectives of this thesis that qualitative analysis has been adopted.

As well as providing a review of the important literature and a evaluation of the methodology adopted for the thesis a plan of the thesis is also required.

1.4 PLAN OF THE THESIS

In addition to this introductory chapter the thesis contains eight further chapters. Chapter 2 provides the overall theoretical framework of the thesis, and supplies a full literature review of the salient theoretical issues. It explores and reviews the themes of technocracy and expertise, and provides definitions of these concepts to employ in the case studies. Technocracy is assessed not only as a macro concept, but also as a concept that may be utilised in specific areas to describe particular relationships. Therefore, the review contains assessments of both technocracy and expertise as separate, but complementary, concepts. This factor is important for the case studies as both concepts are examined within them to assess the level of expert influence. The literature review also explores two other analytically distinct, but complementary concepts: complexity and legitimacy. It is argued that a prevalence of the former, and the necessity of the latter, are the primary reasons for expert dominance in some policy areas. Moreover, that legitimacy may flow from complexity, but like complexity, legitimacy may itself be an independent factor.

Chapter 3 focuses on placing the theoretical issues of Chapter 2 in an historical context, and traces the development of the use of expertise. An emphasis is placed on how the nature of expertise has altered in the post-1945 period. This focus is achieved through the assessment of various types of expert group, social scientists, policy scientists, planners, professionals, and so on. It provides a useful and manageable format for analysing complexity and legitimacy in policy, and provides a controllable approach for assessing how policy has become increasingly complex. This chapter represents an historical account of the increased use of expertise, as well as charting how the nature of this expertise has altered. It is organised chronologically to highlight how this nature has evolved.

Primarily for practical purposes, the case studies focus on contemporary incarnations of expertise rather than trace a detailed historical overview and draw upon both primary and secondary material. The case studies selected are comparable in terms of their sub-sector status, but qualitatively different in nature: the issue of air pollution and asthma, and the siting of the route for the Channel Tunnel Rail Link.

1.4.1 Air Pollution and Asthma

The selection of asthma as one issue connected with air pollution is as much an analytical decision as a theoretical decision of using a sub-sectoral issue. Air pollution is such a broad and complex policy area that asthma provides a suitable focus for empirical assessment. Analysis is made via some of the principal participants involved in the policy process, and assessment of the opinions of these groups on the nature and effects of individual pollutants on public health, rather than the problem of air pollution as a whole. In this way comparison can be made between experts and expert groups in terms of their opinions on these important issues, and their perception of the relative importance of each.

The case study is separated into three chapters. Part one of Chapter 4 provides historical context to the issue of air pollution and asthma in Britain over the past 100 years. In particular, the statutory and regulatory mechanisms employed for its control. The chapter also points to the level of complexity inherent within the policy area and sets out the aim of the case study, that is, to assess the nature and level of expert influence of a particular set of expert groups and the reasons for it. These themes are explored in greater detail in Chapter 5, where the policy issue of air pollution as a whole is analysed. It assesses the development of environmental policy since the 1970s and asks whether or not this policy area is tending towards technocratic management. It analyses also how the notion of air pollution has altered conceptually, and the effects of new pollutants on public health. The primary objective of Chapter 5 is to draw attention to the link between air pollution and asthma, and how the various elements within it demonstrate the complexity of the policy area. It highlights the important areas of debate in which experts are involved.

Chapter 6 takes this analysis one stage further, examining the wider political, social, and economic effects of the relationship between air pollution and asthma. Furthermore, it analyses the role of some of the principal participants in the policy process, combined with the expert opinion used in debates on the nature of individual pollutants, and their effects on public health. It is here that examination is made of the type of mandate under which experts operate, the exact nature of influence on policy formulation and outcomes, whether or not there is a tendency towards technocracy, and whether or not the reasons for this are a prevailing complexity, and a corresponding requirement for legitimacy by policy-makers.

1.4.2 Channel Tunnel Rail Link

The siting of the route of the Channel Tunnel Rail Link was selected as a representation of a sub-sector of transport policy. Environmental issues of the route selection provided a legitimate empirical approach to the policy area in the same way that individual pollutants offers a similar mechanism for entry into the air pollution and asthma policy area. By selecting one area such as environmental considerations, comparisons can be drawn over its relative importance to other considerations such as economic, social, and political factors. In the same way as for air pollution and asthma, a particular set of expert groups and their output were selected as providing mechanisms for examination of the nature and level of expert influence within the policy areas.

Chapter 4 contains the historical context for this case study. It traces the development of the Channel Tunnel project from the end of the nineteenth century, through the abandonment of a similar project in the mid-1970s, to the current rail infrastructure scheme. As with the air pollution and asthma case study, it points to the complexity inherent within the policy area. The chapter also sets the aim of the case study, to assess the nature and level of expert influence of the particular set of expert groups. These themes are explored in more detail in Chapter 7. It examines the policy issue of the Channel Tunnel Rail Link in greater depth, making analyses of planning and policy as distinct, but interrelated concepts. It also examines the relationship between transport policy and the environment. In particular, how this has changed and developed since 1945. It pays special attention to the concept of Environmental Assessment, a dominant theme in environmental issues, and of transport projects in particular. It poses the question of whether or not this development demonstrates a tendency towards technocratic management of the policy area. The chapter also draws attention to the complex nature of the policy area. Furthermore, it covers a detailed history of the Channel Tunnel Rail Link, and a comprehensive account of the planning of the route, and how, in general, the public is involved in the planning of transport infrastructure projects. A detailed chronological assessment is given of the changes to the route made since the late 1980s up until the final route alignment. A more comprehensive chronological overview of this is provided in an appendix.

Chapter 8 takes the assessment of these issues one stage further, examining the nature of railway planning, and the political, social, economic, and environmental aspects of transport planning and the Channel Tunnel Rail Link. In the same way

as for the air pollution and asthma case study, an analysis is made of the principal participants in the policy process. It is here that important questions are posed about the type of mandate secured by experts over the environmental issues of the route alignment, the level of influence on policy formulation and outcomes, and whether or not this indicates a trend towards technocracy within planning issues and the environment. To illustrate the level of influence particular emphasis is placed on the role of expert groups in the debates on noise and visual intrusion on the landscape. It also explores the contention that the primary reasons for the use of expertise are a prevalence of complexity, and a corresponding requirement of legitimacy.

Conclusions to these chapters are provided in Chapter 9. It draws together all of the important elements, a summary of which is provided below.

1.5 SUMMARY

It is concluded that despite technocracy being primarily a concept employed at a system level, the characteristics of technocracy may be employed in specific policy areas. It provides the background conditions and framework that can be used to analyse the variable of expertise in policy areas.

Experts are characterised as providers of formal knowledge, be it pure or applied, within areas of occupational control. Experts were provided with an extensive mandate for both the Channel Tunnel Rail Link and air pollution and asthma policy areas. The influence of experts is seen both at a systemic level and at a 'formal' level in the two policy areas as there is a direct delegation of responsibility to experts for particular areas of policy. This influence is dependent on the nature of supply, the nature of consensus achieved by experts in the relevant area, and the demand posed by policy-makers. The level of demand for experts in policy-making has altered significantly since 1945. Today, experts operate in a pluralistic environment, with expertise geared towards providing legitimacy for particular commercial and political interests.

A prevalence of complexity and a corresponding requirement of legitimacy are the primary reasons for the employment of experts. The requirement of legitimacy is itself a result of complexity, although it may also exist independently. The main

implication of such an analysis is the effects on democratic processes, for experts are instrumental in determining the nature of political discourse in certain areas.

The two case studies, although representing analytically distinct policy areas, share common themes of regulatory tendencies in terms of policy provision, the environment, and complexity. Both issues are also highly contemporary, and policy debate involves a diverse range of participants, from the European Union through to local communities. Both policy areas are centralised, with the government as the dominant actor. In addition, the policy areas possess high levels of complexity, with epistemological complexity the primary form for air pollution and asthma, and social complexity being the dominant form for the Channel Tunnel Rail Link.

It is concluded that both policy areas demonstrate expert influence on a formal level, although there is evidence in both to suggest a tendency towards more technocratic influence. This is because experts are instrumental in determining the nature of the political discourse and have impact on policy outcomes. Furthermore, both areas demonstrate evidence of a high level of co-option of experts by policy-makers. This is in order to deal with the high level of complexity, and as a result to provide legitimacy for the policy preferences of policy-makers. The main implications of such an assessment are the effects on democratic processes, namely the effect on individual political participation, the increasing centralisation and co-ordination within the policy areas, and the increasing levels of power exerted by expertise within these areas.

CHAPTER 2

THEORETICAL OVERVIEW

'The increased power of officials is an inevitable consequence of the greater degree of organisation that scientific technique brings about. It has the drawback that it is apt to be irresponsible, behind-the-scenes power, like that of emperors' or kings' in former times. To discover ways of controlling it is one of the most important political problems of our time If we are to recover our past prosperity, we shall have to find ways of emancipating energy and enterprise from the frustrating, constitutionally timid ignoramuses.'

(Bertrand Russell, 1952)

2.1 INTRODUCTION

This chapter examines the important theoretical elements of the thesis. Most importantly, it provides definitions of technocracy and expertise, assesses the nature of expert influence, and the reasons for the use of expertise by policy-makers.

Experts and expertise are important elements of contemporary society. This is illustrated most strikingly in the debate over the definition of contemporary reality: 'technetronic', 'post-industrialist', 'information society', 'post-modernist', and so on. Although it may be unclear as to the extent to which expertise has influence in contemporary society, what is certain is that expertise plays a prominent role in decision and policy-making systems. Moreover, the legitimacy of contemporary states has been maintained by a notion of liberal democracy. However, the nature of industrial society has, to a large extent, undermined democracy. Liberal societies are premised on the notion of democracy, but expertise and technology have made it increasingly difficult for citizens to have any influence on policy outcomes.

It is contended that all policy areas require some element of expertise (Barker and Peters, 1993, p. 1). This however, will depend on the nature of the policy area and what is meant by the term 'expert' and more generally, 'expertise'. It might be

argued, in a more useful manner, that it is a characteristic of the contemporary democratic state to be seen to be receiving as much advice as possible, irrespective of whether or not expertise is used as a positive input into policy areas (Peters and Barker, 1993, p. 1). In this way expertise is sought not only to make correct decisions, but also to legitimate them. Because the nature of expertise will vary according to policy area this reinforces the view that government is not a unitary actor, but a set of differentiated institutions, and concerned with diffuse policy areas which all require different information systems and possess different information requirements. The primary approach to assessing the role of experts and expertise is provided within theories of technocracy.

2.2 TECHNOCRACY

For technocracy the fundamental issue is not the role of experts, but rule by technical expertise. Thus technocracy is defined as,

'A system of governance in which technically-trained experts rule by virtue of their specialised knowledge and position in dominant social and economic institutions.' (Fischer, 1990, p. 17)

Technocracy is defined as a simple, cohesive network in order for government to apply technical knowledge by political means (Williams, 1971, p. 25). However, there is no single theory of technocracy as definitions will vary within institutional settings. Technocracy will, however, display certain core characteristics. First, there is apolitical ideology. Here politics is a problem, not a solution. Politics is abandoned as it produces unnecessary difficulties. An apolitical ideology seeks to assess the rational approach to policy-making, where the solution has primacy over and above the method for achieving that policy, as there is only one 'rational' method. Second, technocracy neglects normative reason. This is supposedly a 'value-free' methodology reflected through an administrative conceptualisation of problem-solving and policy formulation, which is a 'de-politicisation' of politics (Fischer, 1990, p. 22 and pp. 41-45). Solutions are sought on the basis of technical and administrative reason, avoiding what would be considered superfluous political debate. Issues would be dealt with on the basis of instrumental rationality. Technocrats pursue desired effects of policy through the application of rational methodologies.

Centeno argues that these core characteristics must form part of any comprehensive definition, as the simple definition of 'rule by technical means' is insufficient. This is because rule by technical means has been applied, traditionally, to prescriptive accounts of how experts *should* rule. The most prevalent, contemporary use of the term technocracy, is one that deals less with the normative issues presented by Bacon, Comte, and Veblen of whether experts should rule, but instead the political perspective, whether experts *do* in fact control administration and the economic and political process (Centeno, 1993, p. 309). Therefore, in addition to these core characteristics, the definition of technocracy may be approached from the perspective of technocrats themselves. Here technocrats, and so technocracy, are defined by their professional career path. This definition places them as a sub-group of bureaucrats who possess specialised knowledge (Centeno, 1993, p. 310). Experts are, therefore, defined by their education; their progression through a formalised educational process. In this definition power is critical because the technocrat is placed in a position of high responsibility. However, this descriptive definition has little value in isolation, for it characterises technocrats as impotent policy actors, reactive rather than proactive to policy problems. Instead the fundamental issue is an ideology of method, a rational approach to policy-making, and as a result the important element in assessing a technocratic framework is an analysis of cohesion and consensus between experts. Thus,

'The most critical task for the analysis of technocracy must be the identification of a specific and common perspective on policy-making, which is determined by the social, educational, political and professional background that these persons share. Without such an ideological congruence, technocrats will remain relatively passive actors in a process dominated by other persons and institutions.' (Centeno, 1993, p. 310)

As a result, technocracy is best characterised as an ideal type to which approximations can be made. Therefore, empirical studies can assess the penetration of technocratic elites into policy areas, the extent to which expert institutions, organisations, or professions, dominate policy areas, and the degree to which policies reflect technocratic method and implementation. This approach is taken up by Aberbach et al (1990). They argue that policy-making may be deemed technocratic if the attitudes of policy-makers emphasise the technical aspects of policy at the expense of the political. Similar claims are made by Burris (1989). She argues that technocratic control is a form of organisational control. Thus,

'Technocratic organisations are characterised by a flattening of bureaucratic hierarchies, a polarisation into expert and non-expert sectors, an erosion of

internal job ladders and increased importance of credential barriers and external credentialing, the growing importance of technical expertise rather than rank position as the primary basis of authority.' (Burris, 1989, p. 314)

What can be seen from such an analysis is that assessment can be made of the tendency towards technocracy that may occur within organisations and administrative structures. Williams (1971) and Fischer (1990) also highlight this approximation to an ideal type. Williams shows that independent organisations may reveal independent 'technostructures'. Fischer argues in similar vein. Technocracy is an ideal, not a description, and therefore practice will fall short of this ideal. What does remain is a 'politics of expertise' where the ethos of a technocratic framework can be detected in administrative structures (Fischer, 1990, p. 110). This leads Fischer to claim that the contemporary image of the expert is no longer that of a technocrat, as the emphasis in policy-making is upon knowledge that,

'... hinges on scientific opinion and the empirical validity of policy arguments.' (Fischer, 1991, p. 106)

Therefore, there is a dual emphasis. Scientific or expert opinion will not be accepted merely because it is based on a rational methodology. Rather, it must also possess practical validity for its use in the policy-making process.

The dominance or otherwise of technical opinion over and above that of political considerations, rests primarily on the position of experts within bureaucratic and policy-making structures. Meynaud (1968) and Centeno (1993) make this connection between technocratic influence and the position of specialised knowledge,

'Technocracy is the combined result of the competence and infiltration of the technocrat at the appropriate point or sector of the deliberative machine. It is the combination of circumstances which favours and permits the technocratic penetration into the political sector' (Meynaud, 1968, p. 70)

Centeno (1993) outlines five ways, in a technocratic framework, in which technocrats and technocracies can exercise power through this combination of competence and infiltration. First, because of complexity. Experts are required to understand both the problems produced by policy-making and to provide the subsequent formulations offered for policy solution. Hence,

'... if technocratic regimes originally arise from the complexity of state responsibilities, they also tend to increase further the technical

sophistication required to participate in decision-making.' (Centeno, 1993, p. 316)

As a consequence, political elites will be able to transfer the notion of complexity from purely technical issues to political issues, and in so doing it will become a function of political elites to limit participation to those fluent in expert languages (Centeno, 1993, p. 318). A second related mechanism is legitimation. Experts are able to legitimate their influence by producing solutions to policy problems. This could result from opposition to existing authorities and alternative policy solution proposed by political opponents (Meynaud, 1968, pp. 77-94). Expert opinion is viewed as possessing greater legitimacy, and so is used to legitimate or reinforce a particular policy direction or proposal. A third way in which technocrats and technocracies can exercise power is through what Centeno refers to as, 'institutional autonomy'. Hence,

'.... a technocracy, therefore, implies not only the domination by a particular type of elite, but also the autonomy and influence of their institutions.' (Centeno, 1993, p. 321)

This is because he believes technocrats operate within an established bureaucratic framework. Technocrats and experts will not act in isolation, rather they are part of expert groups, organisations, and professional bodies. A logical end state for this form of influence could be the direct transfer of power to an expert organisation or professional body (Meynaud, 1968, pp. 77-94). A fourth way in which technocrats may exercise power or influence is through regime stability, that is, the political and economic climate at that time. Technocrats may discover that the political climate is conducive to the provision of technical, rational solutions, or as Meynaud suggests, from co-ordination between experts (1968, pp. 77-94). The final method is via the position of the state within the world system. For example, market pressures on a global level may also support the rise of technocratic governance. Therefore, the development of a technocratic structure or technocratic approach to policy-making could be at the request of existing authorities (Meynaud, 1968, pp. 77-94).

By legitimating itself as objective, technocratic policy-making focuses upon instrumental action without recourse to political or normative debate. This is combined with a raising of the intellectual stakes; individuals will require the requisite level of expertise to participate in political debate. Furthermore, as a technocratic regime legitimates itself as objective and a meritocracy, it is under

greater pressure to succeed and perform efficiently on a regular basis (Centeno, 1993, pp. 327-328). As a result, to assess any form of policy-making as technocracy may be too extreme. The concept, however, may be better utilised as a set of 'technocratic' characteristics. This could then be applied at sectoral and sub-sectoral levels of policy, where an assessment of the policy area can be made to gauge whether policies are reflective of these characteristics and could be deemed 'technocratic'. It is, therefore, an empirical concern.

2.3 EXPERTISE

Before we can consider the role or the policy influence of expertise, or indeed the reasons for their influence in policy areas, we need to be certain of what constitutes an 'expert'.

2.3.1 Definition of Expert and Expertise

Brint defines experts as,

'... highly-trained professional staff working in these [the economy, the executive, legislative and judicial branches of government] central institutional domains, either on a salaried or contractual basis including also, highly trained professionals and managers in the surrounding institutional areas of scientific research, cultural and information services, social services, medical, legal and educational organisations.' (Brint, 1990, p. 364)

This is similar to definitions proposed by Johnson (1979, p. 9) and Laffin (1989, p. 21). They argue that the terms expert, technocrat, planner, manager, and so on, can all be placed under the broader title of professional. Rather than adopt a functionalist approach to providing a definition, that concentrates on the actual type of individual considered to be 'an expert' at a particular time, or a trait approach that places an emphasis on a list of characteristics, they define a professional occupation as the institutionalised form of control of such an activity. A professional or expert is someone subject to that control (see also Collins (1990a)).

Friedson also adopts 'professional' as the 'umbrella' term. Friedson views experts as agents of formal knowledge. This knowledge is shared by particular groups of people who perform activities based upon it on a regular basis, expressed in terms unfamiliar to many and using techniques of discourse opaque to outsiders (Friedson, 1986). Friedson argues that many terms are used to describe

these agents: experts, technicians, technocrats, intellectuals, intelligentsia, professionals. The term professional is more useful because,

'.... being members of professions provides intellectuals, the intelligentsia, experts, and others represented as agents of formal knowledge with a living and therefore makes it possible for them to function as agents of formal knowledge, whether pure or applied.'
(Friedson, 1986, p. 16)

What is important therefore, is not to provide a list of attributes or trait characteristics, for what can be termed an expert, nor a purely functional description, but the social and political role of the expert.

Within these alternative approaches proposed by Johnson, Laffin, and Friedson, expertise is seen as a product of position, achieved through training, and most likely 'legitimated' by a professional code. Here, expertise is considered a professional career system within the bureaucracies of contemporary industrial societies, and their role is more apparent when technical aspects are deemed more prominent than political (Aberbach et al, 1990). A fundamental assumption therefore, is that experts are possessors and producers of knowledge (Etzioni, 1968) and their role in the policy process is to provide advice.

Almost any form of consultant or expert or special adviser, be it connected with public policy-making or contained in commercial environments could be considered 'experts'. They perform either a role that cannot be performed or is unable to be performed within the organisations for which they provide assistance. But this does not make them an expert in a true sense. Not only must experts process and provide knowledge, but he or she must occupy a position of authority, achieved primarily through a professional code and training.

This conferment of authority may not only be produced through historical tradition of particular professions, but could come about through the legitimating process of political patronage. This is an important issue for the policy process. Over time this is as a legitimate method as are professional training or education. Therefore, to use Friedson's definition, experts are agents or purveyors of formal knowledge and in the policy process this is knowledge applied in a systematic and structured format.

2.3.2 Role of the Expert

Barker and Peters (1993) argue that all areas of policy require some level of expertise to facilitate decision making, so that the various concepts, rules or systematic distinctions, needed to make sense of the material within the policy area, may be given due consideration. This is dependent, however, on the particular character of the policy area. Barker and Peters provide a distinction between policy areas: those that are elaborate in detail, complex, possess technical difficulty (amenable to non-experts), that require operational advisers, and therefore not technical expertise; and, those policy areas that possess real technical difficulty, and issues of the scientifically unknown. This is a distinction between policy areas that are predominantly political in nature, and those that are predominantly technical, that require technical and even scientific approaches. Furthermore, they argue that the information provided by experts can be used in a number of ways: either to serve an optimal policy choice in the 'public interest', to serve to legitimate the necessity of bureaucracy, that is, civil servants, or to reinforce government (usually ministers) decisions (1993, pp. 10-11). This would assume that the role of expertise is more prominent in policy areas of a more technical nature.

The willingness of policy-makers to demand expert input, and the nature of the political climate is seen most readily in the process of co-option. Torstendahl (1990) highlights the co-option of professional groups by the contemporary state. He argues that knowledge-based groups have found different positions in the policy process. Policy-makers have incorporated expert advisers in a number of different ways,

'Sometimes they have been made central for state functions (for example, in France); sometimes they have been recognised as (semi) independent bodies of experts, whose advice may be taken when found relevant, and whose status is only partly dependent on recognition (such as in Britain). All types of variation between the extremes are found, such as the creation of specialist bodies, organised by the state, for experts in certain fields with the privilege of executing the functions of the profession in question.' (Torstendahl, 1990, pp. 6-7)

In addition to this,

'... they are granted a 'jurisdiction' of their problem area by their employers, collaborators, clients or indirect financiers (the taxpayer in many cases) which can be withdrawn or changed when the surroundings demand a change.' (Torstendahl, 1990, p. 5)

The important result is that the exact level of autonomy and co-option can be determined empirically. The issue of co-option is also taken up by Saward (1992). He examines different types of co-option. First, ideological. This operates through civil society and culture, and,

'... involves the maintenance of similar patterns of assumption or belief between governors and administrators and non-state groups or individuals.' (Saward, 1992, p. 6)

This is a broadly 'market' interpretation of expertise, where expertise is bought and sold at will, to reinforce an ideological point of view. Second, there is psychological co-option. This type of co-option operates through intellectual influence via the state bureaucracy,

'A process referring to the creation, maintenance or encouragement of common patterns of thought through the manipulation of words and symbols.' (Saward, 1992, p. 6)

Here, the contention is that expertise is instrumental in determining the framework for policy decisions, and sets the parameters for the political discourse. Finally, there is institutional co-option. This co-option occurs when,

'... a notionally private individual, group, or group representative is formally incorporated into state decision-making as an adviser, informant, or colleague.' (Saward, 1992, p. 6)

Institutional co-option is the least difficult to assess, as empirical analyses may be undertaken to assess the number and type of expert group or organisation consulted or incorporated into the policy-making process on a temporary or permanent basis.

Despite the different types of co-option examined here it is doubtful that experts actually set the agenda of a policy area, the agenda being,

'... the list of subjects or problems to which government officials, and people outside of government closely associated with these officials, are paying some attention to at any given time.' (Kingdon, 1995, p. 3)

Rather, they may set the alternatives, either in the short, medium, or long-term. Experts may be co-opted to assist on existing policy difficulties, in the long-term policy momentum will need to gather to have influence. Hence,

'The impacts of academics, researchers, and consultants vary in a number of important ways. For one, academics might well affect the alternatives more than the governmental agendas Much of the time the agenda is set by forces and actors outside the researcher-analyst community. Then

politicians turn to that community for proposals that would be relevant to their concern and that might constitute solutions to their problem.' (Kingdon, 1995, p. 55)

Kingdon concludes that 'hidden' (specialists, experts and so on) as opposed to 'visible' participants, will affect the alternatives rather than the agenda, and the long-term as opposed to the short-term. This assessment is important as to set alternatives to existing policy instruments requires expertise to concern itself above and beyond minute details, and to provide comprehensive solutions (Kingdon, 1995, p. 70).

Brint (1990) also examines the role of experts and argues that experts operate on what she describes as a limited mandate. In some areas experts are functionaries with quite limited powers, and are visible most clearly at the implementation stage of policy, using their limited mandate to secure provisional measures within specific policy areas (Brint, 1990, p. 370), such as the determination of the principles on which the policy rests. Brint (1990, pp. 373-380) and Benveniste (1973, pp. 121-130) also highlight three ways in which experts can have an extensive, as opposed to limited, mandate. First, by successfully framing changes in policy as merely technical improvements. For example, experts may be successful in placing greater emphasis on efficiency as opposed to equality for a particular policy instrument. Here, the change may go beyond a technical consideration and alter the ethos of a particular policy, or subtly change its direction of intention. A second method is encouraging the delegation of power to experts. This would appear most readily in new areas of policy, before expertise has become consolidated and absorbed by significant members of the policy area. In a sense this is before all the power relationships have been established, and the policy area is not as yet a permanent one. A third way in which experts can operate on an extensive mandate is through the cultivation of intimate relationships with policy-makers, a recognition on behalf of policy-makers of the political value of expert opinion. A final method is the relative centrality of expertise in the policy process. This centrality in the policy process will be based on the historic nature of the policy area in particular, and the place that expertise holds in the policy-making system in general. The extent to which this is evident will of course be influenced by the effect of expertise at systemic level.

However, this approach confuses the issues of mandate and influence, when, in fact, they are two separate issues. Policy-makers may provide experts with a

limited or extensive mandate, that is, a formal role within the policy process in a minor, or major way. However, the extent to which that mandate or translated into influence is a different issue. Therefore, it is more useful to view these issues as a linear progression: experts may have either a limited or extensive mandate, which in turn could result in a different level of actual influence on policy. Moreover, it may transpire that there are other points along each of the scales, such as moderate mandate, and moderate influence. Therefore, we may accept the typology presented by Brint to refer to the limited or extensive mandate secured by experts within policy areas. Although he refers to limited mandate and influence interchangeably they are two separate concepts. The extent to which experts exercise influence on policy formulation and outcome is a separate issues and is discussed in the section that follows (see Figure 1 at the end of this chapter).

The limited mandate means that experts are utilised within policy areas in very specific ways with a strict criteria on specific projects. They may be incorporated into policy in an ad-hoc or sporadic fashion. In contrast, extensive mandate secures experts a more permanent and prominent position. They may be involved in a more comprehensive format and possess a more wide-ranging remit to provide advice and is usually for a sustained period. However, it would seem to be useful to offer an alternative to these two extremes, a 'moderate' mandate. Here, experts may be granted a greater jurisdiction than with a limited mandate. For example, to work on a raft of policy options, but this is not a long-term or formal situation.

Barker (1993) provides a more practical summary of the variety of forms this expertise may take, ranging from: government appointed standing advisory committees, in policy areas such as drug-safety regulation; government appointed ad-hoc advisory committees, such as in broadcasting and telecommunications; non-government standing and non-government ad-hoc advisory committees, in various policy areas; through to more personalised expert advisers in the legislative process (Barker, 1993, pp. 21-22). Barker (1993) further demonstrates the wide diversity of information and advice to executive government, such as formal advice on an external basis, such as policy-making issue advice, formal advice on an internal basis (usually 'secret'), advice from unofficial sources, and other advice such as consultation feedback and surveys. Therefore, what can be seen is that the role of expertise will vary from policy area to policy area, and the particular institutional mechanism will also alter. Thus, one task facing any systematic attempt to analyse the role of expert advisers in policy-making,

'... is to distinguish different levels and types of advice-giving - and of the expertise lying behind it - which are suitable for different levels of policy-making difficulty.' (Barker, 1993, p. 3)

Brint provides a similar conclusion about the diverse role of expertise between policy areas,

'Opportunities for informal capture [of expert input] exist mainly when policy fields are still unorganised and state resources are slack, while incentives for delegation exist primarily under conditions of governmental over-extension, real or potential stalemate, and in the case of truly technical matters, which are of comparatively limited social import.' (Brint, 1990, p. 381)

These assessments state that the role of expertise will be most prominent in policy areas of a truly technical nature. However, policy areas can never be free of value judgements and political considerations, both in terms of formulation and outcomes. There are difficulties over the vagueness of technical and political boundaries. It is difficult, if not impossible, to separate the two areas (Parsons, 1995). If, as Brint (1990), Barker and Peters (1993) and Peters and Barker (1993) suggest, we assess a technical policy issue such as nuclear power, the fact that expertise is utilised within the nuclear industry in terms of technical input into the provision of nuclear power, does not imply that the policy area has been either informally captured, nor amenable to non-experts. Moreover, it may be difficult to demarcate successfully the technical and political boundaries within this policy area. This situation results from the fact that the role of expertise in policy areas is primarily to provide advice, be it on a pure or applied basis. However, the way in which it is both perceived by policy-makers and the public, and the way it is employed by policy-makers, has much to do with the nature of expert influence.

2.3.3 Nature of Expert Influence

What is important over and above what defines the expert, or an explanation of the role of expertise in the policy process, is the relationship of the expert, and expertise, to the policy process. If we are to use the concept in terms of an individual or group possessing skill or knowledge, the question that must be addressed is how this is utilised in the policy process, and to what extent does it influence policy formulation and outcomes.

Benveniste argues that the mechanism that provides the most influence is what he terms the 'multiplier effect' (1973, p. 2). This operates through the interpretations of individuals and groups. They will perceive that a policy or plan designed by

policy-makers will be implemented, and alter their plans accordingly. It may not alter individual preferences, but the importance is the unwitting influence that the presence of expertise has. Here, the important effect is on what individuals perceive will happen. In this way decisions may be altered. This influence possesses two central factors: a perception that advice of experts is provided on a rational or scientific basis; and, the supportive commitments of policy-makers being sufficient to create a belief that the policy will become a reality. Therefore, a combination of a belief that experts supply knowledge that is beyond dispute, or at least is based on unbiased calculation and formulation, reinforced by the support of policy-makers and government, means that expert influence can exist at this systemic level. Habermas (1976) also makes reference to the effect of expert influence at this level. He argues that technical development is inextricably linked to social and political development. In this way citizens possess a faith in science and technical solutions (Fleming, 1988). The state will attempt to alter public opinion by promoting certain substantive issues and employ the use of experts, advertising, and symbols, in order to appeal to the public for the support over particular policy instruments. In contrast, less desirable issues of the policy area will be withheld from the policy debate. The extent to which this is possible will depend upon the cultural tradition of the society (Habermas, 1976, pp. 70-71). In similar vein to the structural influence portrayed by Benveniste (1973) and Habermas (1976), Perkin (1989) argues that society is permeated by a professional social ideal, a model based upon expertise, merit and human capital. A social ideal,

'... is a model of how society should be organised to suit a certain class or interest and of the ideal citizen and his contribution to it.' (Perkin, 1989, p. 3)

Brint (1990) and Benveniste (1973) have alluded to the manner in which experts can operate on limited and extensive mandates, and it has been argued that influence has been incorrectly assigned to mandate. Therefore, although it can be seen that experts may operate in policy areas with differing levels of mandate, the actual level of influence that is exercised is a separate issue that requires theorising. We may accept that experts operate on one of three mandates: limited, moderate or extensive. The exact level of influence that is exercised by experts in policy areas falls into four categories: 'servants of power', moderate influence, formal influence, and technocratic (see Figure 1 at the end of this chapter and Table 1 below).

As discussed above it is preferable to use the definitions offered by Brint with regard to experts' influence, but to separate his typology. Two elements: limited and extensive mandate, can be used to describe the amount of input into the policy process (that does not automatically translate into influence). It was shown that moderate influence is an addition to this typology. The other two forms of mandate that Brint alludes to are: servants of power, and technocracy. Rather than assign these forms to mandates, it is preferable to consider these are forms of influence, since both refer to power, albeit at different extremes. For example, experts may operate on an extensive mandate in a policy area and have high level input, but it does not follow that they will have a corresponding extensive influence on either policy formulation or policy outcomes.

As shown above Brint (1990) argues that experts may have influence in a very weak form, operating as 'servants of power'. Here, the actual level of influence is low and expert opinion is subservient to other considerations in the policy area. These may be economic, social, political or a combination of all three. What it means is that although experts may have legitimate status within the policy area their input is only to legitimate, validate, or reinforce political opinion, to confirm either political activity or inactivity. Brint has also shown that experts may have technocratic influence, where experts dominate the policy area and power is assigned or delegated to them from policy-makers. Here, in contrast to servants of power the level of mandate cannot be limited or moderate, but has to be extensive, as the level of input, being technocratic, will have to be absolute.

As has been demonstrated above Brint confuses mandate and influence, but the methods Brint describe through which experts may secure a limited mandate are in fact methods by which experts may exert influence (Centeno (1993) also refers to these in his discussion over influence of experts in a technocratic framework)). For example, Brint argues that experts may have an extensive mandate by successfully framing changes in policy as merely technical improvements, or encouraging the delegation of power to experts. These are not examples of a mandate, but descriptions of ways in which experts may have influence. It is a subtle but significant difference.

It is unlikely, however that experts will have influence in the policy process in only two ways, either as servants of power, or through technocratic influence, and so it is necessary to provide intermediate points on the scale (see Figure 1 at the end of this chapter). The first of these is a moderate level of influence. As discussed

above, the mandate in which experts operate may be anywhere on that scale, but the resulting influence may be moderate. This level of influence is beyond merely operating as servants of power and could include the provision of public knowledge. In so doing experts move beyond reinforcing existing knowledge or using terms of reference provided by policy-makers, to altering those terms of reference. Despite the fact that policy is influenced, however, and the role of expert opinion acknowledged, political considerations still have primary importance.

For formal influence the information provided by experts is looked upon as definitive for the policy area and forms the centre piece for policy decisions, be they recommendations of policy activity or inactivity. This is not technocratic influence, as experts are not responsible for the ultimate policy decision, but they will go a long way to informing that decision. The method by which this formal influence may be achieved can take many forms, some of which were described by Brint (as discussed above) as examples of extensive mandate. To re-cap, experts may have formal influence through successfully framing changes in policy as technical improvements. For example, experts could advocate efficiency over and above equality. A second method is encouraging the delegation of power to expert groups, especially pertinent when the policy area is relatively new. A third method for experts to exercise formal influence is through the cultivation of political relationships, which in itself is a recognition on behalf of policy-makers of the political value of the expert opinion. A final method is the relative centrality of the expert groups in the policy area. It is here that the historic nature of the policy area will be particularly important.

A prime difference, therefore, between moderate and formal influence is the level of dependence placed on the advice from expert groups from policy-makers. For formal influence this advice and information is definitive and forms the cornerstone of the policy direction. Alongside this dependence is another key difference, the notion of duration. Expert groups may have a significant input into the policy-making process of a policy area, yet this involvement may be transitory. On these occasions, only moderate influence can be attributed to expert groups. It is a characteristic of formal influence if experts remain part of the policy process beyond the particular policy problem. Both elements, however, need not be present together for there to be formal influence. For example, formal influence could be ascribed to expert groups in policy areas in which policy based on their

input was developed in a unique policy area (such as the Channel Tunnel Rail Link), where centrality and not duration was the key factor. Similarly, centrality need not be as important for the influence of expert groups as duration, which could be achieved via the cultivation of a long-term political relationship with policy-makers. A summary of the differences between the types of expert influence is provided in Table 1 below.

Table 1: Differences Between the Types of Expert Influence

| SERVANTS OF POWER | MODERATE | FORMAL | TECHNOCRATIC |
|--|---|--|---|
| Level of influence low; expert opinion subservient to political, social and economic considerations; experts used to validate or reinforce political opinion | Low level of public acknowledgement of role in policy-making; experts may have influence on terms of reference for policy; low level of dependence and lack of centrality in the policy-making process; influence primarily in the short-term | Expert input definitive for the policy area; high level of dependence; relative centrality in the policy-making process; delegation of power high; cultivation of high-level political relationships; medium and long-term influence | Absolute power supplied to experts to devise and implement policy; exercised through bureaucratic frameworks; policy-making depoliticised; central and permanent place in policy-making process |

The points on the scale of influence are not necessarily an exhaustive list, and may alter within policy areas. Moreover, experts may have limited influence on policy outcomes, but a more formal influence in policy formulation within the same policy area. Therefore, experts could be formally co-opted by government, provided with an extensive mandate within that policy area to conduct important primary research on areas of which little is known, only for the influence on the policy outcome to be only limited, because of pressing political considerations that outweighed the expert input.

As discussed above expert influence on policy is conditional on the internal cohesion within expert environments (Saward, 1992, p. 159). Saward argues this could occur but does not, because the 'internal culture of expertise' militates against organised and cohesive political influence of expert groups, due to the nature of expert culture, and its essential diversity of opinion. Saward argues that it is difficult to envisage a large-scale agreement of expert opinion and for it to be politically organised. However, if individuals have faith in expert knowledge then expertise, in the same way as professionalism, can have influence irrespective of the diversity that occurs within the field of expertise. Moreover, the exact level of cohesion and consensus will vary between professions and fields of expertise.

This level of internal consensus has been assessed at international level. When this occurs it has been termed an 'epistemic consensus'. These are defined as,

'Transnational networks of knowledge-based communities that are both politically empowered through their claims to exercise authoritative knowledge and motivated by shared causal and principled belief.' (Haas, 1990, p. 349)

These communities may secure not only a consensus on specific technical questions, but also broader issues of policy orientation, or less demanding issues, such as agreement on a particular methodological approach to a problem. This consensus can also be seen in transnational corporations. They may find it difficult to resist a policy orientation as policy momentum moves in a particular direction. Certain issues can secure a place as fact on the political agenda. Epistemic communities have been used to characterise expert opinion in contemporary environmental problems, particularly those on a global scale (Haas, 1990). The last two decades have witnessed many types of environmental co-operation: statements or commitments (signing of treaties), deeds (policy-making), and agreements on outputs (environmental quality) (Haas, 1990, p. 348).

Whilst not accepting that epistemic communities are applicable in all forms of policy analysis, placing the focus on groups and individuals of this nature, aids the analysis of expertise in policy areas in three ways. First, it reinforces the role of ideas as a motivating force. The prevalence and subsequent belief in particular ideas can result in a powerful momentum towards uniformity of policy solution. Second, there is the influence of 'institutional learning' as governments react to consensus knowledge and the impact of the policy momentum. Governments will find it increasingly difficult to ignore a growing consensus on a particular problem. Finally, there is also a normative effect. This effect is an acceptance that epistemic communities can yield efficient policies, although these can also be narrow, expert-based policy prescriptions (Haas, 1990, p. 349). As the use of expertise in a particular area grows the production of successful, efficient policy may provide justification for a consolidation of expert influence. The alternative normative implication is that far from producing efficient, rational, policy solution, experts may be instrumental in implementing a programme of prescriptive policy reform.

In order for these epistemic communities to exist, be they at national or international levels, Haas argues that they must share a number of beliefs or values regarding the 'enhancement of existing welfare', the validity of cause-and-effect

relationships, a common scientific (or other) method, and a mutual policy enterprise. Because of this cohesion and consensus experts may perform a number of roles: defining the dimensions of the policy problem, identifying likely solutions, informing policy-makers, and setting agendas (Haas, 1990, pp. 350-351). As a result of this wide range of possible functions for experts, Haas argues that experts are goal-seeking actors motivated by shared ideas and beliefs, rather than reactors operating in response to demands from policy-makers and other interested parties in policy areas. In contrast, Topf (1993a) argues that the effectiveness of experts will depend not upon the ability of experts to organise in a cohesive manner (the 'supply' of expertise), but upon the willingness of policy-makers to accept advice, which in turn will depend upon the form of the advisory processes, that is, the nature of the political climate, in relation to the type of policy issue (the 'demand' by policy-makers) (Topf, 1993a, p. 191).

A further important issue concerning the nature of expert influence is the way in which the issue is placed on the political agenda. This may arise through routine indicators, a particular study, a crisis event, a pre-occupation with quantitative matters (such as emission levels in air pollution policies) and so on. Reports produced by expert groups, combined with adequate exposure in appropriate areas of the media may be sufficient to convince policy-makers that the matter requires attention. This situation is then complicated by the next stage of problem definition. Is it a problem or a condition? Conditions become problems when it is believed a solution has been found. Until a solution is found the problem is effectively insoluble, and may result in the issue floundering, with no positive action taken by policy-makers. Here, three factors are important: the value that is placed on the particular policy area, that is, which problems are appropriate for government action; comparisons between policy areas and across nations, the level of attention that should be afforded in comparison to other policy areas, and in comparison to other nations; and, the category of the problem (Kingdon, 1995, pp. 109-111). This final factor is an important consideration. Is air pollution, for example, an environmental or health issue? And furthermore, just how large is the actual problem? The role of the expert will be to determine the nature and extent of the particular problem.

Some observers are extremely doubtful of the influence of expertise in policy. Collingridge and Reeve (1986) present two possible models: 'over critical', and 'under critical'. Although qualitatively different the two models are intended to

represent the low level influence science and expertise has on policy. On the one hand there is endless technical debate between experts that results in stalemate (over-critical model), or a lack of criticism of scientific conjecture within the policy consensus (under-critical model). In the former, dissension on the one side cannot appeal to more science and so there is a resort to compromise. In the latter, there is the fear of breaking a scientific as well as policy consensus. The error of this approach is to assume that science must be pure science; autonomous, disciplinary, and with a low level of criticism on what are considered fundamental tenets. What occurs, in fact, is that policy distorts these processes which makes science a powerful instrument. Yet it is difficult to imagine any implementation of science acting in total isolation. It is of course true that the effects of science in policy is limited, more often than not policy does not fit squarely with scientific disciplines. However, to argue that scientific research and expert opinion has no influence is simply not the case. It is the level of influence that is the important issue. If we are to accept that experts do effect some level of influence, what are the reasons for this?

2.3.4 Reasons for Expert Influence in Policy Areas

There are two main reasons why experts are prominent in the policy process: a prevalence of complexity, and a corresponding requirement of legitimacy on behalf of policy-makers.

2.3.4.1 Complexity

Complexity is often used in a trivial manner in political analysis and social science, to describe something that is merely 'not simple' (Zolo, 1992). Complexity is, in fact, a situation not a thing, and will vary according to context,

'Complexity does not describe objective properties of natural or social phenomena. Nor does it denote complex objects as contrasted with simple objects. Rather, it refers to the cognitive situation in which agents, whether they are individuals or social groups, find themselves.' (Zolo, 1992, p. 2)

Therefore, the relations that agents construct or project on their environment will be more or less complex depending on circumstances.

The notion of complexity has a number of facets. First, scope. The wider the choice or number of variables required to resolve policy problems, the more complex the environmental situation becomes. Second, inter-dependency. As

complexity grows, the more inter-dependent the variables become. Variables will be employed to solve various elements of the policy problem. In addition, the incorporation of one variable may be dependent on the employment of another, resulting in inter-dependency. Third, instability, or turbulence; the tendency of variables to change along swift or unpredictable trajectories. Unpredictability will obviously increase the complexity of a given environment, as the particular change cannot be anticipated or accounted for. The final facet is cognitive awareness. This factor embraces the three elements above. It is the awareness by agents of the level of complexity in their environment (Zolo, 1992, pp. 3-4).

In addition to these facets there are two broad areas of complexity: social and epistemological. Social complexity is generated via languages and techniques. This is typified by a high level of division of labour and functional differentiation within society, resulting in a diversity in language and technique across areas of society. Social complexity also results from inter-dependence between various social sub-systems, and the breaking down of hierarchical structures. To effect change in one particular sub-system may have consequences for other sub-systems. Social complexity can arise from increased levels of social mobility, the removal of universals, and increased social change as tradition and existing types of social stratification are challenged. Finally, there is increased selection of possible outcomes. Complexity exists to the extent of the number and variety of elements and interactions in the policy process (Dryzek, 1990, p. 59). The variety increases, but experience becomes more functionally-oriented, and geared towards the pursuit of particular outcomes. This situation results in pressure on policy-makers to 'reduce the complexity' (Zolo, 1992, pp. 5-6). The fundamental difficulty is that social complexity has no boundaries, hence it is not a system. Necessarily complexity breeds complexity. Every (future) present has its future, yet through progress towards this possibilities arise for new forms of the present, and hence new futures (Luhmann, 1979).

The alternative to social complexity is epistemological complexity. Here, agents cannot remove themselves from their historical or social circumstances, therefore, they cannot know their environment objectively for they alter it with their actions. They are part of the environment. Agents can only reduce, not eliminate epistemological complexity (Zolo, 1992, p. 7). Despite this inability to eliminate this type of complexity, inter-dependencies, technical complexity and socio-economic change, demand new forms of knowledge, and therefore experts are

required for policy-relevant knowledge. Fischer (1990) argues that the development of a technostructure (the increasing prevalence of policy analysts, economists, analysts, specialists, and so on) is a managerial response to the complexity of modern business and society (Fischer, 1990, p. 110 and pp. 182-183). And furthermore, that complexity is one of the three characteristics of contemporary society that facilitate a 'technocratic' theorising, the further two being: the growth of organisational inter-dependence, and rapid economic and technological change (1990, p. 184). The situation in which policy-makers find themselves results necessarily in system-led solutions, as to manipulate parts of the system is to tempt instability, because of the growth of organisational inter-dependence. A similar argument is made by Meynaud. The extent to which rule by technical knowledge is apparent is the level of state co-option of experts into the administrative process. This co-option is required because of the diversification and extension of state activities, that is, the level of complexity. The amount of attention they are afforded, however, is dependent upon the nature of the society (Meynaud, 1968, pp. 36-37).

Complexity is certainly a major factor accounting for a rise in the use of expertise (Dryzek, 1990). Complexity is on the increase through population growth, increased telecommunications, travel, trade, the increasing use of technology, and the mobilisation of minority social and ethnic groups (Dryzek, 1990, p. 60). Furthermore, complexity has been responsible for the increasing use, as shown above, of social scientists in the policy process,

'Over the past twenty years social scientists have thus clearly assumed a new importance in the policy process. Because of the complexity of the issues facing the contemporary state, as well as the use of experts in the development of reform agendas, social science has penetrated traditional political discourse.' (Fischer, 1991, p. 348)

Part of this importance has been to provide political trust in policy-makers, and their ability to use expertise to formulate policy and to justify and legitimate policy decisions. This political trust, in turn, produces other mechanisms. First, insulation, erecting barriers to the discourse of information by confidentiality or selection of entry to authority because of the complexity. Allied to this is a second mechanism, the controlled disclosure of information. Here, the public may be persuaded that a 'bad' decision is in fact a better one. Third, an emphasis on higher levels of activity, that is, that elements of policy are beyond the wit of ordinary individuals. This means that, in general,

'Disputes are therefore defined, where possible, as reflecting agreement on principles, disagreements only in the application of the principles. The history and the setting of decisions are de-emphasised.' (Dennis, 1977, p. 20)

A further consequence of the increased use of expertise is a growth in the level of knowledge. However, growth in (scientific) knowledge enlarges the range of experience, but the number of 'certainties' do not necessarily increase. Indeed, experts are able to support almost any political side by either drawing upon different sets of facts or providing different cognitive and evaluative interpretations to available information (Etzioni, 1968, p. 74). For in the language of politics there is no 'observation' language that can be separated from the language of theories. These theories themselves usually emanate from ideologies, general philosophies, and historic and social conditions. Therefore, political analysts find it impossible not only to unify the language, but also to avoid value judgements,

'As soon as one passes from elementary levels of classification of data to the development of political theories sufficiently complex to be applied to the complexity of the environment, it becomes inevitable that political scientists will be forced to violate and contradict their own methodological requirements.' (Zolo, 1992, p. 27)

Indeed, it may not be possible to resolve the issues of complexity and democracy,

'The increase of differentiation and social complexity is responsible for wider demands for democracy and is still continuing to foster the need for it; but it is the self-same increase in differentiation and social complexity which means that such demands cannot in the end succeed.' (Zolo, 1992, p. 62)

This difficulty of resolving complexity and democracy leads to the second reason for expert influence in policy areas, the requirement of legitimacy.

2.3.4.2 Legitimacy

An extensive attempt to assess the political and normative implications of legitimacy is made by Beetham (1991). Beetham provides a social science definition of legitimacy. A social science definition is one that deals with empirical consequences and actual relations, not ideal ones. For Beetham, legitimacy consists of three elements: legal validity of the acquisition and exercise of power, justifiability of rules governing power in terms of society's beliefs and values, and evidence of consent derived from actions expressive of it. We are able to place experts operating within policy areas within Beetham's theory of legitimacy. First, they appear in systems that are legitimated in their derivation from rules. Where

the powerful acquire legal validation the dispute in policy areas is usually over which rule should have primacy: law or custom; statutory regulation; or 'rights'. This need not concern us here as we may accept that experts operate in accordance with lawful means, as statutory agents, or because of a perceived 'right'. Therefore, experts are deemed to have legitimate status because they operate in accordance with their derivation from a rule-based system.

Beetham separates justifiable rules, the second criteria for assessing legitimacy, into two areas: legitimacy deriving from an authoritative source, and justifiable rule-content. The former deals with the ultimate source of legitimacy of the social system, be it an external force such as religion, or an internal source, such as 'the people'. Expertise in policy areas can be placed in the latter. This situation arises because although expertise may itself be an important element of society, and have an important influence within it, it cannot be said to be the ultimate authority for social systems. Justifiable rule-content itself is split into two areas: 'principles of differentiation between dominant and subordinate', and 'ideas of common interest'. The former concerns the reasons for particular individuals to claim legitimacy for influence in society, whether it be on a meritocratic basis or one of 'birthright'. In contrast, the latter is the idea that the distribution of power serves the interest of the subordinate, not the powerful alone, and is here that we can locate policy expertise. In the political sphere this is a particular form of 'paternalism', where the fundamental belief system that specifies the ultimate source of authority for the political domain has implied in it the premise that decisions about public interest must be matters of special knowledge. The 'principles of differentiation between the powerful and subordinate' is not entirely without use in placing expertise in the policy process. However, what we are concerned here about is the reason for the use of expertise. Issues of meritocracy and birthright, although important, would lead analysis in another direction, to examine the reasons why a particular expert was present in a policy area, not the reason why experts should or should not be there. It is a subtle but significant distinction. Therefore, as a result of determining that issues of public interest must be matters of special knowledge, the underlying principle of authority,

'.... entails that some people are entitled to take public decisions on behalf of others by virtue of some special knowledge they have acquired about the public good, and which others do not have. All such principles by definition entail a paternalist relationship between governors and governed: 'trust us, because we must know best'.' (Beetham, 1991, p. 89)

However, certain policy areas, that place emphasis on expertise, may not be based on issues of special knowledge derived from complexity. Depending on the nature of the policy area expertise could be placed in the former; the 'principles of differentiation between dominant and subordinate'. Here, birth or meritocracy could justify access to power for certain individuals. However, this would not, of course, explain why the particular distribution was necessary in the first place (Beetham, 1991, p. 82)

To complete the theoretical placement of policy experts within a theory of legitimacy there needs to be an assessment of consent. This is important as it is through actions of consent that legitimacy is conferred. Effective policy-making decisions can be implemented only in certain conditions. The political system must regularly seek reaffirmation, or legitimation, of the validity of its measures. Elections, referenda, public inquiries are all legitimising tools in the policy process; planners display plans, public health official pronounce safety standards, and so on (O'Riordan, 1976, p. 56). However, this is a difficult area as, on the surface, it is self-contradictory. For an individual to agree to a particular condition of subordination is not necessarily to agree to the initial rules of the subordination. Expressing consent by voting, taking part in consultation exercises, swearing oaths of allegiance, or providing public acclamation and support of political leaders, is conditional on the power relationships that already exist. Yet in practice, and by social convention, it is exceedingly difficult to separate the two. This is the self-confirmatory circle between the rules of power and the process of their legitimation. The prevailing rules of power,

'... themselves structure the condition of relative powerlessness, disadvantage or dependency that gives people the incentive to make agreements of subordination which in turn continues the existing rules of power.' (Beetham, 1991, pp. 96-97)

The above assessment provides a theoretical basis for the legitimacy of expertise and the expert in the policy process. That said, this could also be applied to any official in a political capacity. What is of more significant concern is the use of the expert or expertise to legitimate, or justify, economic, social and political decisions, in effect, to provide legitimacy for policy-makers. This is important as,

'... the contemporary state is a form of power structure that requires legitimation, not so much to function, or even to survive over a period of time, but to achieve those purposes that depend upon the support of its population, and to maintain its political system intact in the face of serious policy failure, or serious challenge to it.' (Beetham, 1991, p. 118)

To assess the legitimacy of contemporary states Beetham once again employs the three-fold criteria of legitimacy: legal validity, rule justifiability, and expressed consent. Because a state has no higher authority it requires an appeal only to justifiability in terms of established beliefs and values, and evidence of expressed consent. The first criteria, that of legal validity, may be discounted. It is assumed that the legal status of the state is not in question! In terms of rule justifiability, this can be split into three areas: an authoritative source of power, the satisfaction of a general interest, and government performance and political legitimacy. The political system must be based on the acknowledgement of popular sovereignty or an authoritarian source of power, that contains some element of an electoral process, popular approval, or a sense of what constitutes 'the people'. The second criteria of legitimacy of the contemporary polity concerns issues of policy, and it is through policy areas that general interests are satisfied. This situation reflects a concern for the policy performance of government. Governments are judged on their ability to provide adequate output in specific and segmented policy areas. It is linked to the fact that the extension of general responsibility has increased during the twentieth century, and as such, there has been a diversification in the number of policy areas. As a consequence, expert input used by policy-makers is directed at the satisfaction of the general interest expressed through policy areas. However, governments may fail to fulfil this basic function of satisfying the general interest, by responding to merely particular or sectional interests. The extent to which governments compromise between the satisfaction of a general interest and particular interests is related to the third criteria of rule justifiability, government performance and political legitimacy. This element of legitimacy is focused on the failures of government, not of political systems. As a consequence, the effect of a government's inability to 'perform' will result in the removal of that government, and not a breakdown of the political system itself.

Legitimacy, in this form, is not concerned with the nature of constitutional processes and the survival of the political system. Therefore, governments require advice to satisfy public credibility in two forms. On basic level governments require advice because it,

'.... concerns the fundamental political credibility of particular governments and therefore touches on their very survival.' (Saward, 1993, p. 74)

At a more empirical level it seeks to satisfy public opinion and participants in the policy area on issues,

'.... which are both technically complex and politically or morally contentious, where little grasp (or even interest in) the strictly technical questions involved can be presumed in the general public, governments need first and foremost credible expert testimony. This is a necessary, though mostly not a sufficient condition for public credibility.' (Saward, 1993, p. 74)

Beetham explains the relationship of 'the expert' to policy areas, and the role of experts to government and policy-makers in the policy-making process. Therefore, experts are instrumental in providing political legitimacy to individual governments. In addition, Beetham outlines the nature of legitimacy in general to political institutions about, for example, the importance of consent. Despite the fact that experts are used within the policy process to legitimate policy because the issues are matters of special knowledge this does not mean that they necessarily have or possess legitimacy within the eyes of the general public. The credibility of using experts within policy areas is used to provide public credibility within policy areas, and in so doing, this has an implicit degree of legitimacy. Therefore, experts are used to supply both political credibility and satisfy public opinion, through two types of legitimacy. First, perceived legitimacy, a subjective assessment of whether or not policy is deemed 'legitimate'. This assessment will be relative as some members of the public will perceive this and others will not. Second, and in contrast to perceived legitimacy is moral legitimacy. This form is more objective, a generalisable set of criteria by which to assess the moral worth of policy. Saward acknowledges that this may not exist, and if it did it may not be discoverable, or even useful (Saward, 1993; 1992).

The role of providing legitimacy for policy-makers and governments by experts is also seen as important by Benveniste (1973). Benveniste argues that experts constitute a breed of advisers with a concern for policy research and planning, who are employed, primarily, to legitimate or excuse the failure of policy-makers (1973, pp. 6-7). This reason is not solely a question of technical expertise. They are an inevitable participant in the policy process and cannot avoid moving beyond merely technical advice,

'System experts and planners are involved in politics, and politics is never devoid of ideological content, therefore our pundits are, wittingly or unwittingly, involved in ideological issues, they cannot escape making commitments to normative definitions of the good life.' (Benveniste, 1973, p. 21)

Even if experts are not directly involved in policy development it may be necessary for public acceptance that the policy is reinforced by expert opinion (Saward,

1992, p. 167). As stated above, the reason for this is because governments require advice to satisfy public opinion, and the actors within the policy area, for issues that are both technically complex, and politically or morally contentious (Saward, 1993, p. 74). The desire to provide democratic accountability through the satisfaction of public opinion is extremely important. Policy-makers can claim to have harnessed a civic consensus on a particular issue, through,

'... the establishment of a civic consensus over the role and forms of procedure of public examination so that all relevant issues are sufficiently examined in an open, thorough and impartial manner, in order that a final decision, even if still controversial, commands at least the informed support of the public.' (O'Riordan and O'Riordan, 1993, p. 26)

This consensus must rest on fairness, not merely judicial fairness established through the principles of natural justice, but procedural fairness, determined by the style of examination, and the devices used to guarantee authenticity of expression and transparency of argument (O'Riordan and O'Riordan, 1993, p. 27). This fairness means: to initiate and command respect in argument, to express judgements honestly and sincerely, to convey interpretation faithfully and justify their relevance, to recognise the merits of opposing viewpoints, and provide an efficient process (O'Riordan and O'Riordan, 1993, p. 28). However, this approach examines the way in which policy-makers and governments may secure an overall democratically accountable legitimacy for their policy decisions. This situation is not necessarily the same as using expert advice *to legitimate* a particular decision or policy. Here, there may be no desire for a transparency of argument, or a guarantee of an authenticity of expression. And most importantly, policy-makers may be reluctant to convey interpretation of results of research on policy issues, as they may not correspond with their policy intentions.

Complexity and legitimacy are the key factors for the use of experts in the policy process, although it must be acknowledged that given this situation, and the fact that experts are provided with a mandate in which to operate within policy areas, the precise influence of experts within specific policy areas remains to be established, both in terms of policy formulation and policy outcomes. Moreover, this could take the form of either influencing further policy activity or legitimating policy inactivity.

The key theoretical concepts used to describe and illustrate the role of expertise in the policy process are summarised in the Figure 1 below.

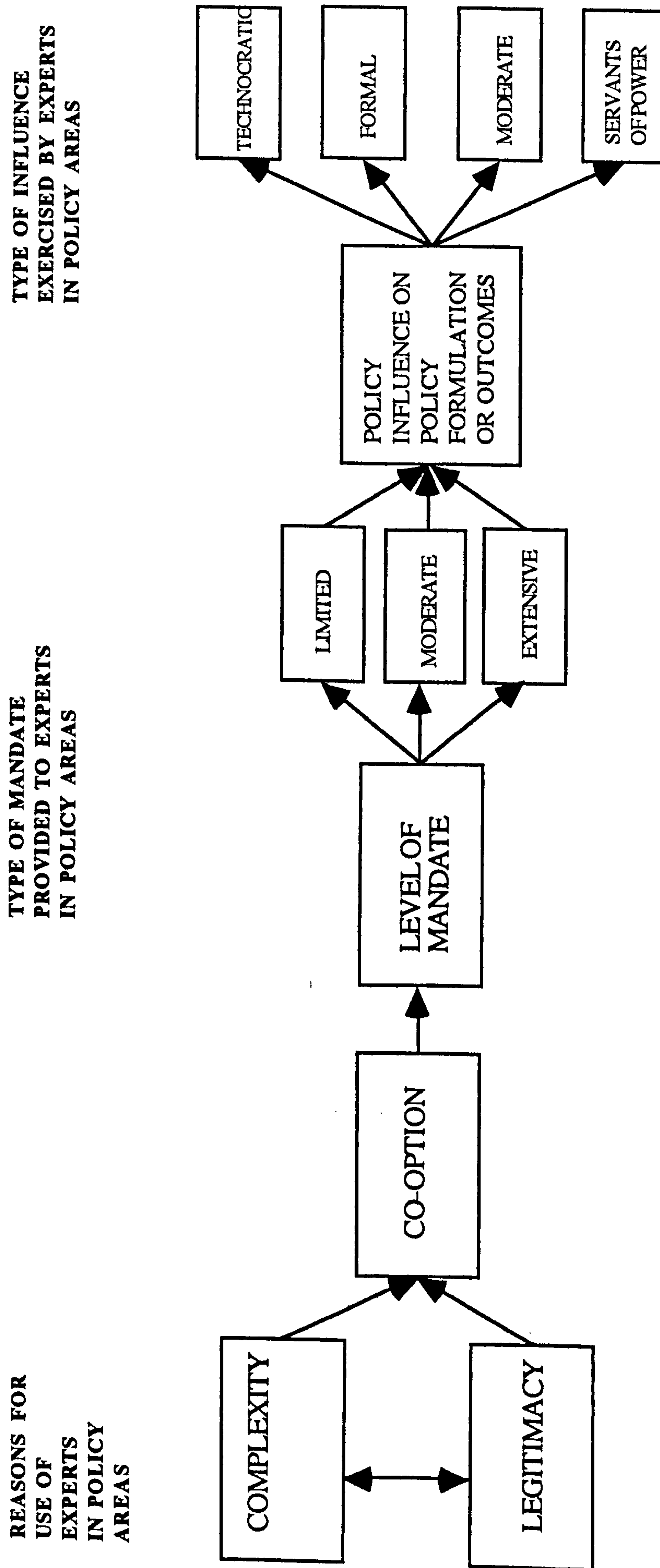


Figure 1: The Interrelation of Key Theoretical Concepts

2.5 CONCLUSION

The traditional assessment of expertise is found within theories of technocracy. Although located primarily at state level as rule by technical means, this concept is useful at the sectoral level, where we are able to assess empirically the extent of technocratic influence, via the primary characteristics of technocracy: an apolitical ideology, and a neglect of normative reason. Technocracy is a rare form of government and so the assessment of the inherent characteristics of the concept is more fruitful. A necessarily related concept to technocracy is that of the expert.

There are various definitions of the expert, and more specifically, of the expert in the policy process. This is not the primary location of investigation, however, as the individuals within various policy areas will alter. In contrast, the important consideration is to distinguish between the different types and levels of expertise. Rather than adopt trait or functional approaches to the notion of the expert, it is of greater benefit to deal with the concept in terms of the provision of skill or knowledge within the context of the policy area. This approach allows investigation of expertise, as well as individual experts, within individual policy areas, and importantly the relationship of expertise to the policy area.

What can be seen is that expertise is able to alter the language of political discourse, through an increased emphasis upon scientific methodology, technology, and technical solutions. What is also apparent are the various ways that experts and expertise may exert influence, through the multiplier effect, or a formal delegation of power, and so on. How this influence operates in a policy area is an empirical concern. What requires investigation is the level of co-option of experts, whether experts are provided with a limited, moderate or extensive mandate and to what extent policies are formulated according to a technical solution. We need to consider the variations in capture of the policy area by expertise, and the subsequent level of influence they exert on both policy formulation and policy outcomes. This influence is best portrayed as a continuum from the low level of influence as servants of power, through limited influence where experts are able, for example, to alter their terms of reference provided by policy-makers. A step beyond this is formal influence, where expert input forms the basis for policy decisions, be it activity or non-activity. The final, and most extreme, form of influence is technocratic influence, where there is a complete delegation of power to experts.

A further important issue concerns the reasons for expertise in policy. These are primarily two-fold: a prevalence of complexity, and a requirement of legitimacy on behalf of policy-makers. Legitimacy enables policy-makers to justify decisions, and to satisfy public opinion and actors within the policy area. Groups or individuals are able to call upon alternative sets of expert opinion to provide differing cognitive and evaluative interpretations to the same available information. Linked to this requirement of legitimacy is complexity. Expertise is required by policy-makers to provide policy evaluation and solution in an increasingly complex society, as a result of increased and developing communication opportunities, population growth, travel, and trade. This assessment has implications for democracy as the nature of complex society alters the language of political discourse and restricts participation to those conversant in technical languages. However, whilst this chapter has shown the relationships between these and other theoretical concepts, and how experts can or may operate in the policy process, it remains to be established what type of influence experts have in particular policy areas: for the siting of the route of the CTRL, and air pollution and asthma.

The next set of issues that require investigation are those concerning the true contemporary nature of expert influence, to provide some empirical reinforcement to the theoretical assessment above. Thus, there is a need to chart the development of expertise since 1945 and to assess the two main reasons for this, complexity and legitimation, both representative of an increasingly integrated and organisational policy process. This is required to place the contemporary nature of expertise in historical context, and are discussed in the following chapter.

CHAPTER 3

HISTORICAL CONTEXT

'Every political culture creates its own breed of expert: Daniel interpreted dreams for Nebuchadnezzar, Chinese diviners read the cracks in heated tortoise shells, and Roman augurs found meaning in the entrails of chickens or in the flight of eagles. The policy expert - whose Latin name, expertus, connotes a knowledge arising from practice or expertise - is fundamentally a product of a given society's political practices and experience.'

(J. A. Smith, 1991)

3.1 INTRODUCTION

This chapter traces the development of expertise since 1945. It examines the development of the welfare state as the primary mechanism for this expansion. It also explores, in detail, the way in which the use of expertise by policy-makers has altered.

Almost any form of consultant or expert or special adviser, be it connected with public policy-making or contained in commercial environments, could be considered 'experts'. They perform either a role that cannot be performed (because of a requirement, for example to use external evaluators for policy programmes) or is unable to be performed within organisations for which they provide assistance. But this does not make them an expert in a true sense. Not only experts must process and provide knowledge, but he or she must occupy a position of authority, achieved primarily through a professional code and training. Experts able to add something that policy-makers unable to claim alone: namely provide the requisite objectivity to policy evaluation and credibility of policy to the public.

The conferment of authority may be produced not only through historical tradition of a particular professions, but could come about through the process of political patronage. This is an important issue for the policy process. Over time this is as a legitimate method as professional training or education. Therefore, to use

Friedson's definition, experts are agents or purveyors of formal knowledge; in the policy process this is knowledge applied in a systematic and structured format. And it is this context that this historical assessment is given.

The post-1945 period has witnessed an unprecedented growth in government, both nationally and internationally, in political, social, and economic environments. Governments are perceived to be responsible for an increasing number of activities, and even when these activities are directly delegated the burden of responsibility, in the eyes of the public, is unmoved. Such a scenario has resulted in a highly complex political system. The increase in complexity of public policy-making has led to an increased use of research and expertise. Policy-makers are ever more dependent upon research and expert opinion.

Since 1945 the British state has become involved in the provision of services and management of the economy. Previously the role of the state was concerned primarily with the regulation of property rights, order and security, the judicial system, and the effects of these concerns on the rights of individuals. Three domains of state intervention are of particular importance. First, the range of public services known as the welfare state, although the foundation for these changes had been developed in the liberal welfare reforms before 1914. Intervention in this area is manifested in the provision of services such as education, public health, and pensions. Second, following the adoption of Keynesian policies after 1945, the state has become involved in the operation of the economy, in a range of areas from industrial development through the implementation of subsidies, to direct public ownership. Today, the state is still seen as both provider and guarantor of favourable economic conditions. The third domain of state intervention concerns the nature of public and private freedoms. The complexity of urban life makes it necessary to limit the impact of collective behaviour, for instance, moving beyond basic social control to consumer and environmental protection.

The establishment of the managed economy welfare state represented a watershed in social provision. This period of change, during and immediately after the Second World War, produced a belief that the resources available before and during the War to alleviate social difficulties would be available again. It was in this climate that the Beveridge Report (1942), Education Act (1944), Housing Act (1949), and a host of other policy measures were introduced during the decade after 1939 (Fry, 1979, pp. 200-201; Gough, 1979). What altered from the

previous level of responsibility was the scale and range of government functions. The state was deemed responsible for providing perennially increasing real incomes, attaining price stability in the market place, full employment, and a continuous expansion of social services (Fry, 1979, pp. 204-205). This represented a period of 'acceptable' state intervention.

Policy solution for most of the post-1945 period has centred on administrative adjustments, not ideological confrontations, and the palliative for the problems of the managed economy has been changes in the machinery of government (Fry, 1979, p. 207). It was perceived by governments that there was a lack of expertise present in policy areas during the 1960s and 1970s, and a failure of administrative structures to deal with policy difficulties. This perception led to an institutional response from government, with the introduction of mechanisms such as policy units, groups operating within government departments to provide more policy advice and information. It was hoped that these mechanisms would provide a more objective approach to policy matters. Hence, the 1960s and 1970s were characterised by a concern for reform of the policy process, over and above a concern for policy output. This period also witnessed an increase in the use of social scientists and policy scientists in the policy process. It was a time of expansion in social science teaching at universities and polytechnics. It also opened up the possibility for career paths for professional occupations.

This 'output-optimising' phase of policy faded in the late 1970s and early 1980s. It altered to a situation whereby expertise was geared primarily towards particular interests. Social science became aimed at legitimating different policy proposals. This was due, in the main, to the critical challenge to expertise, or more specifically, an emphasis on private sector methods, as opposed to public sector methods, in policy-making. The fundamental change was that knowledge was used to serve political actors, and occurred through mechanisms such as think-tanks, who provided the legitimacy for policy direction. They arose out of a desire to politicise the policy process. They were important during the 1980s and early 1990s because of their direct co-option by policy-makers into various areas of government policy. A further change during this period was the rise in regulation. New regulatory procedures, such as those for the newly privatised industries, were justified primarily on the grounds that expertise was required in these complex policy areas. Although it was not only an attempt to provide a review of objectivity, but also to appease public opinion over un-regulated private

monopolies. This development in Britain was a reflection of a trend across Europe, and can be seen as a reflection of a tendency towards technocratic management of many areas of policy.

Therefore, expert influence in policy since 1945 has witnessed various trends, from a broadly 'technocratic' form in the immediate post-war period, through to a systems approach to policy during much of the 1960s and 1970s, to a highly politicised policy environment for the 1980s and 1990s, with an emphasis on regulation and legitimacy. The primary vehicle for this influence has been through the welfare state.

3.2 EXPANSION IN STATE ACTIVITY: THE WELFARE STATE

The development of the welfare state produced an expansion in state activity in five separate directions: the public sector, macroeconomic management, regulation, 'social engineering', and the provision of minimum standards of well-being. Together, they comprise the 'welfare state', although its essence is the provision of services and the protection of minimum standards. The rise of the welfare state has coincided with the spread of democracy, the development of the mixed economy, and a period of unparalleled material prosperity. Although these may have *coincided* there is every reason to believe that all these phenomena are related to one another in subtle and complex ways. The spread of political democracy undoubtedly promoted the development of the welfare state, for example, the welfare state may well have made western economies grow faster than they would otherwise have done.

Post-1945 Britain has witnessed two periods of welfare expansion. First, during the Second World War and its immediate aftermath, and second, between the mid-1960s and mid-1970s (Gough, 1979, p. 69). The legacy of the first period in particular, was an expanded state in economic and social matters, that heralded a commitment not to return to pre-war conditions, particularly in terms of industrial relations, an acknowledgement that full employment and planning led to rising expectations, and a sense of security for much of the working population. Thus, the tone of the first wave of expansion was an irreversible shift in the role of the state, of which the welfare state was an integral part, and a general extension of the state in the international arena. Economic difficulties and leverage of the working

class was the primary impetus for the second era of expansion. This heralded new institutions in education, incomes, health, and housing, and a concomitant centralisation of the state structure.

The development of the welfare state may be considered in an economic context. For example, policy solution was greatly assisted by consistently high levels of employment and economic growth, in order to respond to a high demand for primary education in the late 1940s, higher education in the 1950s and the 1960s, and a growing dependent elderly population. This was not a battle between disinterested experts about what should be done, but ideological tensions between political parties and politicians. The development of the welfare state during this period was not strictly technocratic in conception, but was considered a political necessity for the age.

This development continued into the 1950s and early 1960s. Policy solutions were sought less on ideological grounds. Rather, policy-makers sought to justify policies, or legitimate them, with regard to the reasoning of 'experts' in macroeconomic and administrative management. This period has been called one of technostucture, akin to government being in control of a unitary firm or large corporation. Hence, there was an appeal to technical solutions, provided by the professional civil service, which enlisted the support of research institutes, planning units, and consultative bodies (Poggi, 1978, p. 142). The use of expertise during this period was not because of complexity, but due to a lack of ideological distinction between policies and resulted in the establishment of an expert or scientific culture. The extension of the state required a necessary increase in expert involvement and bureaucracy; more information, more rules, more issues to consider. Expert involvement became more acceptable because of the decision not to return to post-war conditions. Policy experts tended to dominate because of the increase in number and size of new institutions in areas of the state's responsibility.

During the late 1960s and early 1970s the machinery of government came under close scrutiny, primarily because of prevailing economic conditions. There was a challenge to the ability, and therefore legitimacy, of the state to sustain industrial development. The actual machinery of government was criticised because it was perceived that the process of government, involving the civil service, failed to utilise new techniques, skills, and expertise. It was claimed by some observers

that policy-making possessed a narrowness of outlook, and a lack of long-range planning and formal co-ordination of policy (Price, 1983, p. 22).

As has been stated above, post-1945 reconstruction is an important factor in illustrating complexity and legitimacy. Governments of the late 1960s and early 1970s were faced with the prospect of sustaining a regulated economy with full employment and simultaneously meeting demands of *interalia* the City, domestic industries, and the labour movement. In the wake of the 'post-war settlement',

'... the attempt to maintain full employment and to meet extensive welfare obligations imposed on the state rapidly escalating costs.' (Held, 1989, p. 114)

Furthermore, the post-war period presented Britain with a new challenge to maintain its international status. This challenge had implications domestically, as successive governments sought to resolve complexities in order to retain this. The pervasive dissension and lack of consensus between classes, and,

'... the fragile nature of much working-class political consent, the risk that industrial conflict might spill over directly into challenges to government, law and the state, provided enormous pressure on successive governments to expand the range of the activities of state agencies. This was reflected not only in successive governments' expenditure on health, education and social security, but in a variety of direct financial aids (for example cheap energy from the nationalised industries), tax allowances and budgetary assistance to industry. A series of government attempts to advance the rationalisation and reorganisation of industry through, among other things, the introduction of planning experiments, was also a prominent feature of the time.' (Held, 1989, p. 114)

Importantly, by accepting the credit for improving living standards and social successes during the 1950s and 1960s, governments thereby accepted the responsibility for satisfying aspirations at general elections (Held, 1989, p. 15).

What is required is greater elaboration of the two waves of welfare expansion, and how the use of expertise has altered during these periods. The first period of state and welfare expansion was between the 1940s and the mid-1960s.

3.2.1 The 1940s to the mid-1960s

In Britain, many different types of experts have been involved in the policy process since 1945: professionals, policy scientists, social scientists, planners, and so on. Much of this involvement has been through the growth of the welfare state. The status professions (medicine and law), in particular, were crucial in keeping the liberal state governments legitimated as they underwent the transition to the

managed welfare state (Heidenheimer, 1989). As a consequence, the extension of government responsibility provided the primary mechanism for the incorporation of expertise within British policy-making. In addition to the 'traditional' functions of law and order, imperial management, defence, foreign policy, and treasury and finance, the commitment from government to a managed economy welfare state made for subsequent changes in, and a subsequent expansion of, the machinery of government. This involved *inter alia* industry, agriculture, trade, employment, public corporations, and social services.

The process of nationalisation was an attempt to obtain large-scale economies, and a primary mechanism for the expansion of the machinery of government. The first, the Bank of England, was followed by leading industries, the National Coal Board, the Central Electricity Authority, the National Gas Council, The British Overseas Airways Corporation and British European Airways, the aim being to achieve business management, public accountability, but not necessarily political control. In practice it became a case of 'back-seat driving'. Questions were asked during the 1950s about the exact nature and role of these new public corporations, but it was not until the late 1960s that it became orthodoxy for corporations to act in 'their commercial interests', a trend set in motion by the Herbert Committee on the Electrical Supply Industry in 1955. Moreover, in 1969 the Post Office became a public corporation which affected it little in terms of organisation, but diminished direct governmental responsibility. Attempts at rationalising the system in the 1960s and 1970s, such as the Seebohm Committee, were scuppered by in-fighting between professional groups. This was most profoundly expressed in the National Health Service (NHS) (Fry, 1979).

Increasing levels of cost and its subsequent implication for policy-making taxed politicians and administrators during the 1960s and 1970s. After a further expansion by 1974 approximately 27 per cent of the working population were government employees and public expenditure amounted to approximately 50 per cent of GNP. It is this period that constitutes the second wave of state and welfare expansion.

3.2.2 The mid-1960s to the late 1970s

The extension of the welfare state had an effect on administrative structures required for the implementation of policy. This machinery came under scrutiny during the 1960s, and culminated in the Fulton Committee on the Civil Service

(1966-68) and Radcliffe-Maud Royal Commission on Local Government in England (1966-69). The conclusion of the Fulton Committee was critical. It concluded that the civil service was badly structured, introverted and poorly managed, in contrast to what it believed to be required: far-sighted solutions to the complex social and technical problems that it faced (Lowe, 1993, p. 86). The intractability of some policy problems of the 1960s and 1970s made policy-makers more willing to consult outsiders. The creation in 1968 of the Civil Service College, the Central Policy Review Staff (CPRS) in 1970, and the arrival of permanent government publications, such as *Social Trends*, reflected these changes in attitudes (Sharpe, 1975; Lowe, 1993, pp. 86-88). Up until the 1960s the civil service employed few economists or statisticians. By 1983 the Government Economic Service (set up in 1964) employed 300 specialist economists (Prince, 1983).

It was this environment that led to the creation of informal internal mechanisms such as policy units (Prince, 1983). A policy unit was a formal and permanent organisation engaged in the policy process on a continuous basis, located at various levels within government, with an organisational structure that turned information and ideas into analysis and advice. It was also a policy-oriented staff organisation that performed at least one of the following roles: policy and programmatic planning, research, liaison, or co-ordination and evaluation. Very few existed before 1964, with most being established during the 1970s. The 1968-72 'post-Fulton' era was the predominate period for policy unit expansion, whereas the 1972-1980s period witnessed a decline in formation, and disbandment or reorganisation of existing units. Early attempts at increasing the number of specialists within policy units faded as they were made subordinate to generalists. The majority of the policy units were staffed by insiders, although some contained trained policy specialists from within the civil service.

The rationale for the development of policy units was based primarily on 'Gresham's Law', that is, if the responsibility for long-term planning is placed in the hands of routine administrators, they will provide only sporadic attention to non-routine tasks. A second rationale was a responsiveness to the complexity of public policy, and to permit government bureaucracies to comprehend and respond to public needs. The policy planning unit,

'... was an institutional device to inform the civil service of new ideas and techniques, enabling it to be in touch with experts inside and outside government.' (Prince, 1983, p. 26)

These, however, were not the only reasons for structural changes. It was believed that policy units would provide valuable staff assistance to officials via senior policy advisers, and enable politicians to extend their control over the bureaucracy. There was also a concern for objectivity. For example, the 1970 White Paper, 'Central Government Organisation', in proposing the establishment of the CPRS, expressed a government preference for information free from departmental considerations, and objective assessments of the implications of alternative courses of action. Therefore, the origin of such organisational units was really born in the perceived inadequacies of 1960s administration,

'The idea of distinct organisations to undertake policy planning functions can be traced back sixty years to the Haldane Committee on the machinery of government during the 1960s and early 1970s the ideas of formalised policy units really came into favour in British administrative thinking. The concept of policy units was closely associated with other developments in public administration during this period. In central government, reports like the Plowden Report on Public Expenditure, the Heyworth Report on Social Studies, and the Trend Report on the Civil Service argued for more formal processes of policy planning, research and review, and the need for greater input by specialists to government policy-making.' (Prince, 1983, p. 23)

Hence, the introduction of policy units was to be part of wider reform. A Public Expenditure Planning Committee was formed in 1961 and Planning Programming Budgetary Systems (PPBS) aimed at improving analytical content were established. There was also a trend towards joint planning between central and local government, particularly in education, transport and social services, the establishment of the Government Economic Service (1964) and the Civil Service College to train civil servants in policy science and planning.

Although these administrative reforms represented a device for increased objectivity and accountability, their development resulted from a high level of demand. The demand was not only in terms of the political environment directly, but also indirectly, generated *within* the political system by politicians, advisers, civil servants, with supporting roles from academics, management consultants, and business representatives (Prince, 1983, pp. 38-39). Legitimacy was also an important concern in this respect. In at least a few cases,

'.... policy units were set up within government so that government could counteract and be less vulnerable to the criticisms of outside organisations such as political parties and interest groups that had developed the resources and skills to analyse public policies. Thus, units could be partly viewed as a defence mechanism for government.' (Prince, 1983, p. 39)

Important elements of this second wave of expansion are worthy of greater elaboration, such as the development of the policy sciences, and the rise in professionalism.

3.2.2.1 Policy Sciences

The concern with administrative reform during the 1960s and an extensive interplay between demand and supply for expertise, was instrumental in the development of the policy sciences. These may be defined as 'knowledge both in and of the policy process'. Knowledge of both the mechanisms of the policy process and the various policy issues within individual areas (Lasswell, 1970). However, whilst governments were keen to accept the application of business techniques they were sceptical of more social science and expert-based analysis. This situation was a result of the relatively closed nature of decision-making between government and interest groups. It reduced the potential points of entry for policy analysts (Hogwood and Gunn, 1984). Hence, the primary impetus for the development of the policy sciences in Britain has been supply-led; the ability of the academic community to focus its attention on specific policy environments and difficulties (DeLeon, 1991, p. 104; Hogwood and Gunn, 1984).

There have been two overlapping phases between social sciences and policy-making since 1945. In the first,

'... which lasted until the late 1960s, social scientists were actively seeking from the outside to influence government, but the influence they had was of an *ad hoc* kind.' (Smith, C. S., 1991, p. 132)

This was monopolised by particular schools of thought, and dominated by certain individuals, and corresponded, in large measure, to the political consensus. In contrast,

'The second phase ... was marked by a considerable expansion of the social sciences, at first in their teaching in universities and polytechnics and later in the growth of research funding by government, and in the employment of social scientists in the bureaucracies.' (Smith, C. S., 1991, p. 132)

The first phase can be illustrated with examples such as Keynesian economic theory. Although not fully 'incorporated' into government policy until 1964, a commitment to demand management had been made by the previous Conservative government. Formulated in Cambridge before the war the ideas were 'converted' into tools of government with the help of the National Institute of Economic and

Social Research, who provided forecasting and statistical techniques that previously did not exist. Parallel to this development the ideas were disseminated to other economists. However, although there was a large body of knowledge awaiting 'application' it was not adopted until the politicians and civil servants saw the potential benefits of its application (Wittrock et al, 1991).

This first period of development accelerated during the 1960s and early 1970s, and was effected from three forces: downwards from a comparative politics seeking to become more empirical, in order to draw comparisons between policy areas; upwards from a decision-making approach seeking to become more generalised, in essence a systems-based approach to policy analysis; and, across from other disciplines seeking to become more truthful to the complexity of events, a recognition of the cross-sector influence of policy. Essentially, this change represented a movement in focus, from a concern with policy ends to that of policy means (Heclo, 1972).

As we have seen above, this programme analysis and 'output-optimising' phase of social science employment waned during the late 1970s. It was replaced by an increasing professionalisation and specialisation of the social sciences (Smith, C. S., 1991). For example, groups such as the Society of Business Economists were incorporated into the state bureaucracy, as were psychologists into areas of the NHS. Policy scientists were able to dominate the policy area more extensively than previously because of the new policy environment. The sort of experts who were able to dominate was dictated to a large extent by the prevailing nature of the policy environment - the scale of the concern enabled the development of social sciences as a form of professional activity.

Therefore, it was not a set of experts in a particular policy area such as environmentalists versus chemists in air pollution, but rather their type - the importance of policy or social scientist grew in evidence during the 1960s/70s. They represented a group not previously used in the policy process. In addition, universities were encouraged to provide professional training, and certain individuals were co-opted into the policy process. It was also a period of reconsideration of the role of the state,

'Consequently, social science policy tended to shift more and more towards the idea that research tasks had to be defined more exactly and tailored to policy needs. The new instruments like the 'customer-contractor principle', and 'sectoralization' in science policy could be used in attempts to direct developments in social science.' (Smith, C. S., 1991, p. 52)

This situation represented a political environment that stressed cost-effectiveness. As a consequence social science became aimed at,

‘.... providing different interpretations of problem constellations and legitimation for different policy proposals in a given situation.’ (Wittrock et al, 1991, p. 55)

Therefore, the policy sciences movement arose out of two sources of concern: a demand from policy makers facing the scale and intractability of government responsibility, and academic researchers turning their attention increasingly to specific policy issues. What occurred was that,

‘.... over a period of years new university teaching programmes were developed in public policy; a number of academic journals devoted to policy analysis, policy studies and policy sciences were launched; and teachers and researchers in such established disciplines as political science, economics and sociology began producing publications on policy-related themes.’ (Ham and Hill, 1993, p. 1)

The development on the demand side of this development was a desire to criticise the efficiency and effectiveness of public institutions, and an awareness of poverty, and urban and regional decline. This precipitated an era of planning, reflected in the Plowden Report (1961), a White Paper on the nationalised industries, incomes policy, health service planning, and so on. It marked the,

‘.... beginning of official interest in more systematic methods of ordering priorities and relating expenditure to resources.’ (Hogwood and Gunn, 1984, p. 33)

It would seem that this development is more complex than it at first seems. There appears to be a multiplicity of reasons: political and intellectual legacies, government entrenchment, state structures, and internal conditions. All these factors affected political orientation to social science solutions and expert access to the political process. Therefore, whilst familiarity and interest in policy issues was not unique it was the scale of concern that was new, sufficient for some observers to argue that the policy orientation enabled the evolution of the social sciences as a form of professional activity (Wagner et al, 1991, p. 6). Indeed, in the 1960s the social sciences,

‘.... reached the peak of their influence in the affairs of the nation, particularly in the management of the economy, the handling of the trade unions, and in the policy on social security. It was a happy conjunction of intellectual orthodoxy and political consensus. It was underpinned by a network of supporting relationships and institutions, in which Oxford, Cambridge and the LSE played a leading role.’ (Smith, C. S., 1991, p. 145)

3.2.2.2 Professions

The development of the welfare state was directly dependent upon the competencies of professional groups to administer its social rights,

‘As administrators of welfare legislation, professional experts became the mediators between the state and its clients.’ (Bertilsson, 1990, p. 177)

Professionals were actors in ‘just distribution’. Their role was not only to administer, but also to legitimate the welfare state system. On a political level reform provided facilities for new types of professional and professional activity, such as statisticians and political scientists. The welfare state was, and continues to be, as much a professional as well as political achievement (Bertilsson, 1990, p. 124). Indeed, the public sector was, and continues to be, an important labour market for professional occupations. Hence,

‘... the expansion of the public sector is one reason for the increase of (welfare state) professionals. On the other hand professionals themselves constitute a cause for the development and institutionalisation of welfare. Professional groups have established themselves by their own power, by discovering problems, by pointing out needs, presenting suggestions for reforms, and at the same time demanding occupational monopoly, various kinds of closures, formal credentials and so on, backed by the state. The welfare sector has been both an end and a means for professionals. In other words the activities of professionals result in effects which reproduce themselves.’ (Brante, 1990, p. 92)

The state had, and continues to have, an interest in professions. Prior to 1945 professionalism in England had been primarily practitioner-led. Although the state was present in the maintenance of authority it played a passive role, as did universities. This situation altered after 1945. Universities took on increasing amounts of responsibility for professional training. The number of universities rose from 26 in 1950, to 44 in 1970, and student numbers rose from approximately 85 000 to nearly 460 000 (full-time) during the same period (Burrage et al, 1990, p. 212; Perkin, 1989, p. 451)

New professions sought exclusionary market shelters using non-market principles, a ‘disinterestedness’ derived from the sense of ‘*noblesse oblige*’, and most importantly, superior learning. This latter principle moved the development of the professions towards certified as opposed to trained knowledge, as universities took on board responsibility for professional training (Larson, 1990). Professional development transferred from the traditional collegiate form, a demand for occupational skills from a large and heterogeneous consumer group, to

that of patronage and state mediation. Patronage occurs when an elite or large corporation is the major consumer of expert services, and is hence client-based, in this case the state. The extension of the welfare state has provided the mechanism for this co-option,

'The authoritative pronouncement common under a system of professionalism [gave] way to the incorporation of practitioners, as advisers and experts, within the context of government decision-making.' (Johnson, 1979, p. 84)

The growth in bureaucratic and administrative structures during the 1960s and 1970s gave rise to the notion of a career patterns for professionals and experts. This development was a result of corporate patronage, through the creation of occupationally-owned and managed bureaucracies, and, as a consequence of state mediation, through the creation of state-controlled service agencies (Johnson, 1979, p. 85).

The public sector, therefore, provided the primary facility for professional growth. It was the organising principle of post-war society (an application of scientific expertise to industrial society), the administration of the welfare state, and 'management by manager' of the mixed economy (with universities providing ammunition and justification for both sides), that facilitated the development of professions in policy,

'Between 1945 and the early 1970s the professional society reached a plateau of attainment. This did not mean a utopia based entirely on merit, social efficiency and justice. It meant, rather, a society which accepted in principle that ability and expertise were the only respectable justification for recruitment to positions of authority and responsibility and in which every citizen had the right to a minimum income in times of distress, to medical treatment during sickness, decent housing in a healthy environment, and an education appropriate to his or her abilities.' (Perkin, 1989, p. 405)

In contrast to the development of state activities between 1945 and the late 1970s, the 1980s and 1990s represented a change of direction.

3.2.3 The 1980s and 1990s

The late 1970s and early 1980s witnessed a backlash against 'big government' and a reaffirmation of private sector methodologies over the public sector methodologies, and a critical challenge to experts. Knowledge alone was considered an insufficient basis for policy analysis. This period witnessed a development of new types of experts operating through businesses and think-

tanks. Although other groups such as solicitors came under attack, the main brunt of criticism was faced by public professionals, as a result of government and, to some extent, public demands for policy efficiency, a curbing of the excessive financial burden of the public sector, and policy effectiveness (Parsons, 1995; Perkin, 1989, p. 482; Tarschys, 1983). However,

‘Wherever the decision lay between the public and private sectors, professional society required expert functionaries on both sides of the line. Government policy might marginally shift the line, but it was completely unable to reduce the dependence of the state and society on the services of the professionals.’ (Perkin, 1989, p. 489)

The 1980s and early 1990s has been characterised as a period of neo-professionalism, or de-professionalisation, as many of the new professions had their origins in the new conception of a streamlined welfare state, and therefore the state itself and universities played a less passive role. These new professions were based upon a mixed system of regulation, a system that synthesised centralised administration and self-regulation (Siegrist, 1990, pp. 193-194). Therefore, the post-1945 period has demonstrated a shift in the status of professionals, and public professionals in particular. It has witnessed changes in the relationships between the four prominent actors: the professions themselves, states, universities, and users. The state is the most prominent actor as it is both a user and legitimator. The attack on public sector professions came from both ends of the political spectrum, those who wished for improved welfare and care, and those who believed that this could only be effectively administered using the mechanisms of the private sector. Therefore, the backlash against individual professions such as social workers and teachers, merged with attacks upon welfare provision in general.

The promises of policy research made during the 1950s and 1960s that coincided with the rapid growth of public measures, were not being fulfilled by the 1970s (Wittrock, 1982). This resulted in a new approach; public administration as management, with an emphasis on scepticism of traditional social science. For example, no Royal Commissions were set up during the Conservative governments of the 1980s to consider policy problems. Instead,

‘... brief policy analysis exercises were conducted with an explicit political brief and the use of a limited number of ideologically trusted advisers.’ (Ham and Hill, 1993, p. 3)

Furthermore,

'In the 1980s interest in policy analysis continued to develop, despite a tendency for a shift in the terms of the debate. The attack upon the public sector led to a search for market devices to solve social allocation problems, and an emphasis upon the need for solutions to public sector inefficiencies rooted in the application of private sector management techniques.' (Ham and Hill, 1993, p. 3)

The election of Margaret Thatcher as Prime Minister in 1979, therefore, represented a watershed in the politics of welfare. The policies of Thatcher governments reflected a concerted attempt to counter bureaucracy and professional dominance, rather than a direct attack on welfare. Instead, it was aimed at organisations and individuals who had a direct interest in implementing policy and welfare outputs, particularly of health and education, and was both a political and academic attack. This offensive was an attempt to politicise the public service, and to present key civil service posts to 'sympathisers'. However, it also represented an attack on one set of experts by another; private against public. The approach to the politics of welfare,

'... clearly owed something to the academic industry which had drawn attention to the difficulty of implementing new policies and to the power of professionals and semi-professionals.' (Hill, 1993, p. 167)

Concerns about the ability to deal with welfare provision for those disadvantaged resulted in a victory for New Right thinking. As a result,

'... a related body of work associated with the New Right portrayed professionals and bureaucrats in the public services as 'monopolists' able to maximise their gains and enlarge their 'bureau' whilst limiting their outputs. Hence, the creation of diversity and, where possible, competition within the public sector was seen as vital to curb this power.' (Hill, 1993, p. 167)

Thus, policy was aimed at portraying recipients of welfare benefits as customers, rather than claimants, patients, or even clients. This imposition of private sector methods within the public sector continued, and accelerated under John Major who sought to increase the role of agencies, under the Next Steps Programme. The Next Steps Programme highlighted a new style of public service management; that management is superior to administration; that this form of management is superior in the private sector as opposed to the public sector; and, that good management consists of a body of knowledge that is universally applicable. This approach has been given the term 'New Public Management', with the emphasis on professional management, standards of performance, greater emphasis on output controls and so on (Wilson and Doig, 1996).

This political environment altered the nature of the employment of expertise, signalling an end to pragmatism, a concern with means rather than ends. Instead it heralded a return to the belief that ideas have consequences (Smith, J. A., 1991), or more precisely, that right-wing ideology produces important outcomes. The fundamental change was that ideas, or knowledge, should serve political actors, justifying and rationalising policies and political convictions. New expert groups, such as think-tanks prepared the intellectual basis, that is, provided the legitimacy, for the ascendancy to power for certain individuals in the 1980s, and helped to shape the context in which debate took place (Smith, J. A., 1991, p. 265; Parsons, 1995, pp. 160-161). A concomitant element throughout this period of change during the 1980s and 1990s was the rise in regulation as a policy mechanism.

3.2.3.1 Regulation

The 1980s and early 1990s witnessed an emphasis on agencies and quangos for the formulation and implementation of policy, as well as the privatisation of many areas of the public sector. There was an alteration in type and not necessarily in the level of provision; a movement away from the traditional depiction of Britain's 'statism' (post-1945 expansion of the welfare state, and a transition from empire) (Dunleavy, 1989), towards a more European notion of the state. Therefore, in response to the complexity of the policy-making system of the 1980s and early 1990s there was a movement towards regulation.

Agencies such as the Independent Broadcasting Authority and the Civil Aviation Authority, formed in the 1970s, were supplemented in the 1980s and 1990s by a new type of regulatory agency, the regulatory offices, as a result of privatisation of the previously nationalised industries. For example, the Office of Telecommunication (1984), the Office of Gas Supply (1986), the Office of Water Services (1989), and the Office of Electricity Regulation (1990) (Majone, 1994, pp. 79-80). This movement towards regulation formed part of a continuing trend across European countries, and the reasons for the rise of these independent bodies are strikingly similar. These agencies were justified because of the perceived need for expertise in highly complex or technical matters. The growth of administrative regulation in Europe,

'... owes much to these newly articulated perceptions of a mismatch between existing institutional capacities and the growing complexity of policy problems: policing financial markets in an increasingly interdependent world economy; controlling the risks of new products and new technologies; protecting health and economic interests of consumers

without impeding the free flow of goods, services and people across national borders; reducing environmental pollution.' (Majone, 1994, p. 85)

One aim of Conservative government policy during the 1980s and early 1990s was 'rolling back the state'. The reality of this situation, however, is one of paradox. Rather than reduce the burden of government as the policy intended, in practice government intervention increased. Indeed,

'From the perspective of those groups now affected by increased government intervention at the sectoral level - for example, teachers, doctors, lawyers, university lecturers, water companies - the 'state' is now considerably more intrusive.' (Richardson, 1994, p. 179)

The 1980s and early 1990s did not witness a streamlining to the responsibility of government. On the contrary, the attempt to reduce complexity via structural reform and regulation resulted in *more* government, not less. During the 1990s experts have therefore enjoyed a significant role. However, this is within a more pluralistic environment, where experts with similar experiences and access to identical information and research, are used to reinforce or legitimate different political opinions. In consequence this means,

'... that 'expertise' or professional standing must be viewed as an integral part of the political argumentation which takes place. Thus experts and professionals should not be seen as a distinct separate class or structure within the policy-making process, but inextricably enmeshed with power, and politics. They are not 'un-political' or neutral participants in the process: they may advance class and business interests as well as professional values and beliefs.' (Parsons, 1995, p. 158)

Not only have successive governments during the 1980s and 1990s divested responsibility for the monitoring of privatised public utilities to agencies, the agencies themselves employ research and expertise in order to monitor and assess the industry. For instance the Office of Water Services (Ofwat), between 1993-1995, spent £3.1m on consultants out of a total budget of £18.6m. Rather than employ large numbers of staff themselves the regulatory agencies employ expertise of this nature in order to monitor company policy. This situation is because the majority of expertise is contained within the company or industry that is being regulated, which of course, the agencies are unable to draw upon (Hencke, 1995).

The privatisation and de-regulation policies of the post-1979 Conservative governments were intended to prevent the unrestrained commercial activities of new private monopolies. An alternative, and more realistic, interpretation is that de-regulation was reflective of the twin objectives of Conservative governments of

the 1980s: the creation of a free economy, and a strong state (Johnson, 1990, pp. 196-197). Yet although privatisation is presented as the most obvious example of state withdrawal and part of the creation of a free economy, the rise in regulation reveals a more complex picture of a society unwilling to accept unregulated private monopolies. Thus there was a re-regulation of various industries. This pattern was repeated,

'... in nearly all areas of so-called deregulation of industries and services and again in the many cases of privatisation for which Britain has become known. In privatisation particularly the government has had to resolve two major conflicts of policy goals. For privatisation to be successful, the industries to be privatised had to be attractive to investors Equally it was politically impossible to have totally unregulated private monopolies and so new regulatory regimes have been introduced.' (Richardson, 1994, p. 190)

This rise in regulation has an important consequence in that it signals a tendency towards a technocratic approach to policy provision. Regulatory mechanisms highlight an attempt to de-politicise the policy area, and produce a consensus on the nature of the policy problem, and the most appropriate solutions.

As mentioned briefly above, in addition to regulation another important change during this period was the rise to prominence of think-tanks.

3.2.3.2 Think-Tanks

Think-tanks arose out of a desire to politicise the process of supplying expert advice to policy-makers, primarily in the United States (Fischer, 1991, p. 341). The basic result of this desire being that any reform agenda can be devised largely outside of governmental institutions. The term think-tank itself is extremely problematic,

'Perched between universities, governments, and business, the modern think-tank is a unique institution in the policy process. And as research institutes become more committed to policy advocacy, they assume characteristics of interest groups.' (Tupper, 1993, p. 531)

A think-tank has been defined as an independent organisation engaged in multi-disciplinary research intended to influence public policy (James, 1993, p. 492). Moreover, that they possess three primary characteristics: they are intellectually independent from political parties, but output is geared to party needs; they undertake public interest and strategic research; and, most are politically partisan. Think-tanks have also been described as being both internal (attached) and external (detached) from government agencies. For instance, planning and research units

within government departments, and pressure-groups with a research capacity respectively. The important distinction, however, seems to be the political standpoint of the think-tank, rather than a concentration upon single issues, which seems to typify pressure-group activity.

In Britain, the traditional depiction of think-tanks is further complicated by the strength of political parties (therefore making it difficult to eschew partisanship), the small scale of research funding, and the internal policy-making capacity of the civil service. Although a semantic issue, the definition of a think-tank is important because of the prestige attached to the term, in contrast to pressure groups, who are prone more to receive negative publicity in the media (Denham and Garnett, 1995). It seems that it is more beneficial to determine whether or not a think-tank is inside or outside government, rather than partisan, non-partisan, ideological, or non-ideological (Parsons, 1995).

The complexity of social problems faced by governments was one of the reasons for the development of think-tanks during the 1980s. Governments looked towards think-tanks to provide original, innovative, and most importantly practical solutions to policy difficulties. There were, however, other reasons, such as the declining influence of the civil service. This political environment caused a change in the ethos and aims of think-tanks during the 1980s, a process that had begun in during the 1970s. Think-tanks began to operate in a more pragmatic sense, offering recommendations to government on specific areas of policy. This change in emphasis was in contrast to the more academic approach characteristic of traditional, long-standing groups, such as the Fabian Society.

Despite this change in direction it was only in the run-up to the 1983 general election that think-tanks had any tangible effect on policy. However, it was only through ad-hoc or special adviser relationships with policy-makers that influence was apparent. Members of groups such as the Adam Smith Institute (ASI) would be seconded as specialist advisers by ministers sympathetic to their cause. This situation may explain,

‘... why the number of public policies and laws that can be placed at the door of think-tanks is so small. There is virtually no example of any legislation on either side of the Atlantic that was entirely and uniquely due to one individual think-tank.’ (Hames and Feasey, 1994, p. 231)

It is difficult to separate ‘interests’ and ‘ideas’ in policy, and as a consequence it is difficult to assess how ideas shape policy (Parsons, 1995). However, the Institute

for Economic Affairs (IEA) could claim to have kept monetarism on the political agenda. Similar claims could be made by the Centre for Policy Studies (CPS) for the general policy of privatisation of public industries, and the ASI could take credit for providing intellectual energy for the privatisation of various public-sector industries and services. Think-tanks are not purely a phenomenon of the right, despite the prominence of the IEA, CPS, and ASI during the 1980s. The Institute for Public Policy Research (IPPR) was formed in 1988. A year later the Social Market Foundation formed part of the Social Democratic Party's intellectual armoury. Think-tanks continued to grow in the early 1990s with the formation of groups such as the European Policy Forum (1992) and Demos (1993) (Parsons, 1995). Demos is now an integral part of the Downing Street Policy Unit.

As mentioned above, one area that could be considered success for the influence of think-tanks is that of privatisation,

'Think tanks not only provided intellectual legitimation for privatisation policies, through their intellectual advocacy and research brokerage they also helped spread privatisation ideas.' (Stone, 1995, p. 323)

This success resulted from think-tanks forming part of national and international epistemic communities. These are forums of expert actors placed within a wider climate of ideas. Research brokerage is a long-term process of conveying knowledge from universities and research organisations to public and political domains. Think-tanks draw on contacts with the media and opinion leaders and communicate through seminars, conferences and publications. Links are cultivated with academics and other research institutes at both domestic and international levels. These linkages help to create transnational alliances where information is transmitted and shared. Knowledge does not automatically 'enlighten' policy makers. However, broadcasting new ideas is an attempt to influence policy agendas or the more general desire for discourse structuration (Stone, 1995, p. 334). Ideas may become entrenched within the culture of society. For example, there was a lack of sustained criticism of privatisation during the 1980s from 'opposition' think-tanks such as the Fabian Society and the Policy Studies Institute.

One critical factor, therefore, in determining influence is the effect on the media. During the 1980s hardly any report of think-tank activity was not preceded with the word 'influential'. Advocacy groups such as the ASI were particularly successful in this area. Therefore, although this may not lead automatically to

political influence it has influence over the 'climate of ideas'. The rising public status of right-wing groups,

'[gave] a certain legitimacy to both Reagan and Thatcher Administrations and their policies - admittedly some of it *ex post facto* - and [turned] sets of individual policy decisions into part of what has seemed, to much of the political elite in both countries, a great movement of ideas.' (Hames and Feasey, 1994, p. 234)

There is now, in general, a swing back to the centre and left, and away from right-wing think-tanks. This demonstrates the demand cycle of expert views. Think-tanks may have to wait until the political scene returns to their way of thinking,

'There is frenetic activity behind the jockeying for ideological power. The prospects and arguments of the Eighties have become orthodoxy now, so where are they to turn? The new thinking seems to be with Blair, Demos, the Institute of Public Policy Research and others. Apart from the Europe fault-line, there are few ideological divides; it is more a matter of style, tone and personality. The pool of new right-wing ideas is almost dry, and the tanks are scrambling for the last sip of the muddy water.' (Toynbee, 1995, p. 9)

3.3 CONCLUSION

The post-1945 period in Britain witnessed several developments as regards the expansion of the state, and the development of the use of expertise within policy areas. The period saw the creation of new institutions and new formats for expert influence, and an increasing centralisation in certain policy areas.

The 1940s and 1950s can be described loosely as a period of technocratic influence by experts in policy-making. This situation was a result of the post-war political settlement, and was in contrast to the usual reason for such technocratic influence, the desire for technical solutions on behalf of society. In effect, therefore, a lack of ideological confrontation between political groups over policy solution provided the correct environment. In this period policy detail was left largely to experts. It was the development of the welfare state that provided the primary mechanism for expansion in the number of experts used in policy areas during the 1940s and 1950s. This was mainly through the nationalisation of industries and the development of economic policy and it continued into the 1960s. The competence of professionals was important for the delivery of services in the expanding welfare state. Professionals legitimated this welfare system, acting as mediators

between the state and the public. Today, the public sector is still an important market for professionals.

In contrast to the 1940s and 1950s, the 1960s and 1970s were characterised by a systems approach to policy formulation and solution. Here, experts were co-opted by policy-makers to improve the process of policy-making, over and above influence over the policy output, although influence was apparent here also. The important factor to consider is that expert influence dominated the operation of policy, not the policy aim. This 'output-optimising' phase of policy solution waned during the 1970s and early 1980s. Instead of being used in the policy process element of policy experts were primarily employed to legitimate policy decisions or direction. This reflected a more pluralistic environment for expertise. The 1960s and 1970s also witnessed developments in institutional reform. Policy-makers in many policy areas came under criticism from various quarters for the lack of expert input into policy-making. It was hoped that mechanisms such as policy units would provide information free from bias, and in particular interference from disputes between government departments. A concomitant development was the generation of career paths within professions, through a further expansion of the welfare state, and the use of universities and polytechnics to provide professional education. This development also produced new types of social scientist, an integral part of which was the development of the policy sciences. Part of the rationale for these developments during the 1960s and 1970s was the complexity of policy and the inadequacy of existing administrative procedures to deal effectively with policy problems.

The 'output-optimising' phase of policy provision faded during the late 1970s and early 1980s. This period saw a backlash against the notion of 'big government', and a challenge to public sector professionals from private sector methodology, representing a concern for strict financial control and policy efficiency. It also saw a return to the belief that knowledge should serve political actors, and more specifically, the dominance of right-wing political ideology. And furthermore, that policy aims should take precedence over and above the policy process. Expertise became geared towards providing legitimacy for various commercial and political interests, through mechanisms such as think-tanks, policy consultants and advisers, co-opted into the policy process. A parallel development was that of regulation. Policy issues, such as those generated by the newly privatised industries, became subject to regulatory control. This development reflected a

trend towards greater regulation across Europe. It represented a method by which governments could deal with the complexity of policy-making in contemporary societies. As a result it reflects the movement towards a technocratic approach to policy-making in various policy areas.

The sort of experts who tended to dominate varied at different times: those who were part of the state bureaucracy and who were part of the new professions and increase in number of professionals since 1945. But also the increase in the number of experts who operated 'outside' of the policy process. The new type of policy and social scientist was created as a result of a diversified and enlarged welfare state. Emphasis on process was replaced by a concern for political direction and hence co-option of opinion. Experts were able to provide 'objective' information for policy-makers. Outsiders in the 1980s/90 became more important than insiders for at least helping to define political boundaries. The sort of experts used in the policy process became dependent more upon the demands of policy-makers rather than the supply of experts.

Therefore, since 1945 expert input into policy-making has altered significantly. From a technocratic influence in the 1940s and 1950s, to a systems approach in the 1960s and 1970s, to a pluralistic environment in the 1980s and 1990s. Moreover, there was a general trend from the use of internal to using more externally based expert knowledge. Up until the 1980s/90 policy experts focused on an assessment of losers and winners with regard to particular policies, that is, the policy scientist and the professional career path expert, whereas the 1980s and 1990s have seen externally-based experts being co-opted to legitimate a particular ideological or political standpoint. It is also a period in which the elements of complexity, legitimacy, and regulation feature prominently. These concepts are analysed within two case studies. The following chapter provides an introduction to both areas.

CHAPTER 4

CASE STUDIES

4.1 INTRODUCTION

The two case studies selected for an assessment of the type, and level of expert influence are: the siting of the route of the Channel Tunnel Rail Link (CTRL), and air pollution and asthma. They have been selected for a number of reasons. The two areas provide distinctly different areas of policy-making in Britain in the 1990s. On the surface the former is a politico-geographical policy area concerned with the imposition on specific communities of a new piece of transport infrastructure. The latter is perceived to be a highly technical area of policy that provides not only problems in the provision of effective policy solution, but also difficulties for public participation. It is hoped not only to examine the assumptions above, but also to highlight comparisons and parallels between the two policy areas. And to demonstrate further, though not altogether obvious, theoretical and empirical differences between the two policy areas.

The two policy areas can be described as sub-sectoral. They were selected not only for practical purposes to permit manageable empirical analyses, but also because, as has been shown previously, policy-making operates at this level, as well as at that of the policy sector. Moreover, by selecting policy areas of equal status this allows for contrast and comparison between them.

Both areas enjoy similar histories in terms of policy application. Regulation, an incrementalist approach to policy, centralised institutional arrangements, and the environment have been, and continue to be, dominant themes in their development. This combination of factors means that they are both high on the political agenda. Indeed, the air pollution policy sector is a particularly dynamic policy area at present, as is the debate over the provision of transport infrastructure. The relative centrality on the political agenda of these issues is both reflected and supported by the level of European involvement in policy-making.

In order to assess the various important elements within contemporary policy-making in these areas some historical background for both areas is required.

4.2 AIR POLLUTION AND ASTHMA: HISTORICAL BACKGROUND

The issue of air pollution is necessarily political. The improvement or resolution of air pollution relies as much upon political decisions, as it does on financial resources, economic interests, and developments in science and technology (Loveridge, 1971, p. 45). The primary reason for the political dimension results from the fact that the prevalence of air pollution raises concerns over the possible adverse health effects. This fact is recognised formally by the World Health Organisation (WHO). The main concern of WHO is with the growth of air pollution in cities.

Once a decision has been made to intervene in the air pollution policy area it raises further questions and issues, such as what are acceptable levels of air pollution? Is it more or less important than other policy goals? Are we able to improve or resolve the conditions? And so on. The policy issue is one that must compete with other issues for scarce resources. Therefore, control of air pollution is a result of an air quality situation that has been deemed unsatisfactory by policy-makers, coupled with an acceptance of the fact that air pollution may produce short-term acute levels, and detrimental long-term risks to public health and the environment. The provision of measures to combat the problem,

'... explicitly or implicitly include an estimate of what level of risk to the population or environment is acceptable. The acceptable level will depend on a complex array of social, political and economic, as well as scientific factors and will therefore vary from country to country.'
(Strauss and Mainwaring, 1984, p. 112)

The issue of air pollution is political not only because it requires the intervention of government and other elected and non-elected agencies, for both the protection of the air as well as the population, but because of its indeterminate, and elusive nature. And, as with any environmental issue, it is also essentially normative in character. The value that the public place on the provision of a clean and healthy environment, and the actual definition and criteria set by experts and policy-makers that constitutes a clean environment may differ significantly. There is a 'gap' between the 'real' scientific importance placed on such issues, and the public importance that is accorded to it. This gap,

'... increases, decreases, or disappears entirely according to the opinion of the observer concerning the value of human life. The magnitude, even the existence, of such a disjunction cannot be determined solely on the basis of empirical evidence. It is therefore not surprising that some political

scientists have conspicuously avoided the investigation of these elusive gaps.’ (Crenson, 1971, p. 3)

Therefore, the issue of air pollution cannot be seen in purely technical terms. Instead, any account of its severity and subsequent effects must include value statements, bias, regional, national and international interests, economic concerns, rival expert opinion, countervailing technologies, and the democratic process.

Before we can determine what is meant by air pollution we need to be sure of what 'pollution' is itself. The definition of pollution is not a contentious issue. It may be defined as,

‘The introduction into the environment of substance or emission that either damages, or carries the risk of damaging, human health or well-being, the built environment or natural environment.’ (Weale, 1992, p. 3)

The definition of air pollution as a political dilemma is slightly more problematic. Fundamentally, societies prefer a clean environment to a polluted one. Left to the free-market the problem would not be resolved, due to the complexity posed by individual pollutants (Bradbeer, 1994). The synergistic effect of these pollutants hinders an unregulated approach to this policy area, where the onus for pollution prevention rests with individual polluters. Furthermore, there is the 'free-rider' problem; individuals or organisations who benefit from a successful effort to improve conditions without personal expenditure on their behalf (Downing, 1971). Government intervention of some nature is almost inevitable in this policy area, and even if this is not a result of a proactive stance from national governments, it would be a reactive response to the policy momentum of the European Union (EU). Regulation of emission levels has implications for industry, which in turn may have subsequent effects on local economies and employment levels.

Economic cost and political will are, therefore, not the only factors and obstacles to the improvement or resolution of any air pollution problem. Just as important is the nature, often contradictory, of scientific and expert evaluation. It is here that we can see an immediate paradox. The contradictory nature of expert opinion could result from the complexity and interrelated nature of environmental concerns. Yet it is because of this complexity that experts are present in this policy area. The issue is made more difficult because of the number of pollutants, and their levels of concentration, involved in air pollution. Moreover, these levels need to be separated from ambient conditions. In practice,

‘.... the association between effects and pollution concentration - air pollution criteria - is not clear-cut because of the immense number of variables involved. This lack of adequate criteria adds to the problem of decision making on the concentration levels of pollutants acceptable.’ (Strauss and Mainwaring, 1984, p. 36)

In addition to the problem posed by the number of pollutants and their concentration levels, pollutants may also act merely as *agents provocateurs* for disease and illness, rather than being a direct cause. It is this sort of complexity that can lead to confusion, and so produce difficult political and ethical dilemmas.

During the 1980s environmental issues became an increasingly important element of policy concern in Britain. The early part of the decade was a period of evolutionary and piecemeal change in environmental policy, taking a back-seat to economic issues and the developing cold-war situation. This withdrawn role altered in the late 1980s, with a more prominent stance from the Conservative government on environmental issues, although this was prompted by international concern over problems such as acid rain. This variation in government policy was also a result of changing public opinion, the activities of the environmental movement, primarily through the media, and the role of the European Community (EC) (now Union), and the policy momentum produced by these factors. Indicative of this change in the government's stance was its reversal in policy, in 1987, towards a unified pollution inspectorate, although this was not achieved finally until 1996.

The key themes of British contemporary environmental policy are contained within the Environmental Protection Act (1990), the White Paper, ‘This Common Inheritance’, and the Environmental Protection Act (1995). However, much pollution legislation and control remains essentially pragmatic, secretive, and produced on a case-by-case basis, rather than by a coherent plan (Bradbeer, 1994). Air pollution policy has flirted with uniform control, and although at present the policy area is characterised by emission standards, the contextual approach is still dominant. Even the advent of the Environment Agency (EA) has not prevented this. This characteristic of British policy, concerned more with context and a piecemeal approach, is in contrast to the contemporary policy of the EU. EU policy is concerned more with uniformity and the provision of universal solutions. It is against this backdrop that the air pollution policy area has to be considered. Furthermore, the issue must be viewed in the context of ideological and political

concerns of the 1980s and early 1990s; primarily the issue of market solutions, and the promotion of individualism.

It is the case-by-case or ad-hoc nature that has been characteristic of the treatment of air pollution problems for the last 150 years. Although the issue of air pollution has been present in Britain since the sixteenth century, it was not until 1819 that it was afforded formal attention from Parliament. Michael Angelo Taylor MP succeeded in securing limited smoke abatement legislation via a new invention that could be fitted to steam furnaces. Its introduction prompted political and economic arguments about further smoke abatement legislation, although these were limited. Further legislative efforts during the middle of the nineteenth century proved difficult as it could not be determined that smoke caused anything more than nuisance. Moreover, experts could always be found,

‘... by plaintiff or defendant, who would differ in defining what were best practicable means; magistrates would in these circumstances be inclined to give the defendant the benefit of the doubt.’ (Ashby and Anderson, 1981, p. 19)

Despite this tendency for inaction on behalf of magistrates, campaigners were able to mobilise support for further abatement legislation. The difficulty facing campaigners was that legislation was administered using a practicable approach. However, it was not with smoke abatement that the principle of 'Best Practicable Means' (BPM¹) was officially adopted, but with the issue of noxious vapours. Here, the scientific evidence was more 'unequivocal'. Emerging from a 1863 bill sponsored by Lord Derby, the Alkali Act (1863) created the Alkali Inspectorate to control the 'monster' nuisance of noxious vapours (although it dealt with one process only at that time). It was assumed that better control would be secured as inspectors would be free of local bias and thus permit detachment and objectivity in the assessment of pollutant emissions. Under the auspices of Dr Angus Smith the Inspectorate achieved little early success due mainly to the proliferation of industrial processes. Legislation could not keep up with the increased number of different pollutants, it was always one step behind. Nevertheless, the Alkali Act (1863) enshrined the piecemeal approach to air pollution.

As with many environmental issues it takes individual events and episodes of air pollution to galvanise opinion. Despite previous campaigns by *The Times* and various pressure groups, it was the severe fogs of 1889 and 1890 that resulted in the Alkali and Works Regulation Act (1891), although the passing of this

legislation was due also to extensive lobbying by groups such as the Manchester and Cheshire Association for the Prevention etc. of Noxious Vapours, and the National Association for the Promotion of Social Science. The Act succeeded in enlarging the Alkali Inspectorate.

By the 1880s the smoke from industrial processes had been matched or even surpassed by the smoke from domestic fires. The efforts of Lord Palmerston during the 1850s, ensuring the efficient use of the Smoke Nuisance Abatement (Metropolis) Act, led to other cities adopting smoke abatement measures, but this was not for domestic fires. The problem in reversing this situation was not one of technology, but sociology. Members of the public were reluctant to give up the use of raw coal. The 'Fog and Smoke Committee' of the National Health and Kyrole Societies studied fuel technology, and presented a new smokeless fuel at an exhibition in Manchester in 1882. But it would take a long time before this would be adopted by the public. At the time one sanitary expert argued that carbon in the air made it less deleterious than it might have been (Ashby and Anderson, 1981).

The campaign for further regulation of noxious vapours made for more progress during the 1880s up until the early twentieth century, primarily because it was more amenable to scientific enquiry; smoke was visible, noxious vapours were generally not, and so were deemed easier to be dealt with by a central inspectorate. Local authorities were left to deal with the difficult local issue of smoke abatement. Fresh impetus for further smoke abatement legislation came from the London fog of 1898, which prompted a campaign by *The Times*, and was aided by groups such as the Coal and Smoke Abatement Society (CSAS). However, this did not generate enough public support, or support from local authorities. What arose from this debate was a call for the convergence of smoke and noxious vapours legislation. The miners strike of 1912 and World War One put a temporary hold on this.

It was not until 1926 that the legislative process started to accelerate. New processes were successfully brought under the control of Inspectors, and local authorities were given extended powers to curb the production of smoke. Extensive lobbying by the now National Smoke Abatement Society (a merger of the CSAS and the Smoke Abatement League in 1929), and a response from industry through the development of gas and smokeless fuels, assisted the anti-smoke campaign. This campaign gathered momentum in 1946 when a government advisory council demolished all rational arguments for the continued domestic use

of raw coal, but stated that the transition period would be 20 to 30 years. A major factor in the hindrance of progress was the confusion over the dichotomy of central and local control and noxious vapours and smoke legislation. This problem was not fully resolved until the 1950s.

The infamous London smog of 1952 was responsible for 4000 related deaths (Ashby and Anderson, 1981, p. 105). The resultant public outcry represented a ripening, rather than a galvanising of opinion, but it was realised that the solution to the air pollution problem lay no longer with technological, sociological or economic factors, but political will. There was a recognition that a national clean air Act was required to replace previous smoke legislation, to cover domestic as well as industrial premises, and a recognition that air pollution causes material damage, health effects, and massive economic costs. The recognition and acceptance of these facts resulted in the establishment of the Beaver Committee, the report of which formed the basis of the subsequent Clean Air Act (1956). This new legislation was part of the growing centralisation and technocratic application of policy in this area.

The Act ended the dichotomy between noxious gases and smoke abatement. Industrial and domestic emissions with known abatement solutions were put under the control of local authorities; those that posed technical problems under the control of the Inspectorate. Plus, there was a co-operation between the local authorities and the Inspectorate to cover dust, smoke, and grit emissions. There followed a period of transition for the local authorities and the Inspectorate. Local authorities were keen not to have a diminution of their powers. The Act prompted an acceleration of registered industrial processes, and Ministerial Orders to strengthen and increase, or decrease, the number of registered processes. But how successful was the Act in reducing emission levels and improving air quality? The production of smoke had been declining since 1952, with much credit going to the work of the local authorities and the Alkali Inspectorate. The effects of the Act itself were sporadic. The Beaver Committee had recommended that the 'black areas' of Britain (those with the largest concentration of emission levels) should be targeted. Government attempts to co-ordinate a phased programme were not encouraging. In addition to this lack of government pro-activity, it was not until 1965 that supplies of smokeless fuel were sufficient to have any measurable effect. Moreover, the public still equated restrictions on smoke production with possible effects on employment. Other social factors such as housing were deemed more

pressing concerns by government and the public (Hall et al, 1975, pp. 372-374). It was this lack of parallel legislation or institutional responsibility between 1956 and 1968 that produced faltering and uneven pollution control. An Act of 1968 did permit the government to direct local authorities to submit smoke-control programs, although not to carry them out! However, despite all these problems, between 1956 and 1974 industrial smoke fell from approximately 1.1m tonnes per year to 0.1m tonnes per year, and domestic smoke from approximately 1.35m tonnes per year to 0.55m tonnes per year. Even so, the Clean Air Act (1956) cannot take sole credit for this. These reductions had as much to do with evolving social values as they did with statutory compliance from industry.

The Alkali Inspectorate had come a long way in 100 years, from its original concern with one industrial process, to cover a wide range of activities (Ashby and Anderson, 1981). During the 1970s the Inspectorate underwent change as environmental issues, such as toxic waste, acid rain, oil spills and so on, became prominent in terms of both public and media exposure. In 1971 the Inspectorate became Her Majesty's Alkali and Clean Air Inspectorate and formed part of the newly-created Department of Environment. It was moved, in the face of opposition, most notably from the Royal Commission (1976), to the Health and Safety Executive, since when it has returned to the Department of the Environment, and subsumed within the Her Majesty's Inspectorate of Pollution (HMIP), becoming renamed in the process as Her Majesty's Air Pollution Inspectorate (HMAPI). The HMIP itself subsequently became part of the EA.

Part of the recognition by government, that no single institution could attempt to solve pollution issues, was Integrated Pollution Control (IPC). This policy direction was formally introduced in 1990 as part of the Environmental Protection Act (1990), although its origin dates back to the Report of the Royal Commission on Environmental Pollution in 1976 (Jordan, 1993). IPC enshrined Best Practicable Environmental Option (BPEO ²) instead of the traditional pollution control mechanism of BPM. BPEO has since been replaced by Best Available Techniques Not Exceeding Excessive Costs (BATNEEC ³) for all practical purposes. BATNEEC is, in effect, a step below BPEO as the emphasis is tilted back in favour of industry as opposed to the environment. The introduction of IPC represented an attempt to benefit the environment as a whole; industry had to pursue optimum (if not 'best') dispersal of pollution in all media (land, air, and water). IPC was a process of rationalisation and new procedures, not a

fundamental shift in approach to pollution problems (Jordan, 1993). This bureaucratic rationalisation, which included enabling HMIP to undertake IPC, reflects a technocratic tendency in the pursuit of pollution control. This policy continued with the creation of the EA. The EA is viewed by industry and the public as producer of policy solutions, and therefore, permits the possibility of technocratic influence in this policy area for there is co-ordination between experts, and, as a result of policy complexity, experts determine the nature of the policy discourse.

The issue of air pollution is undoubtedly a contemporary one. Asthma is itself a highly prominent issue in Britain in the 1990s. The relationship, potential or otherwise, forms an important part of the air pollution policy area in general. It would seem within this area, as with all environmental and health issues, that intervention by policy-makers actually causes the policy problem, as before it can be understood or acted upon it must be defined. The realisation of this factor poses problems because any practical definition of pollution must include normative judgements, and a notion of ambient conditions against which to judge levels of pollution. In order to provide answers to these questions particular groups of experts have historically been incorporated into this policy area, not only to define the policy problem, but to propose the solution. Despite the fact that the main reason for this co-option of expert opinion rests on the complex and technical nature of the policy area, the problem is not one of merely technical solution, it is very much political. It is beyond question that a detrimental effect on asthma sufferers by air pollution, or the incitement by air pollution of new sufferers is a bad thing. The solution to such a problem is not necessarily a purely technical endeavour. The solution to air pollution problems is still considered by policy-makers to be found in regulatory mechanisms and practicable adjustments to emission levels. The EA forms part of this process. Moreover, it highlights a greater level of government involvement and an increasing centralisation of power. It also demonstrates an increasing use of experts.

4.3 CHANNEL TUNNEL RAIL LINK: HISTORICAL BACKGROUND

The Channel Tunnel represents the largest transport infrastructure project in Europe funded by the private-sector (Page, 1994). As with any infrastructure project the issues generated are diverse in nature. The current literature on the impact of the Channel Tunnel is mostly technical and confidential in nature, and concerns the actual construction itself. Little research has been undertaken on the overall social or political consequences of such a project, now that it has been completed. There is also one part of the overall Channel Tunnel project that is yet to be constructed, the high-speed rail link, or Channel Tunnel Rail Link (CTRL). As the route has now been selected there exists an opportunity for assessments to be made concerning this area. Although considered by the Conservative Government a separate, that is to say isolated and not integrated, infrastructure project (Page, 1994), the CTRL needs to be considered within the general historical background of the Channel Tunnel.

It has become evident that a CTRL is an important component of an integrated rail network, both for Britain and Europe. It is unlikely that it will come into operation until at least 2002. This postponement is primarily a consequence of the refusal of successive governments during the 1980s to commit public sector funds to the project (Dundon-Smith and Gibb, 1994). The Channel Tunnel and the CTRL undoubtedly form part of the EU transport strategy. Indeed, an EU Commission White Paper of 1992 emphasised Trans-European Networks (TEN's), one of which is for rail. Despite the delay to the completion of the CTRL there is a long-term policy to link all major European centres to within a journey time of four and a half hours by surface mode.

For the determination of the CTRL route alignment the majority of issues were devolved by government to British Rail (BR), with a remit which has been described as an 'impossible' brief, to develop a route that is financially, politically, and environmentally acceptable (Goodenough and Page, 1994). The strict constraints placed on financing the route were reflective of the policy of successive Conservative governments during the 1980s and early 1990s, namely the adoption of the market-led provision of infrastructure. In practice this caused difficulties since private-sector partners were cautious and reluctant to associate themselves with the project, primarily because of the huge costs of the CTRL, and also as a result of the environmental safeguards required by the government and the EU.

The CTRL is a complex area of policy. The main concerns are with its position within a national and European transport system, the environmental and economic concerns of the siting of the route, and the consultative and decision-making, that is to say democratic, processes undertaken prior to selection of the route. Therefore, the issues are political, economic, and environmental. The complexity of the environment issue, in particular, was reflected in the Channel Tunnel Act 1986,

‘The responsibility for providing rail services to serve the tunnel was firmly placed within British Rail’s remit. Yet this raises questions over the operation of a market-led approach to transport infrastructure planning in the UK, since a number of major road improvements were written into the Channel Tunnel Act and funded by the Department of Transport. One explanation of this situation is that the complexity of the environmental problems involved in the provisions of a high-speed rail link meant that the project was omitted from the Channel Tunnel Act.’ (Goodenough and Page, 1994)

The Channel Tunnel was completed at the 27th attempt. Over the past 100 years many individuals had proposed a fixed link across the Channel. However, in Britain, the issue had not secured a prominent place on the political agenda. The reason for this lack of enthusiasm for such a project was ‘strategic’. It was felt a permanent connection to the Continent might not be in the short or long-term interests of Britain (Holliday, 1992). The successful resurrection of the project during the late 1970s and early 1980s had much to do with political leaders of Britain and France at the time, Margaret Thatcher and Francois Mitterand. Margaret Thatcher was keen to produce a ‘triumph’ for the private sector and had to overcome serious opposition from within the Conservative Party to launch the project. Mitterand’s task was less arduous, since the tunnel had not been opposed in France for strategic reasons, allied to which was the promise of significant public funding from the French government.

Previous attempts at completing a Tunnel had failed spectacularly, the most notable being the unilateral abandonment by Britain in 1975, primarily because of the perceived cost of constructing a complementary rail link, then viewed as an essential, integrated proposal. It was also due to a lack of political will, because all technical, economic and financial reports at the time had concluded the project to be a viable proposition (Holliday, 1992). Although proposed as early as 1802, the first aborted attempt to construct a fixed link was during the 1880s. Nineteenth century opposition to the project rested upon military and strategic arguments. A committee of the Board of Trade chaired by Lord Landsdowne, in 1882,

concluded that the tunnel was not in the national interest (Gibb, 1986). The abandonment in 1975 arose from a different set of reasons. This scheme had its origins in 1958, when a Channel Tunnel Study Group concluded that the scheme could be financed privately. A proposal from a Channel Bridge Study Group (France) led to an intergovernmental working group in 1963, resulting in a geographical and geophysical survey for a tunnel in 1964. Both the 1958 and 1963 study groups had concluded that the scheme could be financed privately. This was challenged in Britain in 1966, with the election of a Labour government, who doubted that such a large infrastructure project could be completed without the provision of public funds. Nevertheless, in February 1967, the two governments invited interested parties within the private sector to bid for the contract to construct the tunnel. Although considered a private sector project, in reality it would only have to raise 10% of the funds, with 90% being derived from private loans guaranteed by the two governments. An agreement was made in 1971 to undertake preliminary studies. Significant progress was made until Britain unilaterally abandoned the scheme, claiming difficulties with British companies over timetabling. There were, however, other factors such as escalating cost, with particular reference to the complementary rail link. At that time the CTRL was considered an integral part of the Channel Tunnel scheme. A further factor was the changing political environment; the luke-warm approach to the project of Harold Wilson, the Prime Minister at this time, in contrast to the enthusiasm of Edward Heath, the previous incumbent. There were also long-standing political and economic arguments, such as the protection of the commercial advantages of the British ferry fleet, and a fear of a net movement of economic growth from the more prosperous south-east of England to the relatively economically depressed north-west of France.

One factor that has been evident from all attempts to construct a fixed link and a corresponding rail link is that of private funding. Historically the Treasury has been sceptical of private funding of public projects of this nature. Principles set up in the 1970s, meaning that the scheme had to be as cost-effective as a publicly-funded one, produced a heavy burden for those involved, given the higher rates of interest imposed on commercial enterprises compared to those that governments have to pay. However, these principles were swept away by an enthusiastic Margaret Thatcher (Anonymous, 1988). The Channel Tunnel set the precedent for other such large infrastructure projects. Even so it was the lack of government guarantee that plagued the CTRL project during the 1980s. Furthermore, bidders

were less keen to become involved prior to the completion of the Channel Tunnel itself, as the rate of return of the CTRL depended on successful completion of the Tunnel. The concern over the cost of the CTRL was demonstrated recently. The consortium responsible for its construction, London and Continental Railways (LCR) were unable to raise the private funding required to commence construction. The present labour government has decided that Railtrack should take a significant stake in the project, in order to help ensure its completion.

Environmental considerations became the primary consideration of the CTRL once the decision had been made to construct it. It is here that the conflict between local and national issues is most evident. Benefits that such a project offers on a national level are often incompatible with local requirements. Expertise has been instrumental in determining the significance of the environmental impact, and the nature of the policy response to it. Expert input has been influential in determining the levels of significance for all environmental factors, such as noise levels, visual intrusion, the impact on various communities, and so on. In order to assess these, many social, economic, political, and environmental factors were taken into account.

In political terms, the Channel Tunnel has been viewed differently on either side of the Channel. In contrast to Britain, France had an extensive and sequenced policy network with attention to the external dynamics of a fixed link project, such as the strategic complementary measures and benefits that might derive from it. From the project's inception local authorities were involved in the policy process. In Britain, importance was placed on establishing the regulatory structures, organised centrally, to construct the tunnel, whereas the more diverse policy domain in France was concerned with the regional exploitation of a fixed link (Gibb and Essex, 1994).

The appeal, in France, of a high-speed link to the Channel Tunnel had much to do with the depressed economic condition in the north-west of the country, the area most affected by the tunnel. This prevailing economic condition was in contrast to the more prosperous condition, in general, of Kent and the south-east of England. As a consequence, the rail link was seen as desirable for France because it would aid the regeneration of the Nord-Pas de Calais. However, there is no French equivalent to the British policy decision to ban public subsidies on all international rail services, as outlined in Section 42 of the Channel Tunnel Act. The prevention of subsidies in this area served both ideological and political functions, preventing

Conservative MPs in Kent from having to justify a rail link coming under increasing protest from local communities likely to be affected by it, and Labour MPs in northern constituencies issuing demands for similar subsidies to rail projects in their regions.

It would seem that there has been little research on the CTRL, not only on the actual project itself, but on the selection of the route alignment, particularly the implications raised by expert input into the Environmental Assessment of the scheme. The CTRL is certainly an important project, not only for Britain, but also for Europe. Transport issues have always been an important element of the policy area at the European level. But the CTRL is not only a transport issue. A project of its magnitude has social, economic, political, and environmental implications. Because of this scenario its implementation has been described as almost impossible. Indeed, despite the decision to construct the CTRL and the awarding of the contract to do so, the project has yet to commence, and is way behind schedule. Part of this delay in the early stages arose out of the desire of Conservative governments during the 1980s and early 1990s to see that the project be funded entirely by private means. This aim eventually proved impossible, and the project will now receive significant public contribution.

Despite the obvious difficulties produced by financial constraints, the main problem for the project came from environmental issues. A formal response to this situation was the use of Environmental Assessment. Indeed, an Environmental Assessment is now required for all major infrastructure projects. However, in addition to an Environmental Assessment for the project, under EU legislation one is now also required for the *policy* behind the particular project. The Conservative government of the late 1980s was able to avoid complying to this piece of legislation for the CTRL, by arguing to the EU that the project formed an integral part of the Channel Tunnel project. The government argued that the CTRL was given the go-ahead at the same time as the Channel Tunnel itself, that is, 1987. Importantly, this is before European legislation requiring Environmental Assessment of policy came into law. This argument represented a significant side-step of EU legislation, as in fact the two projects constituted two entirely different pieces of legislation. These took the form of hybrid bills, as opposed to the method of public inquiry usually reserved for projects of this nature. The use of this mechanism ensured that the project would go ahead. It meant that to a large extent national interest was placed above those of local communities. It was feared

by the government that a public inquiry might have resulted in the abandonment of the project. This issue was less apparent on the other side of the Channel. In France the high-speed link was constructed concurrently with the respective half of the Channel Tunnel. The differences in the levels of enthusiasm expressed for the high-speed link projects on either side of the Channel may have most to do with the respective topographic profiles of the two areas.

It would seem, therefore, that expertise is central to this policy area, not only because the CTRL constitutes a unique project, but also because of the complexity it generates as a policy area, in political and technical terms. This complexity is seen most clearly in the environmental impact of the project. Like air pollution and asthma, the route alignment of the CTRL represents a highly contemporary policy problem. Despite the fact that planning has a relatively long tradition in Britain, the assessment of railway alignments is a new area of study. This factor provides a further reason for the use of expertise in transport planning and issues of the environment. In addition to the use of expertise regulation is also indicative of this policy area. Indeed, by its very nature planning in a regulatory mechanism. It would seem that in terms of transport infrastructure provision there is evidence of a movement towards regulation and centralisation in policy determination for large infrastructure projects, or even a tendency towards technocracy. This result is due, in part, to the increased presence of the EA and use of Environmental Assessment, as it becomes standard practice in transport issues. Further evidence of this tendency can be seen with the recent creation of the DETR.

4.4 CONCLUSION

What can be seen from the historical backgrounds of the siting of the route of the CTRL, and air pollution and asthma, is that both issues are important areas of policy debate in contemporary Britain. Despite the fact they are distinct in nature they share a common element, the environment. The CTRL has become a policy issue dominated by a concern for its impact on the environment. Similarly, for air pollution and asthma, the issue is as much one of the environment, as it is one of public health. Both areas also reflect a high level of complexity, and therefore, reflect significant levels of expert influence. For air pollution and asthma this concerns the exact nature and influence of individual pollutants. For the CTRL, it is concerned with the variables contained within the Environmental Assessment.

In spite of the appearance of the two policy issues being representative of a purely political concern (the CTRL) and a solely technical issue (air pollution and asthma), both technical and political elements are involved in each of them. A further uniting factor is regulation, through the use of independent advisory panels and committees by government. Regulation is a prominent factor in both policy areas, in terms of policy provision. This is due in the most part to the increasing influence of the EU.

What requires assessment is the nature and level of expert influence of particular expert groups in these policy areas, and an assessment of the reasons for the use of expertise; a prevalence of complexity, and a corresponding requirement of legitimacy by policy-makers. This is undertaken first with air pollution and asthma, and is dealt with in Chapters 5 and 6. A corresponding analysis is provided for the CTRL in Chapters 7 and 8.

4.5 NOTES

1. **BPM - Best Practicable Means**

This has provided the fundamental basis for British pollution policy for almost 150 years, originating in legislation as far back as 1842. The essential elements of BPM as far as air pollution is concerned are: no emissions can be tolerated which constitute a recognised health risk, either in the short-term or long-term; emissions should be at the lowest amount, taking into account local conditions, current technology, effects of the emissions, financial and employment considerations; and, having ensured the minimum level of emissions the height of discharge should be arranged to render it harmless by dilution and dispersion (NSCA, 1996, p. 4). There is, therefore, no explicit definition, but over time it has grown to take account of local, economic, and technological factors (Wood, 1989, p. 99).

2. **BPEO - Best Practicable Environmental Option**

This was first proposed by the Royal Commission on Environmental Pollution in its fifth report (1976). It specifies that pollution control should involve technology which provides the best practicable solution for the environment, with consideration for: the total impact on water, land, and air together; the ability of the individual medium to absorb the pollutant in the light of critical levels, where appropriate; and, the principles of sustainable development. No judgement is made about costs (NSCA, 1996, p. 6).

3. **BATNEEC - Best Available Techniques Not Exceeding Excessive Costs**

The definition used in the United Kingdom differs from that employed in the rest of Europe (contained within EC framework directive on combating air pollution from industrial plant (84/360/EEC)) in that 'technology is replaced by 'techniques'. 'Best' is taken to mean the most effective in preventing, minimising, or rendering harmless polluting emissions. 'Available' is taken to mean procurable by the operation of the process in question. 'Techniques' includes both plant and process, staff working methods, training and so on. 'Not Exceeding Excessive Costs' will depend on whether it is a new or existing process. New processes will have greater emphasis placed upon BAT as opposed to NEEC. Effects on the level of profits are not taken into consideration. For existing processes greater consideration is given to providing timetables for the introduction of new plant, the imposition of new standards, or for closing down of the plant (NSCA, 1996, p. 8).

CHAPTER 5

POLICY ISSUE OF AIR POLLUTION AND ASTHMA

'What we want to stress is the indivisibility and complexity of the environment. For example the earth's atmosphere is so thoroughly mixed and so rapidly recycled through the biosphere that the next breath you inhale will contain atoms exhaled by Jesus at Gesthemane and Adolf Hitler at Munich. It will also contain atoms of radioactive Strontium 90 and Iodine 131 from atomic explosions and gases from the chimneys and exhaust pipes of the world.'

(P. Cloud and A. Gibor, 1970)

5.1 INTRODUCTION

This chapter examines the trend towards technocratic management of the environment, the changing nature of the treatment of air pollution as an environmental problem, and the effects of air pollution on public health. It also explores the complexity of air pollution as a policy issue, and introduces the relationship between air pollution and asthma.

As has been discussed previously, air pollution is not a new policy issue. For many centuries observers have commented on the effects of air pollution on both built and natural environments. Air pollution as a defined policy area dates back as far as 1842, but it was not until the post-1945 period, and in particular during the 1960s and 1970s, that governments became increasingly involved. During this period environmental issues included not only concerns over individual pollution events and episodes, but also long-term spatial changes. For example, the 1960s saw the maturing of a generation that had enjoyed material gain, but the post-war boom that had provided it had produced ambiguous effects on the quality of life. It was a period of a regulatory or mechanical response to environmental problems. The 1980s, in contrast, saw the introduction of a moral element to environmental policy-making. Environmental issues were no longer considered just a by-product of economic activity. Instead they became a policy priority of the state. Recent trends demonstrate evidence of a continuance of this combination of moral and regulatory influences, and arguably, a tendency towards technocratic control in

environmental policy-making. This tendency is a result of air pollution being treated as a 'third generation' pollution issue. The policy area is not one of singular location: local, regional, national, or global, but often of all four. This factor is combined with a concern no longer for specific pollution sources, but sources in a general sense within specific locations. The 1990s has also witnessed closer collaboration between government, business, and environmental groups, with the latter adopting a more professional and scientific stance to environmental problems.

Air pollution is an inherently complex phenomenon. It does not form a discreet policy area. It may influence all areas of government policy. Therefore, complexity results from the plethora of institutions formed to combat the problem, and the alternative interpretations offered by experts and expert groups of the nature and extent of air pollution. Moreover, the international dimension means that the expertise used to develop solutions will be drawn from a wide area. Complexity is, therefore, an important backdrop against which to assess the influence of particular expert groups in the policy process. Debate among experts may actually add to rather than prevent or mitigate this complexity. By presenting a vast array of possible solutions and often contradictory evidence, it presents a policy area often opaque to outsiders. This result is due mainly to the fact that policy choices drive the solutions, and the use of experts and expertise within the air pollution policy area determines the language and nature of the debate. One particular debate concerns the effect of air pollution on asthma. A relationship between air pollution and asthma has serious implications for government. To establish a positive connection between air pollution and an accepted medical condition such as asthma would have far reaching policy implications.

The nature of the air pollution problem has undoubtedly altered. The concerns of the seventeenth, eighteenth, and nineteenth centuries with specific pollutants have been superseded by a concern for the synergy of the individual elements, that creates new hazards, as well as a movement away from 'traditional' pollutants towards ones previously unknown. One such hazard is the potential effect on public health. The implication of synergistic interactions between environmental issues results in a more co-ordinated response from policy-makers in order to both understand, and provide solution to, the policy problem. This leads us to ask

whether or not this produces a tendency towards technocracy in terms of policy-making.

5.2 ENVIRONMENT POLICY: TOWARDS TECHNOCRATIC MANAGEMENT

Pollution, and in particular air pollution, is certainly not just a product of the nineteenth and twentieth centuries. Indeed, as long ago as 1257 Queen Eleanor of Provence visited Nottingham Castle and found that the presence of heavy coal smoke in the atmosphere was so bad that it forced her to move to Tutbury Castle for the remainder of her visit. Three centuries later Queen Elizabeth I was said to be annoyed by the effects of coal smoke at the Palace of Westminster. During the seventeenth century reports of damage by air pollution to vegetation, household leather furniture, and wall hangings became increasingly common. However, the current usage of the term 'pollution' has been employed only since the nineteenth century. Such is the current perception of pollution that it could be argued that today pollution is everywhere,

'No aspect of life on earth is untouched by the dreaded hand of pollution. Clean water, fresh air and pristine environments no longer exist in anything more than concept.' (Markham, 1994, xi)

Because of this perception pollution becomes a policy issue even if this means that government policy is one of *laissez-faire*. Pollution has greater importance in terms of policy because pollution not only concerns issues of the natural environment, but damage to human health and to the built environment (Weale, 1992). The fact that pollution has effects on a wide range of issues reflects its complexity, and demonstrates that complexity is a situation, not a thing. The policy area becomes increasingly complex as more agents become involved from other policy areas, such as health, environment, industry, and so on. The relationships that agents construct will be more or less complex depending on the context. In this respect the nature of pollution will limit and shape the possible solutions available to policy-makers. Therefore, the choice of policy instrument and policy direction determines the nature of the political debate. The enhanced level of legitimacy required in policy-making within this policy area arises because of the diversification and increase in the number of interested parties. This has

occurred as a consequence of the general social importance of air pollution control on the political agenda and other related social trends.

Because policy choices drive the nature of the political debate, pollution invariably produces reactive rather than proactive policies. This situation is due, in part, to the pressure placed upon policy-makers by environmental and interest groups. Throughout the 1970s and 1980s the confrontational approach adopted by groups, such as Friends of the Earth and Greenpeace, ensured that environmental issues remained part of the political agenda. Prior to this environmental groups had suffered from what many consider a lack of credibility, and were often branded in the media as 'romantic dreamers' (Markham, 1994, p. 128). Today, the expertise and knowledge possessed by these groups has allowed them to have a more positive role in the development of policy and greater access to policy-makers. Some groups have been co-opted into, or given a permanent place in, the particular policy area (Barrett, 1995, pp. 9-10).

Although environmental issues have slipped from the summit of the political agenda, they remain important concerns in the eyes of the public. Air pollution standards have been important in this respect and have been the focus for political and public attention. Standards can be used to identify a highly polluted area, and thus provide a reason for protest against emission levels (Knoepfel and Weidner, 1982). Membership of environmental groups remains high and environmental activism seems to have retained a positive image, although the lobbying abilities of other groups involved in the policy area, and the high-level of public attention and sympathy towards environmental issues, makes it difficult for environmental groups to employ shock tactics as they have done in the past (Barrett, 1995, p. 7; Markham, 1994, pp. 130-131). Therefore, during the 1990s there has been closer collaboration between business and environmental groups, and the public. The increasingly professional nature of environmental groups has exploited the low-key approach by government on many issues, and therefore it is generously those groups with the most effective public relations campaigns that have had the most success.

Not only have environmental groups adopted a more professional approach but they have increasingly utilised science and expertise within their campaigns. The employment of science by environmental groups could be seen as an attempt to provide 'proof' and unchallengeable 'truths' regarding the environment. Yet the

complex and interchangeable nature of environmental issues makes it extremely difficult to 'prove' a particular stance or viewpoint (Yearley, 1996). Nevertheless, the appearance of complexity is used by policy-makers as a method of inducing trust and legitimacy with regard to policy-making, in order to justify the involvement of experts, although this does not mean a corresponding increase in the level of certainty. This combination of both a professional and scientific approach adopted by actors within the policy area also poses democratic concerns. By concentrating their efforts on claiming, or attempting to claim, the technical and scientific high ground, they run the risk of alienating support from people who feel that the moral dimension to the environment, to which they were originally attracted, has been withdrawn from the policy debate (Phillips, 1996).

The rise to prominence of environmental issues during the 1960s and 1970s had less to do with individual events, although important, and more to do with long-term spatial changes. This period witnessed rising educational standards that produced a more attentive public, with arguably post-materialist values. A corresponding trend was the growing media coverage of issues of the environment. Geoffrey Lean, of *The Observer*, was the first dedicated environment correspondent in 1976, although a proliferation of environment correspondents occurred after 1986 (Weale, 1992, p. 11). The policy response during the 1970s was one of regulation. For example, in Britain there was a Royal Commission on Environmental Pollution (1969), the creation of the Department of the Environment (1970), The Deposit of Poisonous Wastes Act (1972), and The Control of Pollution Act (1974). The underlying logic of the creation of these new institutional bodies and the passing of new legislation, was to provide a high level of technical competence and expertise, but also,

'... to identify a distinct area of public policy requiring its own specialist expertise and its own institutions for the conduct of public discussion. Before pollution policy can be developed, it first has to be invented, and this in turn involves constructing the relevant institutions.' (Weale, 1992, p. 14)

This period represented the beginning of extensive government involvement in issues of the environment, but before the issues could be addressed the problem had to be defined, hence the institutional or, what has been termed, the 'mechanical' response to policy-making.

In contrast, the 1980s represented a more moral, as opposed to mechanical approach, to pollution problems and an end to the assumption of a 'zero-sum game' between environmental protection and economic activity. There was a recognition that pollution was not merely a by-product of economic activity, but was a policy priority of the state. A related trend was the realisation that pollution could not be abolished by the extension of national control agencies on an incremental basis. This situation was due, in the main, to the increasing influence of institutions such as the EC and later the EU. A consequence of these changes was that groups previously considered 'outsiders' to the policy networks became 'insiders'. Groups such as Friends of the Earth became integral members of policy processes due, in part, to their possession and demonstration of technical competence in these areas; they could no longer be ignored. Whereas pollution regulation,

'... had once been a specialist affair, involving primarily the pollution control authorities, regulated industries and a few members of the legislature, the policy community began to expand and diversify, reflecting more general social trends and the heightened place of pollution control on the political agenda.' (Weale, 1992, p. 28)

Recent institutional changes in environmental policy, such as the creation of HMIP and the introduction of IPC in 1990, and the subsequent Environmental Protection Act (1995), represented an increasing centralisation of pollution control. The cornerstones of the Environmental Protection Act (1995) are: The National Air Quality Strategy (NAQS) which sets standards and objectives for key air pollutants, including particulates, nitrogen dioxide and sulphur dioxide; a requirement that all local authorities review local air quality to determine whether or not the NAQS objectives are likely to be met by the year 2005; and, the requirement of local authorities to declare Air Quality Management Areas where air quality standards will not be met and to produce an action plan to meet them. An important implication of this comprehensive approach is that it will impact on other areas of planning, particularly that of land-use planning. It could affect local authorities and planning permission for development likely to emit significant quantities of air pollution (Olding, 1998, p. 15).

The emphasis on rationalisation means that future tendencies could be technocratic management. The influences of consumerism, the EU, greater industrial audit, and the regulatory nature of environmental legislation, means that governments may move beyond the co-option of environmental groups into the policy process,

and instead absorb the expertise within these groups, and combined with the expertise contained within existing government agencies, attempt to design technocratic solutions to the policy issues of the environment. Because of these developments, and the fact that it does not use public spending as its primary policy instrument, this has led some observers to suggest that pollution control is a 'post-welfare-state' sector of public policy (Weale, 1992, p. 7). Important agreements have been made at the European level, with regard to air pollution, such as a Directive on ambient air quality assessment management COM(94)109, as amended by COM(95)312, a main aim of which is to protect human health and the environment. This aim is to be achieved by *inter alia* assessing air quality in a uniform manner and making information available to the public.

This centralisation of control has been due to the acceptance on behalf of policy-makers that a co-ordinated response is necessary to tackle the complex nature of environmental problems, one of which is air pollution. Therefore, the centralisation of control has been a result of the two propositions: that complexity has arisen because of the extension of government responsibility, and the apparent intractability of air pollution as a policy problem. Air pollution is undoubtedly a cross-sectoral policy concern and as a result it becomes a complex issue. Therefore, irrespective of the technical considerations of the air pollution problem complexity forms an important backdrop of the policy area. This environment helps to explain the influence of experts within it. The social complexity is generated, in this instance, by the inter-dependence of sub-systems and the increase in possible outcomes; and the epistemological complexity caused by the inability to know, objectively, all elements of environmental problems. This situation is due, in part, to the fact that air pollution is now treated by policy-makers as a 'third-generation' environmental problem.

5.3 AIR POLLUTION: A 'THIRD-GENERATION' ENVIRONMENTAL PROBLEM

As has been stated above one of the most important areas of environmental concern is of pollution of the air. As car-use continues to expand, towns and cities continue to grow, and industry continues to pollute the atmosphere, the issue has taken on an ever increasing seriousness. But it is not only an urban concern. We

only have to look at the effect of acid rain that Britain 'exports' to Scandinavia to realise that air pollution is not only a regional, but a national, and an international issue (Brown, 1995). Nevertheless, the British attitude to air pollution could be seen as ambivalent. This attitude could be a result of Britain being a low and windswept country surrounded by water. There is also within Britain a distinct urban tradition. A close proximity to industry leads to an acceptance, or at least a tolerance, of air pollution. This tolerance could, however, also be explained by the fact that during the nineteenth and early twentieth centuries the majority of air pollution was domestic smoke produced by coal fires (Wood, 1989, pp. 93-94).

The nature of air pollution has altered greatly since the late nineteenth and early twentieth centuries. Indeed, the contemporary problem of air pollution may be characterised as a 'third generation' problem. To understand this we must be sure of what first and second generation problems are. 'First-generation' environmental problems involve pollution in one medium, either air, water, or land. The 1960s and 1970s was a period of treating environmental problems in this manner. By framing pollution as a discreet policy area policy responses concentrated upon techniques of administrative regulation. There was no consideration given to the notion that cross-media pollution is the rule rather than the exception (Weale, 1992, p. 20).

In contrast to 'first-generation' problems, 'second-generation' environmental problems concern cross-media influence. During the 1980s there was a realisation among policy-makers that assessment needed to be made not only of short-term effects of pollution, but also long-term effects. Add to this the more enlightened behaviour of consumers, and the introduction of moral viewpoints, and the transition from administrative or mechanical reform to moral reform had been achieved (Weale, 1992, p. 31). Second-generation environmental problems, therefore, acknowledge the fact that pollution will affect more than the medium in which it originates.

'Third-generation' problems,

'.... also have cross-media impacts, but unlike second-generation problems, third-generation problems provide environmental effects on a regional or global scale.' (Ringquist, 1993, p. 5)

These are problems, such as acid rain or global warming, that have the potential to alter or possibly destroy entire ecosystems. Air pollution issues in particular have shifted from concerns with sources fixed by location, such as individual factories, towards more general concerns of location; be they regional, national, global, or all three (Wood, 1989, p. 20). Air pollution concerns have also simultaneously developed in the area of specific sources, not in a locational sense, but a general sense, such as pollution from vehicles (Rydin, 1996, p. 3). Hence, 'third-generation' problems, such as air pollution, are concerned with the location and the specific nature of sources of pollution. But more specifically than this there is a movement away from concentrating on specific industrial processes or factories within a particular location, to sources more generally occurring within that location. In this way other pollutants will be considered in a particular area, rather than an obvious pollutant produced by a local factory. This method of categorising air pollution as a particular type of problem is an important element of its inherent complexity.

5.4 AIR POLLUTION: A COMPLEX POLICY AREA

It is almost a truism to state that policy areas are complex. However, as has been shown above, this is too simplistic an interpretation and the concept of complexity itself is worthy of analysis. Therefore, whilst complexity is an inherent backdrop there are specific characteristics of complexity in policy areas.

Complexity in the policy area of air pollution is not the problem itself. It may become a problem in relation to the *status quo*, that is to say, by attempting to solve it, and that requires policy (Barrett, 1995, p. 14). Complexity is generated upwards. At the local level the issue of one community affected by one pollutant poses little complexity in terms of policy solution. However, as the policy area expands to include further communities and more pollutants, the issue of synergy produced by the number of pollutants increases the level of complexity. As does the incorporation of interests, at regional, national, European, and international levels.

The first condition of complexity is the scope of the problem, the fact that it encompasses and covers many other policy areas. The second is the inter-

dependency that this represents. A result of dealing with one particular aspect of air pollution will have effects within that area and effects outside of the policy area. Related to this is another condition, the relative instability or turbulence evident within air pollution. Because of the scope and interconnectedness of air pollution this may cause relative instability and turbulence of policy. A final condition of complexity is the level of cognitive awareness by policy-makers of the previous three conditions. This condition arises because policy is concerned not only with limiting or mitigating effects, but also tackling the causes of air pollution.

The cross-sector influence of air pollution has major implications for policy, in both conception and solution. At a structural level there is conflict between government departments of transport, health, and the environment. This conflict has resulted, on at least one occasion, in government departments providing contradictory advice in response to the same events. During the summer of 1994 when Britain suffered poor air quality for prolonged periods, the Department of Health stated that the cause of the increased cases of asthma were due to increased levels of emissions of nitrogen oxides from freight traffic. In contrast the Department of Transport issued no specific warnings about the emissions, and stated that such health information on air quality was the responsibility of the Department of the Environment (Vallely, 1994).

Air pollution is not only a matter for government departments. British air pollution legislation is now necessarily inter-linked with that of the EU. The primary reason for EU interest in issues of environmental legislation is that it has cost implications for business, which in turn has implications for the Single European Market (SEM) (Brimblecome, 1987). The EU has adopted an anticipatory and contingency approach to environmental problems, a stance not necessarily replicated within the respective national policies of member states (NSCA, 1996, p. 5). Although not part of the original Treaty of Rome, concern for issues of the environment is now a central feature of the EU,

'It is a mark of the centrality of environmental issues that they have played a significant part in driving forward the new forms of national political co-operation represented by the European Community.' (Weale, 1992, p. 205)

Disputes between government departments and the willingness or otherwise of national governments to adopt EU legislation are not necessarily the major obstacles to the solution of environmental problems such as air pollution. Just as

important is the often contradictory nature of scientific and expert information. From the outside it would seem that the use of scientific expertise in an area such as this is due to the very complex nature of the problem, yet as we have seen, part of the difficulty of pollution control is the extent to which the problem has to be invented. Hence, the nature of scientific expertise could be seen to be part of the problem of complexity rather than a solution to it; it merely adds to the complexity because of the different interpretations provided by experts and expert groups to the same available information. Policy-makers may call upon expertise to aid the solution of policy problems because of complexity, but instead it may have the opposite effect to what is actually intended (Loveridge, 1971, p. 60).

Air pollution policy is characterised by its dependence on large amounts of technical information. The majority of the debate for policy-makers focuses on attempts to understand the complex technical nature of the processes, and the possible or probable effects they have on the built and natural environments, and public health. Despite the fact that this may add to the level of complexity, technical expertise is used to frame both problem and solution, and in this way it imposes itself upon the way that pollution policy can be conducted,

'This dependence upon professional expertise affects both the character of the policy community and pollution issues and the manner in which the problems are understood.' (Weale, 1992, p. 3)

This dependence will not necessarily be upon an agreed set of solutions. Dependence does not guarantee consistency between, or even within, professions. Consequently,

'... the level of complexity involved in pollution control policy can be considerable. In some cases it may be difficult to identify environmental problems or the parameters that characterise emission streams It has been claimed that there are 186 scientific hypotheses for observed tree damage.' (Weale, 1992, p. 83)

Despite this disparity between expert groups, it can be seen that expertise alters the nature of language within the policy area. This occurs not just by forcing the policy area into increasingly technical terminology, but by dominating, fundamentally, the nature of the political discourse, because it frames both problem and solution. In this respect experts shape and reflect the complexity. They shape the complexity by adopting the use of common methodologies and a scientific approach. Yet, by promoting this approach, not easily translated into simple

terms, it adds to the notion of complexity in the policy areas by their very central presence of these expert groups.

Air pollution has moved away from issues of smoke and sulphur dioxide, characteristic of the air pollution problem of the last century, to those such as nitrogen oxides and particulate matter (PM), for example PM₁₀s (EPAQS, 1995). Air pollution in this form is caused not only by primary sources such as combustion, but secondary forms, by chemical process in the atmosphere. As a result particles may persist in the atmosphere for prolonged periods, and so the problem is not necessarily confined to cities and urban areas, but rural areas also. The scale of the problem often exceeds the boundaries of a particular political system let alone the demarcation between towns and the countryside, and involves political diplomacy in seeking to solve the air pollution problem at source, not merely dealing with the effects (Weale, 1992, p. 9). The complexity is not only with the technical issues of understanding the problem, but also in its possible solution at an institutional level.

The realisation during the 1980s that air pollution was no longer a narrow policy area produced an expansion in the number of policy actors. This wide range of groups, provides a concomitant wide range of advice. It is sought not only because the issues are complex, but also because the individual policy-makers believe that without the advice of experts, policy decisions could result in disastrous consequences. Indeed, part of this expansion has been at an international level, due not only to the nature of air pollution as a problem, but also the general trend in public policy towards solutions at a European level. This trend means that the scientific expertise employed by policy-makers can have influence not merely on a national level, but also has the potential of establishing an agreed paradigm on an international level (Weale, 1992, p. 196). Expertise could be seen to have a dual role in this context: to create an understanding of the policy problem on which government policy preferences rest, and to secure a transnational consensus on policy solution.

The first of these roles takes two forms: providing professional advice to governments, and providing legitimacy for policy decisions because of the inherent complexity involved. Policy-makers require expert advice on a basic level for public credibility, and to satisfy other elements within the policy domain. And equally, as an area becomes dominated by complexity and expertise, policy-makers

become more dependent on expertise. Equally, over time, policy-makers may become convinced of the validity of expert opinion. By doing so this reliance becomes important for the survival of the policy and for the government itself. This reliance forces policy-makers to ensure the technical transparency of the expertise they employ, and allow groups to replicate or disprove particular assumptions or results. The knowledge provided by expert groups in the development of policy must be seen to be legitimate, not only to the public, but to the other groups participating in the policy area.

The international dimension of the role of expertise, securing a transnational consensus, cannot be easily dismissed. Consensus may be achieved on policy orientation and policy-makers may find it difficult to reverse momentum in a particular direction. Therefore, expertise is not only important within national confines of the policy area, but also internationally, as air pollution is an international concern. One such area that has witnessed a trend towards consensus is the potential of air pollution for damaging public health.

5.5 EFFECTS OF AIR POLLUTION ON PUBLIC HEALTH

It was not until the great fogs of the end of the nineteenth century that there was a final recognition of a link between air pollution (smog in particular) and human health, and that to solve the problem social and political concessions, and not just medical ones, would have to be made. The detrimental relationship between air pollution and health is still an important concern. What has altered is not the nature of the health effects of air pollution, but the nature and type of pollutants producing these effects. Respiratory and lung disease, asthma, bronchitis, and so on are still prevalent, in some cases increasingly so, but the type and nature of the particular airborne pollutants, and their distribution has altered. The concern of the nineteenth century with sulphur dioxide and black soot has been replaced by new pollutants such as carbon monoxide, nitrogen oxides, and particulates (in particular PM₁₀s). The effects of these pollutants are summarised in Table 2 below.

But not only are these pollutants hazardous in themselves; pollutants such as nitrogen oxides and ozone react in the atmosphere to produce secondary pollutants. These chemical reactions highlight one of the fundamental problems when

Table 2: Summary of the Effects of Air Pollution on Public Health

| POLLUTANT | MAJOR SOURCES | EFFECTS ON HEALTH | SUSCEPTIBLE POPULATIONS |
|--|---|--|--|
| Carbon Monoxide (CO) | Transportation, industrial processes. | Reduces ability for physical exertion, reacts with haemoglobin reducing mental attentiveness, exacerbates cardiovascular disease symptoms. | Persons with cardiovascular and related diseases. |
| Nitrogen Oxides (NO _x) | Transportation, heating, cooling, power generation. | Interferes with respiratory functions producing long-term disease symptoms. | Persons with respiratory or cardiovascular disease, the young the elderly. |
| Hydrocarbons (HC) Volatile Organic Compounds (VOCs) | Transportation and industrial processes. | see photoxidants. | see photoxidants. |
| Photoxidants (O ₃) | See Hydrocarbons and Nitrogen Oxides. | Interferes with respiratory functions, and causes eye irritations | Persons with chronic respiratory diseases, especially bronchial asthma. |
| Particulates (in particular PM ₁₀ s) | Power generation, heating, cooling, industrial processes, soil erosion. | Interferes with respiratory functions, possible contribution to lung cancer. | Persons with respiratory disease, the young and the elderly. |
| Sulphur Oxides (SO _x) | Power generation, heating, cooling, industrial processes. | Little effect in pure gas form, similar effects to particulates when combined with them. | Persons with respiratory or cardiovascular disease, the young and elderly. |
| Heavy metals, radioactive agents, carbon dioxide, others | Power generation, industrial processes, heating, cooling. | Specific to each pollutant. | Specific to each pollutant. |

(Source: Wood, 1989, pp. 18-19)

attempting to research the effects on health of airborne pollutants, the issue of synergy. It emphasises neatly the contrast between epidemiology and laboratory research, the former dealing with a mixture of pollutants because it deals with demographic areas, the latter with individual pollutants in a controlled environment (Attenborough et al, 1977). Because the individual is exposed to possibly dozens of separate pollutants at any one time it may be difficult, if not impossible, to extract the pollutant responsible for producing the particular health effect. But it does not stop there, individual pollutants may combine and react to produce new harmful substances. Moreover, the new form of air pollution may not be the problem in itself, it may act as carrier of more deadly toxins (Seaton et al, 1995). This problem highlights the epistemological complexity; the difficulties faced by policy-makers of knowing, objectively, the boundaries of the policy area.

The physiological nature of individuals is crucial to research into the health effects of air pollution. He or she may respond in a particular way that is not necessarily replicated across a sample. Research not only has to consider age and general health of the individual, but also the exact nature and concentration of the pollutants, the duration of exposure, the level of activity undertaken when exposure occurs, and perhaps most importantly, the enormous range of sensitivity to pollution that may be displayed by different individuals (NSCA, 1996, pp. 77-78). For example, some substances are so widely distributed and part of everyday life that it is difficult, if not impossible, to compare the individual affected by pollution to a completely neutral sample. The complexity of variables and the small number of cases may lead to a misleading classification of outcome (Anonymous, 1992a).

Despite these caveats there is general acceptance of an increase in the prevalence of respiratory problems throughout the industrial world (Royal Commission on Environmental Pollution, 1994, p. 30). However, as has been shown above, the large number of variables makes it difficult to *prove* air pollution has a demonstrable effect on human health at ambient, or what are considered 'normal' urban concentrations (Perkins, 1974, p. 332). Individual air pollution episodes, such as the smogs in London in 1991 and 1994, keep the issue on the political agenda, and ensure that there is a continuing debate over the effects of air pollution, particularly from vehicles (Anonymous, 1994a, p. 3). Indeed, there was a virtual admission by the Department of Health that the increased death rate

caused by a photochemical smog in London in 1991 was 'consistent with an effect of air pollution' (Anonymous, 1994b, p. 3).

The effects of airborne pollution on health are further complicated by the fact that effects can be both short-term and long-term. For the short-term, investigations can be made regarding patterns of mortality and relating them to air pollution episodes. For the long-term, there would need to be more extensive studies of human health events and routinely recorded concentrations of airborne pollutants. As no individual exposure tests are technically possible evidence has to come in the form of epidemiological studies. The difficulties posed by this method, such as disentangling weather and pollution effects, and individual socio-economic conditions, are all too evident. Epidemiology does not, and cannot, assess exact rates and levels of individual exposure. Therefore, it is important to consider that this technique,

'... though perfectly acceptable scientifically the time effects of [for example] low concentrations of PM₁₀ on individuals cannot be determined with confidence from such studies.' (EPAQS, 1995, p. 11)

It may be accepted that air pollution is damaging for human health in certain conditions. What is less certain, or accepted, is the effects on particular types of complaint or disease.

5.6 AIR POLLUTION AND ASTHMA

Prominent in the debate over air pollution and public health is the potential effect on asthma. It was a concern for the Royal Commission on Environmental Pollution in 1994,

'A particular public concern, strongly voiced, is the increasing number of asthma cases and the possibility that vehicle emissions are one of the causes. Further increases in the number of vehicles and their use would tend to erode the benefits of more stringent limits now placed on emissions from new vehicles.' (Royal Commission on Environmental Pollution, 1994, p. 1)

Studies from cities around the world replicate a positive correlation, not only between air pollution and mortality, but also for asthma and respiratory problems, particularly with pollution from vehicles (Patel, 1994; Hamer, 1994a). Despite the results from these studies there are strong claims to the contrary, and large

amounts of research evidence to reinforce these counter claims. In Britain, in the early 1990s, the Department of Transport was reluctant to accept world-wide trends in trying to curb vehicle pollution (nitrogen oxides), because of their suspected effects on health, particularly on asthma (Coghlan, 1993). This stance is also supported by research, suggesting that there is no positive correlation between air pollution (in particular, short-term exposure to particulate pollution) and asthma (Perry et al, 1983, p. 53; Seaton et al, 1994). During the summer of 1995 levels of nitrogen oxide and ozone rose to such a high level that asthma sufferers were advised to remain indoors (Anonymous, 1995a).

For the government to state officially that there is a direct causal relationship between air pollution and asthma would have serious implications for policy, not only for health policy, but also for transport and industry. Unlike other respiratory problems asthma is a medical condition recognised world-wide. To admit to an unequivocal link would have social and political consequences. But as has been stated above the concepts of 'air pollution', 'asthma', and 'respiratory problems', are only the beginning of the problem. Like the 'ambient conditions' that exist only in abstract form these concepts are subject to dispute over definitions and cause. Moreover, the synergistic effect of air pollution makes it difficult to extract individual pollutants from more general air pollution, and eliminate the various co-variables such as, temperature, barometric pressure, and population density (Perkins, 1974, p. 344).

The majority of air pollution is visible to the naked eye. Plumes of smoke from industrial processes and from vehicle exhausts are presumed to cause some health problems. At the very least the public would not consider these emissions to be benign. This public opinion can produce plenty of anecdotal evidence. Air pollution could be blamed for the increases in the numbers of cases of asthma, and once an association has been drawn further occurrences are attributed. Air pollution thus becomes both the cause and effect of asthma (Attenborough et al, 1977) or respiratory illness (Seaton et al, 1995). Popular beliefs such as these are not necessarily an obstacle to scientific enquiry. They are important as illness strikes unevenly and unequally. As a consequence, the way people think is important. Any epidemiological investigation that ignores this facet is weakened because it attempts to distort the very reality it seeks to describe.

This perception is also an important factor for policy-makers in the way the problem is presented to the public. The Chief Medical Officer stated in 1994, that 'no clear relationship' had been found between asthma and air pollution. In slight but nevertheless important contrast, the Director of the Medical Research Council's Institute for Environment and Health (MRCIEH) stated that 'no simple relationship had been shown' (Anonymous, 1994a). Moreover, Robert Atkins MP, the then junior minister for pollution policy, stated in 1994 that the link between vehicle pollution and the exacerbation of asthma 'is not proven' (Vallely, 1994). Despite this claim the number of cases of asthma is on the increase world-wide, even though there has been a general decline air pollution since the 1950s. In Britain, asthma is the most frequent reason for children to be absent from school.

The study of air pollution and asthma raises another important research issue, due to the nature of the disease itself: is an increase in the number of asthma cases a result of a more toxic environment or a more susceptible population? However, what may be more important is the prolonged exposure to new forms of pollution, and the increased sensitivity to this pollution of genetically-susceptible individuals. This element of research is important because, as has been stated above, the nature of air pollution has altered from the problems of sulphur dioxide and smoke of the last century, to pollution produced by vehicles, such as PM₁₀s,

'Increasingly particles are being measured by a method that determines the mass of that fraction which is considered most likely to be deposited in the lung. These particles are called PM₁₀ (Particulate Matter Less than 10µm in diameter).' (EPAQS, 1995, p. 2)

Therefore, research has to consider individuals as well as the pollutant or pollutants involved. Particulate pollution has implications for asthma. These particles have severe effects as they have the greatest likelihood of reaching the furthest parts of the lung, where the essential processes of respiration are to be found. Measurement instruments for air pollution were designed historically to detect black smoke, the most easily observable form of air pollution. The problem with particulate pollution is that it cannot be observed with the naked eye, as minute particles can pass through buildings and remain in the atmosphere for prolonged periods (Seaton et al, 1995). Hence, the important issue for research may be the size and number, rather than concentration or chemical compound of the particles. In addition, the exact compound will be dependent on its location, be it urban or rural, or proximity to the kerbside. There is also some debate over

whether or not PM₁₀s are deadly in themselves, or whether they are merely carriers of more deadly toxins (Seaton, 1995; Pearce, 1994). Despite this debate, recent research on PM₁₀ emissions has forced the Department of Health to move to a more precautionary approach, to state that any reduction in particulate levels would be welcome. It has also forced a reversal in the policy of Friends of the Earth who now do not recommend diesel engines, the primary producer of PM₁₀ emissions, for would-be car owners (Bown, 1994a).

Concern expressed over the issue of particles came to the forefront of debate in Britain because studies on respiratory disease and asthma, mainly from the United States, demonstrated adverse effects on public health at lower concentrations of pollution than those measured in the 1950s and 1960s (Anonymous, 1995b; Anonymous, 1994c). These studies are important as it would be easy to conclude that air pollution could have respiratory effects in high doses over short periods, but it has greater implications if it can be shown that it can cause severe problems at low levels over prolonged periods (Perkins, 1974, p. 332).

The confusion over possible effects on asthma is not restricted to that presented by particles. Some research claims that nitrogen oxides may not have a direct effect (Holgate, 1994; Anderson et al, 1995). whereas other research indicates that nitrogen oxides may be potentiating agents, that block tracts and prevent expulsion of allergens such as house-dust mite (Pearce, 1994). This research has been rejected by some as being of little importance as emissions of nitrogen dioxide are on the decrease. This claim itself is not necessarily true. Catalytic converters, the primary weapon against nitrogen dioxide emissions, could be defective, for two reasons. First, the majority of journeys are of less than five kilometres in distance, providing too little time for catalytic converters to become effective. Second, a corresponding lack of understanding of nitrogen dioxide reactions, that is, reductions in the level of emissions, may not equate directly with reductions in the atmosphere (Pearce, 1996). This confusion further complicates the matter as it may not be possible to state that air pollution in general is, or is not, the cause of the increases in the asthma cases, or that air pollution is, or is not, the cause of the increases in prevalence of respiratory problems, but only that certain types of air pollution produce these sets of circumstances. For example, we may be persuaded to accept ozone as a direct cause of increases in the number of cases of asthma or

an exacerbatory effect (Molfino et al, 1991), but reject the effects of nitrogen dioxide.

One of the difficulties in conducting research of this nature is differentiating between asthma and respiratory problems or diseases. Air pollution episodes often result in increases in respiratory consultations (Anderson et al, 1995). The report of the Royal Commission on Environmental Pollution (1994) is ready to concede that air pollution may have an effect in this more general way, rather than on a specific medical condition such as asthma. The report highlights the increased 'incidence' of respiratory problems between 1976 and 1987. However, it states that these increases,

'... which are paralleled elsewhere in the developed world can be dismissed as a consequence of changes in reporting or diagnosis ... the factors which lead to an increase in the numbers of attacks of asthma in already susceptible individuals are not, however, necessarily the same as the factors which cause individuals to have respiratory problems in the first place.' (Royal Commission on Environmental Pollution, 1994, pp. 30-31)

This conclusion is important for both government and policy solution. To state that there is a direct causal link between asthma and air pollution has more social and political consequences than merely stating that it has respiratory effects such as chronic phlegm, sinus trouble, 'glue ear', and so on. The consequence is less severe because asthma is an accepted medical condition, general respiratory problems are not treated by the public in the same way.

It would seem even within this sub-sectoral level of policy there is a wide-range of debate. Expertise certainly does not provide objective analysis suitable for policy implementation. As the air pollution and health difficulties, of which asthma is only one, have become more complex this has resulted in an increase in the number of interests and expert opinion involved, yet this does not increase certainty.

5.7 CONCLUSION

It is doubtful whether there are purely 'ambient' or un-polluted atmospheric conditions. This claim poses a major problem for research into air pollution. Is the air pollution problem merely one of degree? Is there an air pollution problem at

all? It is certainly the case that since the 1950s levels of air pollution have fallen. But the issue has been altered, not removed from the political arena. In point of fact, despite the popular belief that pollution is getting worse,

'... the available information indicates that trends vary greatly between individual pollutants. In general, acute local pollution has become very rare, whereas widespread low-level pollution has been increasingly recognised as a potential problem. Localised elevated pollution levels associated with particular industrial and other stationary sources still cause serious (and sometimes avoidable problems).' (Wood, 1989, p. 1)

During the 1970s environmental legislation and policy-making was one of incrementalism and regulation. This system was flawed not only in its conception, that is, that cross-media pollution is the rule rather the exception, but also in terms of policy implementation. This policy style, encapsulated in the British use of BPM for all environmental concerns, meant that there was often an implementation deficit; irrespective of a standard or recommendation the problem arises when levels are exceeded (Weale, 1992). This factor led to the emergence of pressure groups in the 1970s, who demanded increased participation and accountability in the making of environmental policy. It had the effect of challenging the traditionally closed policy domains. The technical competence of the new environmental movements,

'... had the effect of challenging the assumptions on which traditional policy elites operated. This was most obviously true in the case of nuclear power in the late 1970s and early 1980s, but it came to apply to air, water, soil and marine pollution.' (Weale, 1992, p. 170)

The nature of pressure groups themselves poses interesting problems. Not only do groups possess their own technical competence in order to participate in the policy area, but now many groups are indiscernible from businesses in terms of their professional presentation, and public and media relations. However, environmental groups often present themselves as revealing unchallengeable truths, which, in turn, represent the public interest. As with nearly all scientific endeavour this is not the case. It can be seen that the air pollution policy area is not characterised by scientific certainty.

In contrast to the 1970s, the 1980s witnessed a change not only in approach to policy formulation and implementation (moral as opposed to mechanical), but also change at an institutional level. There was an increase in the number of actors operating in the policy area at both national, European, and international levels.

This expansion and development has continued into the 1990s. The closer collaboration of policy actors and the extension of the policy area to include European and international inputs also has democratic implications, and could be viewed as a tendency towards technocracy. What needs to be assessed is whether or not this policy area reflects the core characteristics of technocracy: an apolitical ideology, and a neglect of normative reason. Technocracy represents the extreme form of expert power, and it may not be apparent in this policy area. Instead, experts may operate on other levels, and have influence on a moderate or formal level, or merely as 'servants of power', in this case to policy-makers. It remains to be established as to the exact level of influence of a particular set of expert groups in this policy area.

The professional and scientific stance adopted by environmental groups during the 1990s, as well as the employment of expertise by policy-makers, poses further democratic questions. The debate between these groups surrounds invariably not just how research into the area can or should be conducted, or pollution control standards, but the determination of policy principles, that is, the nature of the actual problem and the framing of possible solutions. Co-operation between expert peers may be well-established, but experts are often reluctant to cultivate relationships with outside agencies and the public, as they may feel the public is not informed sufficiently enough to make rational judgements about the issues of air pollution. Hence, the actual influence of expertise will also be dependent on the level of internal cohesion within expert groups and between groups. The complexity of the policy area and the numerous different approaches by expert groups may actually add to or shape this complexity, a result of which is to make the policy area more opaque to outsiders. Therefore, experts are both reflect and shape the complexity of the policy area through their central presence and through recommendations of policy activity, or in some cases, inactivity, via an intellectual consensus or on an individual basis which can alter the perception of the problem. As we have seen, this is particularly acute with regard to the health effects of air pollution in general, and asthma in particular. Expertise can be used to support either side of the debate as to whether or not air pollution is a direct cause of the increases in the number of cases of asthma, or whether or not it has an exacerbatory effect on susceptible individuals. If a causative link were to be proven this would have wide-ranging implications for government policy. What remains to be demonstrated is the type of expert groups co-opted in to the policy

area, the mandate they are supplied with by policy-makers, and the exact level of influence exercised on policy formulation and outcomes.

A more comprehensive assessment of the participants of the policy area, the nature of the complexity involved in air pollution and asthma, and the level of expert influence in the policy area is provided in Chapter 6.

CHAPTER 6

EXPERT INFLUENCE IN AIR POLLUTION AND ASTHMA

'We were surprised by the difficulty which we encountered in obtaining authoritative views on the health effects of car-delivered pollution.'

(Royal Automobile Club, 1992)

6.1 INTRODUCTION

This chapter examines asthma as an important disease in contemporary Britain, and the political, social, and economic implications of its prevalence. It also assesses the principal participants in the policy area, as well as provide an evaluation of the nature of the complexity and legitimacy located within it, and an assessment of the extent of expert influence on both policy formulation and outcomes. Hence, it is an analysis of the role and influence of a particular set of expert groups.

As has been stated above, the 1970s was a period of administrative regulation with regard to pollution control, with a concentration by policy-makers on discreet and specific policy areas and individual mediums: air, water, and land (Weale, 1992). This situation was created by the increasing complexity of the policy area, coupled with satisfying public desire for a clean environment in difficult economic circumstances. In response to these conditions the state created new institutions, such as the Department of the Environment. The most important factor, however, was the lack of recognition of the cross-boundary and cross-policy implications of pollution problems. In contrast, the 1980s saw a willingness to accept the interrelated nature of air pollution problems, an eagerness due, in part, to the fact that the period witnessed general increases in both emissions and population levels, and a concern that the pollution problem was becoming increasingly serious. It also revealed a related trend, that extending the power of institutions incrementally could not solve the pollution problem. As a result, a new set of actors was added to the policy area. Groups once considered outsiders such as Friends of the Earth and Greenpeace were now 'insiders'. The EU and WHO also had an increasing influence.

However, in contrast to other policy areas in the 1980s, the return to the examination of policy ends over and above policy means was not so apparent. As the policy area extended towards the international level there was a recognition that air pollution could not be tackled entirely according to ideological principles, that is, by the dominance of the private sector. Instead, it required more co-ordinated, inclusive mechanisms. The difficulty with the policy issue of air pollution and asthma is that it covers the policy concerns of both health and the environment. At an institutional level reaching its logical conclusion in the establishment of the DETR. This cross-discipline nature causes problems not only methodologically, but politically. It calls for collaboration between government departments and agencies, but produces disagreement and conflict in those same areas. Historically the emphasis in policy-making terms of successive governments has been on the environmental context of air pollution and asthma, although primarily in terms of emission levels. In contrast, the focus now is on the relationship between health and air quality.

Public health remains a very important area of public policy. It is important not only because of the debate over the relative merits of a state or private provision of health services, but because governments are responsible for the treatment of the public and their protection in terms of threats to health. One potential threat is from the environment. Asthma has been linked with environmental concerns for decades. The debate about the relative danger of individual pollutants remains an active one, not merely because the nature of these pollutants has significantly altered. The public policy problem, however, remains the same. Any suggestion of a positive link between air pollution and asthma, and potential fatalities, therefore has serious implications for policy.

Asthma is one of the most common chronic diseases in the western world. In Britain, it affects ten per cent of the population and treatment (discounting prescription costs) accounts for one per cent of total NHS costs (Department of Health, 1995). These figures, however, do not necessarily give an adequate picture of asthma prevalence in Great Britain. The difficulties of measurement, such as the lack of a standardised case definition, a lack of reliable and valid indicators of severity, and the problem that most asthma is self-reported (LAIA, 1993a), poses problems for what may be considered objective or subjective in a policy area. Just because the policy area is dominated by quantitative material this

does not necessarily translate into general agreement on what is considered to be objective and subjective.

Governments have been involved in data collection on atmospheric conditions for nearly a century. Today, there are urban and rural networks of monitoring sites, responsible for monitoring all the major pollutants that constitute the contemporary air pollution problem. There are many arguments put forward to suggest that this monitoring network is far from adequate (NAC, 1993). Nevertheless, although important, this is only one side of the scientific evaluation of air pollution. The other, and more important side, being the interpretation and evaluation of data. This interpretation takes place at all levels within the policy domain. It occurs within non-departmental public bodies such as the EA and the Parliamentary Office of Science and Technology (POST), within government-sponsored committees, such as the Committee on the Medical Effects of Air Pollution (COMEAP), and within third sector organisations such as the National Asthma Campaign (NAC) and the British Lung Foundation (BLF).

The plausibility of air pollution as a possible cause of asthma, or a problem that exacerbates the symptoms of asthma, depends on the extent to which the evidence suggests air pollutants are capable of causing or exacerbating asthma, and whether trends in the emission levels of these pollutants themselves are consistent with a steady rise in the disease over 25 years or more (POST, 1993, p. 21; NAC, 1993). Thus, a key area of policy is the interpretation of monitoring information. Much of the contemporary debate revolves around the effects of vehicle pollution. Some participants in the policy area argue that measures taken to reduce vehicle emissions have been largely effective in maintaining or improving air quality, so health risks, despite growth in traffic levels, have not increased (Watkins, 1991, preface).

There are political, social, and economic aspects of asthma. At an economic level asthma has implications for the economy in terms of loss of production in industry, and the costs to the NHS. In terms of social issues asthma has effects at the family level, and at a more individual level in terms of social mobility and potential isolation. These effects will also vary from region to region and be dependent on social context. On a political level governments have to assess the relative merits of asthma as a policy issue. For example, should resources be pushed towards solving policy problems in this particular area? Allied to this fact, and extremely relevant, is the fundamental issue of political judgements in policy

areas of high technical complexity. This issue poses problems for policy-makers. First, that they accept that air pollution does have an effect on asthma. And second, the exact nature of the effect and the policy response that is appropriate. This dilemma was first identified as long ago as 1877, with the first Royal Commission report in this policy area. The Commission concluded that there was no 'convincing' evidence of health effects caused by air pollution.

The level of complexity within this policy area has implications not only for policy-makers, but also for research. Members of the policy area are forced to consider not only definitions of asthma, but exposure-response relationships, spatial and environmental variables, the problem of synergy, the nature of individual pollutants, and so on. In terms of academic analysis one way of approaching this dilemma, and the method adopted in this case study, is to focus attention on the individual pollutants, the principal participants of the policy domain, and the level of complexity within the area itself.

Complexity is one of the most important issues of this policy area. For example, the lack of a precise definition of asthma causes research difficulties (Department of Health, 1995, p. 12). As a consequence, increases in the number of cases of asthma may be due to self-diagnosis, or the disease being more well known than other forms of respiratory disease such as bronchitis, or a combination of both factors. Coupled with this problem is the difficulty of diagnostic labelling (Department of Health, 1995). There are different definitions used in the various academic and medical fields. This factor is important because although 15-20 per cent of adults experience wheezing (traditionally associated with asthma) probably less than 5 per cent suffer from traditional asthma symptoms such as breathlessness (LAIA, 1993a). This difficulty reflects the epistemological form of complexity; the problem faced by policy-makers because of their inability to know, objectively, all areas of the policy environment. The epistemological complexity reinforces an important point made previously, that expertise is deployed in areas such as this because they are deemed 'areas of common interest', and it is this that provides the legitimacy for policy-makers. Expertise is considered vital because these issues are considered to be matters of special knowledge. Moreover, the complexity generated by the language and technique used by experts makes the policy area opaque to outsiders.

Asthma and air pollution is a relatively new policy area and, therefore, policy is directed at the gathering of sufficient information to determine the nature and extent

of the problem. Policy-makers are reluctant to open new channels of communication within, and external to, the policy area, that may draw a closer association between air pollution and asthma, for to do so would have far-reaching implications in other areas, especially the economy. This problem reflects the social form of complexity, a result of the inter-dependence of policy areas and the way air pollution has influence in more than one area of policy.

As a consequence of these two types of inherent complexity expertise is instrumental in determining both the discourse within the policy area of air pollution and asthma through influence on policy formulation. It also has an influence on policy outcomes. Whilst the use of a relatively small number of participants this does not necessarily translate into an area representative of intellectual consensus, there is evidence of a technocratic tendency for expert influence. In order to explore these claims, an examination of the prevalence of asthma is required.

6.2 ASTHMA

In Britain, asthma affects 1 in 10 school children, and 1 in 20 adults (Department of Health, 1995). It causes approximately 2000 deaths in Great Britain each year (Taylor, 1995). The increasing number of cases are put into perspective by the fact that episodes of bronchitis and chest infections have fallen in number since the 1950s, but those of asthma have not (Lane, 1996, pp. 118-119), an increase demonstrated, in part, by the rise in doctor consultations and hospital admissions of adults for asthma. Indeed, respiratory diseases represent the most common reason for doctor consultation (LAIA, 1996a); in 1991/1992 asthma accounted for 2.6 per cent of all consultations (LAIA, 1995a).

Because of the general increases that have occurred, particularly over the last 20 years, asthma is an important health policy area. As a result, extensive research into causes and treatment is conducted by government agencies and voluntary organisations. In 1992/93 the Medical Research Council (MRC) spent £1.5m on research into asthma and other allergic diseases, and the National Asthma Campaign (NAC), the primary pressure group in this policy area, spent £1.9m on the same areas of research. This increasing prevalence in asthma has promoted much debate in the policy area, with some members doubting that such an increase

has in fact occurred. What is certain, however, is that if an increase is accepted, it has occurred too rapidly to be caused by genetic susceptibility, and therefore external factors are the focus of attention (Taylor, 1995). It is the debate over cause that is one of the central difficulties of this policy area. Primary amongst the perceived causes has been the issue of air pollution. It is this increasing prevalence that results in asthma having effects in political, social, and economic spheres.

6.3 POLITICAL, SOCIAL, AND ECONOMIC ASPECTS OF AIR POLLUTION AND ASTHMA

6.3.1 Political

On a political level there is the position asthma holds, in terms of public health, compared to other health issues. There is also the ethical issue of whether to permit even a minimum level of air pollution if it is known to cause some damage to health, no matter how small. The level of public attention it receives relative to other policy areas and the level of general attention it receives in, for example, the media is another important political element. This public attention is related to the level of resources provided by government for its improvement or solution, and the level of public pressure exerted by pressure groups. Policy-makers may have to react to public concern expressed over particular elements of air pollution or asthma, or both. The relationship between the public and policy-makers (and therefore resources) is a two-way process. However important the public is in this policy area, the technical element of the problem has undoubted pre-eminence.

At the very centre of the asthma and air pollution debate is the conflict between political decisions and an understanding of science and technology; they both require hard data and value judgements (Ashby, 1975). Much of the earliest air pollution legislation had to overcome sociological difficulties. Many members of the public were not keen to see public health being placed below profit, employment, and housing on political and social agendas, feelings still relevant today. There was also a general reluctance to use new forms of domestic fuel. Therefore, despite the fact that technology was available, these social difficulties needed to be overcome in order for legislation to be successful (Ashby, 1975). A major feature of this early air pollution legislation in Britain was the fact that it sought to optimise rather than control or prohibit pollution. The BPM principle

(since superseded by BPEO and BATNEEC) on which early legislation was based, politicised air pollution, ensuring that any improvement or change to air pollution was dependent on a combination of challenging these social norms, the provision of available technology, and subsequent legislation (Ashby, 1975).

As well as overcoming social and cultural conventions there are further political implications for policy. There is an inherent difficulty in proving, for example, the synergistic effects of a mixture of air pollutants on asthma, let alone interpreting the respective individual debates over the effects of particular pollutants. This complex situation could provide policy-makers with a justification for a policy *status quo*, or allow permanent deferment of the problem until it reaches the point that public dissatisfaction forces drastic measures. Public dissatisfaction may alter according to geographical location, because exposure to air pollution will vary across regions, and may result subsequently in variations in political will to solve it,

'Pollution control is an extremely political issue, and in local areas the distribution of benefits and costs will often be more important (at least for implementation purposes) than aggregate (regional or national efficiency).'
(Lave and Seskin, 1977, p. 210)

In addition to the regional differences of air pollution concentration the political agenda, in so far as air pollution is concerned, can be heavily influenced by pollution 'events' and pollution 'episodes', primarily because they can be seen, and can affect large amounts of people at the same time (AGMAAPE, 1995; POST, 1994, p. 94). These short-term episodes, although not influential in isolation, galvanise public and media opinion on air pollution and its potential effects.

Nevertheless, a *status quo* was evident in government policy during the early 1990s. The Government White Paper, 'This Common Inheritance' did not endorse fully the 'precautionary principle', that scientific uncertainty should not be an excuse for policy inactivity. Instead the government imposed caveats, such as: that the precautionary principle is justified if the balance of likely costs and benefits justifies it; the precautionary principle is, in fact, a long-term aim, and that reductions will be made wherever it is practicable (Friends of the Earth, 1990, pp. 2-3). This long-term view may explain why it took the Conservative government five years following the publication of the WHO's 'Air Quality Guidelines for Europe' to set up an air quality panel in Britain instead of accepting the medical

evidence provided by WHO straight away (Friends of the Earth, 1990, p. 20). This situation has changed over the past two years. The NAQS is a signal of a more proactive response to air pollution policy.

A further policy change may be found in the academic treatment of 'new' pollutants. In the past 'old' pollutants such as sulphur dioxide and smoke were viewed in terms of their effects on public health. Assessment would then be made of their chemical composition. That is to say that sulphur dioxide was assumed to have health effects even though the chemical composition and effects were not completely known. Today, examination is made of chemical compounds, then assessment of effects on human health (AGMAAPE, 1991). This change in approach can be seen in the treatment of vehicle emissions. Here emphasis is placed on vehicle emissions first, that is, to see exactly which pollutants are produced by vehicles, followed by examination of any effects on human health. Not only has the approach altered, but so has the implication for policy. In this scenario air quality, not human health, is the primary consideration (Watkins, 1991). An emphasis on air quality demonstrates that the policy method employed by government for securing reductions in emissions is focused on technical advances in vehicles, rather than radical solutions such as traffic restraint (Friends of the Earth, 1990, pp. 1-2). By moving the debate to one of air quality from one of air pollution expertise can be deployed in a slightly, but importantly, new direction. It means that piecemeal alterations in policy can be employed rather than radical solutions. In this way policy-makers are seen to be satisfying both their public credibility, and participants in the policy area.

6.3.2 Social

Asthma is no different to other chronic diseases in that it produces social costs. It can lead to loss of production function of individuals, subsequent financial crises within households, and social isolation generated from the fact that individuals are unable to enjoy normal social interaction. In addition to an influence at this private level there are also effects on society as a whole. There are general benefits of a clean atmosphere provided by air pollution abatement. These are both direct, such as a general improvement in public health because of the improvement in the quality of air in the atmosphere, and indirect, such as improved visibility and reductions in noxious odours. Therefore, the social impact of the provision of good air quality is concerned with the quality of life (Lave and Seskin, 1977). The social impact of air pollution is extremely important, as the effect of any particular

pollutant will vary according to the social context. The pattern or causes of episodes of asthma can have as much to do with the susceptibility of individuals and their personal lifestyle habits, the nature of the geographical location, and so on, as much as the effects of particular pollutants (AGMAAPE, 1995).

6.3.3 Economic

In addition to these purely political and social costs there are economic costs of asthma. Irrespective of its relationship to public health and the personal economic costs incurred by individuals because of it, there are general economic costs that are generated because of a poor environment. Air quality, and the extent to which air pollution is detrimental to that air quality, is an important factor, not merely because its presence is almost inescapable. The primary economic costs of providing clean air are lower profits because of increased costs incurred by firms to secure reductions in emission levels, and the potential unemployment due to constraints on industry, and the greater use of scarce resources because of the need to utilise alternatives to traditional methods of, for example, energy production (Lave and Seskin, 1977). Alternatively, by not providing a clean environment firms will incur costs by potentially damaging the health of its workforce, and face financial penalties, or possible closure for not complying with pollution legislation.

The economic costs of asthma for the economy are easily quantifiable. More than seven million working days are lost each year, at an estimated cost of £350m in productivity (BSAENM, 1997). Furthermore, in 1990 the total cost of treatment for asthma for the National Health Service was approximately £400m (Department of Health, 1995).

Now that consideration has been made of the political, social, and economic effects of asthma attention must be focused on the policy area of air pollution and asthma. In order to assess the level of influence of experts within the policy area, analysis must be made some of the principal participants.

6.4 PRINCIPAL PARTICIPANTS IN THE POLICY AREA

The policy area of air pollution and asthma is heavily dependent on the collection of data, especially of air pollution in general, and the individual pollutants in particular, are to be blamed for the induction and incitement of asthma and other

respiratory diseases. Since the turn of the century measurements have been taken of air quality in the United Kingdom (UK). The first body responsible for the collection of data was The Committee for the Investigation of Atmospheric Pollution which included among others, the CSAS. It had operated on an unofficial basis, but was put on an official footing in 1917 under the auspices of the Meteorological Office. This function was later passed onto the Department of Scientific and Industrial Research, followed in turn by the Fuel Research Station, the Warren Spring Laboratory, and now the National Environmental Technology Centre (NETCEN, part of AEA Technology - an agency of the Department of Trade and Industry). In 1961 the National Survey of Air Pollution was set up to monitor concentrations of black smoke and sulphur dioxide, with the Warren Spring Laboratory as co-ordinator and adviser. Today, an annual National Atmospheric Emissions Inventory is produced for the DETR by NETCEN that covers *inter alia* black smoke, sulphur dioxide, nitrogen oxides, carbon dioxide, and non-methane VOC's. The Inventory provides estimates of pollution, and is used by government in policy formulation and to meet EU and international obligations (NSCA, 1996, pp. 82-83). It is produced using data from a number of monitoring networks.

The 1961 survey was replaced in 1992 by the UK Smoke and Sulphur Dioxide Monitoring Network with 255 sites (the 1961 Survey was made up of 1200 sites), with 155 sites monitoring emissions as part of EU Directives, although nitrogen dioxide is measured at 1200 urban and roadside sites. The Network is currently co-ordinated by NETCEN for the DETR, equipped and operated by local authorities, industry and other bodies. Also in 1992 (January) the Enhanced Urban Network (EUN), since re-named the Automated Urban Network (AUN), became operational was funded by the DETR, monitoring sulphur dioxide, nitrogen dioxide, carbon dioxide, ozone, particulates, and hydrocarbons. The aim of the Network is to examine individual exposure levels and to assess if air standards are being met. The management of the Network is carried out by TBV Science (environmental consultants) with NETCEN responsible for quality control, and staff being trained within local authorities. By 1995, the Department of the Environment had turned its attention to one particular form of particulate pollution, PM₁₀ emissions, and had begun measuring them at 16 city sites in Britain (Department of Health, 1995).

A further network, the Rural Air Quality Network (RAQN) comprises 15 sites, co-ordinated by NETCEN on behalf of the DETR, measuring ozone, with 3 sites monitoring sulphur dioxide and nitrogen oxide. Quality control is carried out by the National Physical Laboratory. Twelve sites were added in 1996 measuring ozone, nitrogen oxides, sulphur dioxides, carbon dioxide and particulate matter (NSCA, 1996, pp. 83-84). There is also now a Hydrocarbon Network, monitoring 255 volatile organic compounds, including ozone, in urban, roadside and rural locations (Department for the Environment, Transport and the Regions, 1997).

It would seem that the DETR is very active in the collection of data on air pollution in the UK. However, there are the important issues of whether or not both these existing networks and those planned for the future are first, collecting enough data, and second, whether they are collecting the correct type of data on the most appropriate pollutants. The nature of this collecting process need not be the primary concern here, what is more important is the use that the information is put to after it has been collected, and more importantly the interpretations of this information by expert groups.

6.4.1 Environment Agency (EA)

The EA in England and Wales took responsibility for HMIP, National Rivers Authority, and waste regulatory functions of local authorities on 1 April, 1996. A non-departmental public body with members appointed by the Secretary of State for the Environment, the Secretary of State for Wales, and the Minister of Agriculture, Fisheries and Food, it is responsible for environmental policies and standards, and ensuring a consistent approach to environmental protection (NSCA, 1996, p. 9). There are eight regional offices (and a number of sub-regional offices) with political boundaries for pollution control drawn as closely as possible to water-catchment boundaries. The pollution control boundary is the local 'public' face of the Agency. For pollution control in England the Agency is required to set up and consult the Regional Environment Protection Advisory Committees (REPACs).

The principle aim of the EA is to contribute to achieving the aim of sustainable development with regard to the environment. The primary objective is to prevent, minimise, remedy, or mitigate the effects of pollution on the environment. With reference to air pollution in particular, EA is responsible for the co-ordination of

the NAQS, under the direction of the Secretary of State for the Environment, in consultation with local authorities and other statutory consultees. In addition, the EA has responsibility for authorisations and consents for emissions to air, monitoring environmental conditions, publishing statistics and research, providing advice to government with regard to environmental quality, proposals for preventative measures, as well as advice to industry and other interested parties on best environmental practice (NSCA, 1996, pp. 9-11).

6.4.2 Her Majesty's Inspectorate of Pollution (HMIP)

HMIP was a statutory body containing the inspectorates for air pollution (Her Majesty's Air Pollution Inspectorate (HMAPI)), radiochemicals and hazardous waste and was organised into three regional divisions, North, East, and West, each covering four districts (NSCA, 1996, pp. 11-13). It was set up to provide a more integrated approach to pollution control and to develop methods for determining BPEO, in addition to enforcing IPC. It was responsible (as far as air pollution was concerned) for controlling scheduled processes under the Alkali etc. Works Regulation Act (1906), the Health and Safety (Emissions to Atmosphere Regulations) Act (1983) (most of which is covered in Part 1 of the Environmental Protection Act (1990)), Control of Industrial Air Pollution (Register of Works) Regulations (1989), and Air Quality Standards Regulations (1989). HMIP was a member of the permanent Network of Environmental Enforcement Agencies set up in 1992 with representatives of all EC (as was) states, to provide exchange of information and experience in areas of mutual concern to enhance the environment (NSCA, 1996, pp. 12-13).

6.4.3 Parliamentary Office of Science and Technology (POST)

Created in 1993 the Parliamentary Office of Science and Technology (POST) is an office of Parliament that serves both Houses. Its aim is to provide objective and independent information and analyses on science and technology-related issues of concern to Parliament (POST, 1994). POST's interest in this policy area is to review the links between air quality and respiratory health, examine policy issues that arise as a result, and review scientific evidence for a real increase in asthma (POST, 1994, p. 1).

6.4.4 Advisory Group on the Medical Aspects of Air Pollution Episodes (AGMAAPE)

There have been four reports of the AGMAAPE, dealing with: the effects of the mixture of air pollutants (1995), oxides of nitrogen (1993), sulphur dioxide and particulates (1992), and ozone (1991). The aim of the AGMAAPE reports (on behalf of the Chief Medical Officer and the Department of Health) is to,

'... consider whether advice about personal protective measures during air pollution episodes should be given by central government and, if so, what that advice should be, to whom it should be addressed, and the criteria which should be adopted for the issuing of any advice.' (AGMAAPE, 1993, p. 1)

The primary objectives of the AGMAAPE reports are to provide a sound scientific basis for policy development, and to provide information on air quality to the public. All AGMAAPE reports attempt to balance opinion between clinical and non-clinical scientists, to provide, it is hoped, expert opinion in both quantitative and qualitative matters, and information of the chemical properties of air pollution and the effects on public health. In terms of recent research the AGMAAPE has called for assessment of the health effects of air pollution episodes, investigation of individual pollutants, and for improved monitoring and data collection (MRCIEH, 1994a, pp. 9-10)

6.4.5 Committee of the Medical Effects of Air Pollution (COMEAP)

The COMEAP group on asthma was set up by the Department of Health to examine firm trends and geographical patterns in air pollution, the role of air pollution in aggravating existing asthma, the role of other mechanisms in the incitement and exacerbation of asthma, gaps in relevant information, and recommendations for further research (COMEAP, 1995). Further roles include to advise government, and to co-ordinate with other relevant bodies in the policy network and to advise on scientific discoveries in the air pollution field relevant to health. In terms of current research the group calls for improved monitoring of indoor and outdoor pollutants, and argues that more research is needed into the causes of asthma. Moreover, it stresses the importance of epidemiological research, required because of the complexity of the problem in the UK. It argues that the UK may have unique atmospheric conditions and therefore the results of research conducted in other countries, and even within other regions of the UK, may not be transferable (MRCIEH, 1994a, pp. 9-10).

6.4.6 Expert Panel on Air Quality Standards (EPAQS)

EPAQS was set up by the Department of the Environment in 1991 following the White Paper, 'This Common Inheritance', to advise on air quality standards, to help develop policy, and increase public knowledge and understanding of the issues of air quality. A further aim for the EPAQS is to make recommendations on specific pollutants (using medical and air pollution experts). Thus far, Panels have reported on ozone, sulphur dioxide, particles, and nitrogen dioxide (MRCIEH, 1994a, pp. 9-10).

6.4.7 Quality of Urban Air Review Group (QUARG)

QUARG formed part of the recommendation of the 1990 environmental White Paper, 'This Common Inheritance', and the government strategy to offset the growing impact of vehicle emissions, and was part of the scientific evaluation of this strategy (QUARG, 1993). It was set up to review current knowledge of urban air quality, how it is assessed, and the way it is disseminated to the public. QUARG makes recommendations to the Secretary of State on monitoring networks, the measurement of pollutants, advice to the public, and where more research needs to be directed. In terms of current research QUARG is concerned with the whole range of air pollution assessment, the health problems that may be caused by air pollution, interactions that may occur between individual pollutants, and the investigation of social groups that may be particularly susceptible to air pollution (MRCIEH, 1994a, pp. 9-10).

6.4.8 Medical Research Council Institute for Environment and Health (MRCIEH)

During the early 1950s there was no coherent medical opinion, or agreed knowledge on health effects of smoke or air pollution. Part of the response to this lack of unified opinion was the creation by the government of an official body to investigate the issue, the Medical Research Council's Unit on Atmospheric Pollution (Hall et al, 1975, pp. 391-392). Today, the Medical Research Council (MRC) is still involved in the policy area of air pollution. Indeed, the MRC took up the research responsibilities of the Departments of Environment and Health on asthma (Department of the Health, 1995). The MRCIEH is a collaborative body, funded jointly by the Department of Health and DETR. It is considered a logical development for policy-making, following the recommendations of the (as was)

Department of the Environment's White Paper, 'This Common Inheritance', and the Department of Health's White Paper, 'The Health of the Nation' (MRCIEH, 1994b, p. 7). The aim of the body is to consider the extent and value of existing knowledge, identify subsequent gaps in the level of knowledge, and reach scientific consensus on research priorities (MRCIEH, 1994a, p. 4).

Within the MRCIEH there is a specific working group for asthma. The group is concerned specifically with the health effects of new pollutants, such as those from vehicles (MRCIEH, 1994b, pp. 41-42).

6.4.9 National Asthma Campaign (NAC)

The National Asthma Campaign (NAC) is the leading pressure group in this policy area. Originally named the Asthma Research Council (ARC) it was founded in 1927. A patients organisation (Friends of the ARC) was founded in the 1970s which became the Asthma Society in 1980, to spread information, raise funds for research by the ARC, and provide branch organisations for asthma sufferers. In 1990 the two groups merged to become the NAC. It spends 60 per cent of its income on research and works closely with the British Thoracic Society (the professional body of medical practitioners working in the field of respiratory and related diseases) (Lane, 1996, pp. 206-209).

In 1994/95 the NAC conducted £2.3m of research, more than the government and any other non-commercial organisation in this area. NAC also funds 5 academic posts, and in 1991 founded the National Asthma Task Force, bringing together all the leading asthma specialists. The NAC focuses its attention on four areas of concern: research into the basic science of asthma and the need for more information on its mechanisms; epidemiological research into the effects on asthma in a social context; research into the effects of all aspects of the environment on asthma; and, practical support for patient care (NAC, 1993). Importantly, the NAC publicises links between air pollution and asthma as it discovers them, but does not recommend approaches to reduce air pollution, nor does it campaign on planning issues, although this has shown signs of altering recently with the organisation voicing arguments over the need for traffic reduction programmes (NAC, 1993).

6.4.10 British Lung Foundation (BLF)

The British Lung Foundation (BLF) is the only charity operating throughout the UK to improve the prevention, diagnosis, and treatment of all lung diseases, such as bronchitis, emphysema, sarcoidosis, pneumonia, and asthma.

6.4.11 Lung and Asthma Information Agency (LAIA)

The Lung and Asthma Information Agency (LAIA) was formed in 1990 by the NAC, the BLF and the British Thoracic Society. Its overall aim is to act as a research co-ordinator and as a disseminator of information to sponsors, and to provide a research database on respiratory disease. Funding is supported by the three charities, but since April 1994 this has been supplemented by sponsorship from pharmaceutical companies. The LAIA does have links with the British Medical Association (BMA) as its factsheets are distributed with *Thorax*, a journal of the BMA. The Agency also undertakes collaborative work with other relevant groups (LAIA, 1995b).

In addition to these groups the media has an important role to play. For the policy issue of air pollution and asthma, the media has most impact on specific events, such as a short-term high level of air pollution over a specified geographical area, such as the one that occurred in London in 1991. The media has less effect on non-sensational stories because it reports things that are already occurring or what policy-makers are already aware of (Kingdon, 1995, pp. 58-59). Nevertheless, it may magnify events and distort or reflect public opinion. For, example, there is certainly some influence in the control of the headline. Headlines can often swing the debate in either direction, and can influence public opinion significantly, by bringing to the attention of the public something that it had not been previously aware of.

As has been discussed previously the air pollution policy area is highly complex. It follows that the sub-sector policy area of air pollution and asthma is also highly complex in nature.

6.5 AIR POLLUTION AND ASTHMA: A COMPLEX POLICY AREA

Asthma is a multi-faceted disorder: allergens, inherited tendency, adverse weather conditions, industrialisation, domestic circumstances (Lane, 1995), psychological factors, pollens, mites, moulds, cigarette smoke, fungal spores, odours, laughter, insects, chemicals, and even plastic (Nocon and Booth, 1991, p. 3) are all considered to be causes or triggers of the disease. These factors, which may or may not cause or exacerbate asthma, combined with dispute over the actual definition of asthma, provide problems for epidemiological research. There are, however, further problems, including: the imposition of researchers' definitions on asthma sufferers; timing (either point prevalence or cumulative prevalence, particularly important in assessing the severity over prolonged or short periods), and, contextual issues such as class and environment (Lane, 1995, pp. 121-122). One particular difficulty surrounds the fact that atmospheric pollution is not considered an 'obvious' problem in many areas (Burr et al, 1989). Therefore, research will not look towards this as part of any explanation for increases in the number of cases of asthma.

In addition to difficulties in determining how to approach or frame the context of research into asthma, there is the added problem that asthmatics do not necessarily consult a doctor all the time. They receive treatment often on an infrequent basis making systematic statistical analyses of trends particularly difficult. Moreover, doctors are reluctant to diagnose asthma to avoid stigma, and sufferers can often find it difficult to determine the size of their problem (Nocon and Booth, 1991, p. 5). These problems pose difficulties for research in terms of drawing comparisons between studies. There may be large differences in empirical analyses as each piece of research is specific. There is also the problem of different interpretations of information. For example, in 1996, the Department of the Environment claimed that the data from their AUN demonstrated no evidence of overall increases in nitrogen dioxide concentrations and no breaches of EU limits. Yet this depends upon where and how these emissions are measured (Pearce, 1996, p. 8).

There are many uncertainties to consider when investigating air pollution, and even more so when the aim of the investigation concerns public health. Studies need to assess variables such as the exposure-response relationships in individuals, the definition and prevalence of respiratory disease, the estimation of dosage, the demarcation of the spatial environment, the nature of data collection, deciding which statistics are relevant, and patterns of individual activity (MRCIEH, 1994b,

pp. 9-10). But there are also problems of the synergistic effects of air pollutants, the level of dosage received by individuals as opposed to the level of exposure, the inconsistent collection of data, the relative merits of clinical and epidemiological research, the current debate over the particular effects of motor vehicle pollutants, and the effect air pollution has as a general cause of respiratory problems. These variables illustrate the inherent complexity, both social and epistemological, of the policy area. This complexity has obvious implications for policy-making.

Asthma has been referred to in medical literature for over 2000 years, but it was only during the 1880s that an attempt was made to define the condition in a clinical manner. Over 100 years later this definition, basically summarised as a 'narrowing of the airways', has not altered significantly. This approach to the issue forced it into one of measuring lung function, that is, asthma as a response to particular stimuli and measured against 'normal' lung response. Rather than defining the exact nature of the condition this is measuring the lung function in relation to 'normal' lung function to determine the extent of the problem (Holgate, 1993, p. 1507). This definition, or method of detection, however, is less important in political terms than cause. Therefore,

'The important question that so far has eluded definition is why asthmatic airways show a propensity for becoming more easily obstructed in responding to these many different stimuli.' (Holgate, 1993, p. 1508)

Because asthma is triggered by a wide variety of chemical, physical, emotional, and environmental stimuli (Nocon and Booth, 1991, p. 3), a fundamental problem for analysis, therefore, is the lack of a single cause,

'Asthmatics have irritable airways. They are inflamed because of the effects of allergy, the effects of infection, the effects of pollution. But rarely does one act alone. The effect of the allergen is worse in the presence of pollutants. The effects of an occupational hazard is worse in the smoker. The effects of the viral infection is worse in the allergic individual and so on.' (Lane, 1995, p. 120)

A further illustration of epistemological complexity is the notion of the synergistic interactions between air pollutants,

'The strength of an association, and its persistence after controlling for other pollutants, are among the criteria for concluding that, in the mixture, one pollutant rather than another is responsible for the health effects. This is the basis for many North American studies which have concluded that particles rather than gaseous compounds are important. Due to the statistical complexity of these analyses and the small effects involved, few if any analyses have successfully disentangled the separate or joint effects of all the main pollutants which comprise the prevailing mixture.' (AGMAAPE, 1995, p. 92)

This conclusion is also highlighted by AGMAAPE (1991). It argues that it may be statistically impossible to disentangle ozone from other pollutants (AGMAAPE, 1991, pp. 68-69), an acknowledgement which has important implications for policy. If much of the existing clinical and epidemiological research is conducted on individual pollutants, this may be sending research, and policy, in the wrong direction; the mixtures generated by pollutant interaction may be more consequential. Furthermore, threshold levels may be ascertainable for individual pollutants, but for compounds or mixtures of pollutants this is not possible. So there may be no such thing as a safe threshold. Some groups have argued this point, and called for more research to be conducted into the 'cocktail of emissions' (within the context of groups affected), not potential relationships between individual pollutants and public health (RAC, 1992, p. 37).

AGMAAPE (1992) also highlights the epistemological complexity of a safe threshold,

'As is the case with a number of other air pollutants it might be expected that it would be difficult to define a threshold for the effects of particulates upon health, and this role cannot be completely separated from that of SO₂, acid aerosols and other components of the mixture The changing nature of the particulates makes it difficult to predict what might be expected from the present day mixture.' (AGMAAPE, 1992, p. 123)

This debate hides another facet of complexity, this time social, namely whether emphasis should be placed on high levels of exposure over short periods, or low levels of exposure over sustained periods. Indeed, the RAC argues that the likelihood of acute effects of air pollution such as sulphur dioxide and nitrogen dioxide is relatively certain. What is less certain and less understood is the long-term effects at low levels (RAC, 1992; Watkins, 1991, p. 37).

Social complexity can also arise from research sources, as data on asthma is not routinely collected, but instead is derived from a number of different areas such as doctor consultations, hospital admissions, and independent research (POST, 1991, p. 3). This example of social complexity has been prominent in the debate over pollution from motor vehicles. Some observers have highlighted the confused nature of research with regard to asthma and motor vehicles. Subtle variations in measurement of the relevant variables have resulted in large differences in apparent prevalence, which could mean that pollutants have hitherto unknown effects (Strachan, 1996, p. 677). This situation is true for all air pollution and asthma research. There are huge differences between and within individual countries.

There is also plenty of contradictory evidence between epidemiological and clinical research. Therefore, there is reason to believe that air pollution has some effect on asthma, what is less certain is its 'actual' contribution (Taylor, 1995). A conclusion that reinforces the view that despite the existence of expert influence in this area, the level of certainty does not increase correspondingly.

Of all the various types of air pollution vehicle pollution has caused the greatest concern for policy-makers. It is suggested that proximity to roads produces increased risk to susceptible individuals. But even this is not necessarily so. Some research suggests that work patterns, rather than residency and location is the better criterion, because emission levels do not necessarily equate with levels of exposure (Livingstone et al, 1996). This claim raises another important point, that emission levels need not be the primary area of concern. It may be the actual level of exposure to particular individuals, or groups, that is the important policy matter.

Dispute over epidemiological and clinical studies results in epistemological and social complexity, and subsequent confusion over setting air quality guidelines. The EPAQS reports, which have set air quality guidelines for a number of pollutants, have had to recognise this. An EPAQS report recently proposed a new threshold for nitrogen dioxide because of emerging evidence about its effects at low levels of emission. Previous guidelines had been in line with the definition of the Department of the Environment (as was) of 'good' air quality. Yet the new research demonstrated a positive correlation in laboratory tests between asthma sufferers and the level of nitrogen dioxide equating to this 'good' air quality as specified by the Department of the Environment (Brown, 1996, p. 11).

The decision to utilise epidemiological over clinical research will have obvious implications for policy. COMEAP concludes that there is laboratory evidence to show that air pollution can initiate asthma, but no epidemiological evidence and that there are no clear relations between asthma and vehicle pollution (COMEAP, 1995). COMEAP is dismissive of links because of *inter alia* decreasing emissions levels of significant pollutants (although this surely depends on which ones), changes in diagnostic labelling of asthma, a more significant correlation of the number of cases of asthma with the pollen season, and that regional variations are more a result of local health provision than differences in the levels of air pollution (COMEAP, 1995, pp. 105-106). This conclusion is reinforced by AGMAAPE (1995). It purports that there is a lack of research data, and no clear evidence in epidemiological studies for the effects of air pollution on asthma, although they

concede that asthma sufferers may, in general, find their asthma less controlled (AGMAAPE, 1995). The Group is therefore dismissive of a link with asthma,

‘Although admissions for asthma and attacks of asthma have increased during some air pollution episodes, in others this has not occurred. The Group recognised that the majority of patients with chest disease, including those with asthma, show only a small deterioration in lung function, if any, during air pollution episodes.’ (AGMAAPE, 1995, p. 117)

A further element of epistemological complexity is the notion of objective and subjective knowledge. It is an important issue in a policy sub-sector such as air pollution and asthma, for although we may accept that certain issues are objective, and others subjective, the category assigned to each variable may differ, depending on the group concerned, or perspective adopted. Nevertheless, although opinion differs on the level of seriousness of individual pollutants the public has become increasingly concerned. These subjective reactions are important (Watkins, 1991, p. 2). In terms of subjectivity, and in particular the subjective preferences of the public, expert knowledge will filter down to become part of the public’s subjective preferences, as pieces of information and theoretical conjecture will enter the public domain. Subjective effects are very difficult to deal with in terms of policy choice. Hence,

‘It seems very doubtful whether [subjective preferences have as] much chance of success in an area governed by reactions against not only nuisance problems but also health problems, real or imagined, from materials some of which are not detectable by human senses.’ (Watkins, 1991, p. 77)

Hence, subjective preferences pose problems for empirical assessment of air pollution and asthma. Policy is thus determined more by what is considered objective. This conclusion suggests that the only objectivity we can point to is a consensus on what is not known.

The elements discussed above are the primary factors of the complex nature of the policy area. What is required is a more comprehensive assessment of the exact nature of this complexity.

6.6 AIR POLLUTION AND ASTHMA: NATURE OF THE COMPLEXITY

The nature of the complexity of the air pollution and asthma policy area centres on three issues: the definition and diagnosis of asthma, the causes of asthma, and the nature of individual air pollutants.

6.6.1 Definition and Diagnosis

The difficulties of defining asthma are two-fold. First, the chief symptoms, wheezing, coughing, and breathlessness, all occur in other respiratory illnesses. Second, it is difficult to reach agreement on the degree of variability of these symptoms. They are not constantly present. This situation results in asthma being a problem of recognition, not definition (Lane, 1996, p. 21). Therefore, there is disagreement on the two primary variables: symptoms and the variability of symptoms.

The complexity of definition forces COMEAP to draw a distinction between different views of asthma represented by clinical, respiratory, and paediatric physicians. The hospital or clinicians' view is concerned with appearance. Here, asthma is a,

'... disease of the lung in which the airways are unusually sensitive to a wide range of stimuli, including inhaled irritants and allergens. This results in obstructions to airflow which is episodic - at least in individuals with early or mild asthma - and which causes symptoms of tightness and wheeziness in the chest.' (COMEAP, 1995, p. 1)

This approach implies a precisely defined group of patients. The respiratory physicians' view, used over the last 30 years, represents a more contextual approach, where asthma is considered a condition that results in resistance to airflow in airways. This approach is less precise than the clinical view of asthma and can cover patients with bronchial problems as well as asthma. A final approach, the paediatric view is more pragmatic and is concerned with wheeze and the symptoms the condition generates.

This dilemma over definition poses problems for the epidemiologist and hence for policy. It is possible that asthma,

'... is not a single disease entity and that the term "asthma" should be taken to include a number of more or less distinct syndromes.' (COMEAP, 1995, p. 20)

However, dispute over definition is important not only in terms of policy analysis because the definition that is utilised may determine the level of prevalence, but also because this will help to determine if there is a policy problem at all. Not only will it hinder any assessment of asthma prevalence, but there will also be variations in asthma presentation across individuals and regions. These variations will prevent the development of a standardised case definition and of an objective diagnostic test for the physiological and pathological characteristics of asthma. Dispute over definition will also lead to a lack of reliable indicators of severity (LAIA, 1993a) and importantly that the policy area is presented by policy-makers as containing matters of special knowledge because of the inherent difficulties. Yet, this does not result in an increase in the level of certainty.

6.6.2 Causes

There are many theories about asthma and the different factors, such as, family history, atopy, related atopic disorders, diet, infection, pollutants, cigarette smoking, and so on that may cause or exacerbate it (AGMAAPE, 1995). This problem is more acute for the induction of asthma, and so theories are more plausible for the exacerbation or incitement of asthma. This confusion forces groups such as the BLF to argue that the causes of asthma are unknown, but accepts that elements such as poor atmosphere and air pollution will exacerbate the symptoms (BLF, 1993; NAC, 1993). But this cannot be the end of the matter, for this moves the debate towards the nature of individual pollutants, and their variable severity. Regarding the nature of individual pollutants the BLF is explicit about the relationship between asthma and two types of pollution: sulphur dioxide and nitrogen dioxide. It contends that sulphur dioxide does pose a particular problem for asthmatics, and nitrogen dioxide will have an effect on some asthmatics, usually in combination with other pollutants (BLF, 1993). This view was expressed by the four reports of the Department of Health's AGMAAPE (Bown, 1993, p. 5). Over the four reports the Group rejects a *causative* link between air pollution and asthma and instead argues for the prominence of other factors, such as smoking during pregnancy, diet, and household allergens such as the house dust-mite. Despite this conclusion alternative studies have found a strong association with ozone, sulphur dioxide and childhood wheeze (using self-diagnosed wheeze as a reflection of asthma prevalence). Positive, significant correlations have been found with sulphur dioxide and ozone, with ozone being the most highly significant, with that significance at both high and low levels with

none in between, suggesting an 'optimal' concentration or other pollutants or factors combining with the low levels of ozone (Buchdahl et al, 1996, pp. 661-665).

Some government research has been on air pollution episodes, that has attempted to deal with air pollution in its entirety. There are three main types of air pollution episode: 'summer smog', of which the indicator pollutant is ozone, with nitrogen dioxide and PM₁₀ as secondary pollutants; 'vehicle smog', of which the main pollutant is nitrogen dioxide, with PM₁₀ and carbon monoxide as secondary pollutants; and 'winter smog', with sulphur dioxide as the indicator pollutant (with a contribution from nitrogen dioxide) and nitrogen dioxide, carbon monoxide and PM₁₀ as secondary pollutants. Because of the influence of vehicle pollution, types two and three have, to a large extent, become more common than type one over the last 40 years. AGMAAPE, the expert advisory group concerned with research into episodes of air pollution, argues there is little evidence of the effect of air pollution on asthma sufferers in most studies (AGMAAPE, 1995).

As discussed above, in addition to debate over definition and cause, there is significant disagreement over the nature of individual pollutants, and their effects on the induction or exacerbation of asthma.

6.6.3 Individual Pollutants

6.6.3.1 Sulphur Dioxide

The majority of official research conducted by and on behalf of government departments does not dispute an association between asthma and sulphur dioxide. This result is hardly surprising as there has been far more research on sulphur dioxide than almost any other air pollutant, and has been acknowledged as an important problem for a longer period than newer forms of air pollution. However, whilst sulphur dioxide is more 'acceptable' in terms of its effects on public health and the environment, it has been rejected by some research because of the decline in emission levels (POST, 1994).

For sulphur dioxide there is also inconsistent evidence for initiation of asthma, but for exacerbation of symptoms there is a presumed causal relationship (NAC, 1993). Sulphur dioxide can exacerbate asthmatic and bronchial symptoms (QUARG, 1993), although this causal relationship is dependent on whether this is under clinical or epidemiological conditions. Sulphur dioxide does affect

asthmatics in laboratory conditions, but there are less certain effects from panel studies (COMEAP, 1995, pp. 177-178). This conclusion contrasts with the AGMAAPE (1992) report which is fairly explicit about the effect of sulphur dioxide on asthmatics at both high and transient levels. However, this report is concerned more with peak rather than transient levels. Indeed the AGMAAPE (1992) argues that although healthy individuals are not affected by elevated concentrations of sulphur dioxide, asthma sufferers will be and it finds effects on lung function at lower concentrations in epidemiological studies than laboratory studies. Therefore, although the COMEAP report states that effects are negligible in epidemiological studies, the AGMAAPE (1992) found that asthmatics are affected by sulphur dioxide at lower levels than in laboratory studies.

AGMAAPE (1992) is quite explicit about the relationship between sulphur dioxide and asthma. It acknowledges that sulphur dioxide will affect most asthmatics, but argues there is little epidemiological evidence to support the suggestion that sulphur dioxide contributes to respiratory ill health in general. It may be for this reason that the report places an emphasis on peak levels as opposed to average levels used in other reports of the AGMAAPE.

6.6.3.2 Ozone

Ozone poses particular methodological problems as it is a secondary pollutant, produced by the reaction of nitrogen oxide in the atmosphere. Studies from the United States (US) suggest that ozone may exacerbate asthma in susceptible individuals (AGMAAPE, 1991). Some of these results have been replicated in the UK. It has been suggested that ozone may affect sensitised patients in laboratory conditions, but other research in this area fails to make this connection, or to detect any effects of ozone on asthma sufferers (COMEAP, 1995, pp. 177-178). However, some groups have demonstrated that ozone may have effects at low levels through epidemiological studies, as well as under laboratory conditions, with some arguing that the evidence is compelling (Watkins, 1991). POST accepts that ozone can increase sensitivity to allergens and affect some individuals at low levels, but does not accept long-term effects because of seasonal variations (that is, sensitivity to allergens seems to be higher in winter when ozone is not so common) and there is no geographical correlation to suggest a strong link with ozone (POST, 1994, p. 22).

AGMAAPE (1991) argues that there is no threshold to ozone. It depends on other relevant factors, and the data is not persuasive with regard to asthma. This report also places emphasis on high-level episodes (which contradicts with other AGMAAPE reports such as that on nitrogen dioxide, which place more emphasis on average levels). It concludes that although ozone can cause lung problems in healthy adults and exacerbate symptoms in susceptible individuals, there are inconsistent results with regard to ozone and asthmatics. The sensitivity for asthmatics is not as great as for sulphur dioxide, or nitrogen dioxide, hence there is no evidence of exacerbation of symptoms by ozone to subjects with respiratory disease (AGMAAPE, 1991, p. 73). AGMAAPE (1991) also rejects the theory that ozone merely acts as a primer for other pollutants, and in so doing rejects any relationship between ozone and the increased incidence of asthma,

'These trends could reflect an increase in the incidence of asthma itself, an increase in severity or a worsening of prognosis. If ozone has a role in these trends it could be acting on any of these parameters but there is little or no epidemiological evidence in support of this.' (AGMAAPE, 1991, p. 75)

However, this point of view had altered by 1995. The report by AGMAAPE on the mixture of air pollutants concluded that asthmatics are not unduly sensitive to ozone, although there is uncertainty if the main pollutant is not ozone (AGMAAPE, 1995). This result contrasts directly with the NAC who believe ozone to be a genuine health risk to those with asthma (NAC, 1993).

6.6.3.3 Nitrogen Dioxide

As with other pollutants there is evidence to suggest disparities between the results of research by government departments for nitrogen dioxide. The Department of Health's AGMAAPE report on nitrogen dioxide contradicts directly the Department of the Environment's QUARG report on urban air quality (QUARG, 1993). AGMAAPE (1993) concludes that any epidemiological link between nitrogen dioxide and asthma is tenuous, whereas QUARG labels the same pollutant as the 'pollutant of greatest concern' (Bown, 1993, p. 5). COMEAP concludes that research for nitrogen dioxide is unclear on both normal and susceptible individuals (COMEAP, 1995, pp. 177-178). This sort of confusion probably explains why the government was slow in providing definitive information on emission levels. A 'safe' emission level for nitrogen dioxide was eventually recommended by EPAQS in 1996 (Brown, 1996, p. 11).

The LAIA concludes there is inconsistent evidence for initiation and exacerbation of asthma by nitrogen dioxide (LAIA, 1996a). LAIA argues that short-term high level exposure is more of a concern than low levels over the long-term. For nitrogen dioxide the LAIA believes that the increased use of catalytic converters (the primary weapon in reducing the level of nitrogen dioxide) will offset this growth, although it does not consider the fact that the growth in traffic and the number of journeys made could negate this (LAIA, 1993b; Friends of the Earth, 1990, pp. 21-22).

There is a particular methodological problem with regard to nitrogen dioxide: the majority of it is produced within the home. Therefore, indoor exposure may pose more of a threat to asthmatics. In addition, there are few circumstances in which nitrogen dioxide is the primary outdoor pollutant, therefore, concentration has been on the indoor environment. There may be a weak link between indoor exposure and health effects, but this is virtually impossible to assess (AGMAAPE, 1993). This situation forces the AGMAAPE to conclude that nitrogen dioxide does not, in general, affect asthmatics. It does so only in exceptional circumstances.

Because of these research inconsistencies on the nature of nitrogen dioxide and its effect on public health, there is a general reluctance to attribute causal effects to nitrogen dioxide on the grounds of biological implausibility (drawing on results of laboratory studies) (AGMAAPE, 1993). In terms of laboratory studies, there is no significant response demonstrated by 'normal' subjects to nitrogen dioxide, and that reactions have more to do with the physiological profile of individuals than dosage levels. Importantly, AGMAAPE argues that,

'... studies of the effects of inhaled nitrogen dioxide on the response to ozone and sulphur dioxide have shown little or no augmentation by nitrogen dioxide of the response to those pollutants in the short term.' (AGMAAPE, 1993, p. 113)

Yet, by contradiction, in terms of epidemiological studies,

'... evidence does not exclude an association between types of pollution of which the oxides of nitrogen are part and various health effects, including upper and lower respiratory symptoms, lung function decrement (acute and chronic), hospital admissions and mortality.' (AGMAAPE, 1993, p. 114)

Hence, interactions between nitrogen oxides with other pollutants may be more important. Within the AGMAAPE (1993) report there is a reluctance to draw a relationship between nitrogen dioxide and its effects on an independent basis

because of the lack of support from laboratory studies, even though the two types of study are different.

Although AGMAAPE (1993) concludes that nitrogen dioxide has no significant effect on asthmatics, and that outdoor nitrogen dioxide does not produce acute changes in 'normal' lung function (due mainly to the loss of potency in the synergy), the research is relatively unclear. Evidence is weak for a direct effect on asthma of nitrogen dioxide alone (MRCIEH, 1994a, p. 21). There is also guarded acceptance of nitrogen dioxide to account for long-term trends in asthma, but again the pollutant cannot account solely for these trends (POST, 1994). Moreover, some groups believe nitrogen oxides are a potent concern for human health. More research is required because several features of episodes of high levels of concentration of nitrogen dioxide are not explicable within current theories. Therefore, future trends will be dictated by the number of vehicles in use, with asthmatics at greatest risk. Research to determine the extent of the effect on asthma sufferers could take ten years to compile (QUARG, 1993).

6.6.6.4 Particles

Particulate pollution also highlights the different conclusions reached by advisory and campaign groups in this policy area. AGMAAPE (1992) is almost dismissive of particulate pollution,

'With regard to particulates, other than those specifically designated to acid aerosols, levels are considered to be below those likely to cause damage to health. The changing physical nature of the particulates make it difficult, however, to predict what might be expected from the present day mixture.' (AGMAAPE, 1992, p. 123)

The NAC is not quite as dismissive, arguing that there is uncertainty as to whether or not particles may exacerbate symptoms (NAC, 1993). The LAIA argues there is inconsistent evidence for initiation, but for exacerbation of asthma there is consistent evidence (LAIA, 1996a). In 1994 POST was more decisive, accepting a link between small particles and ill-health,

'Overall therefore, some asthmatics may be affected by occasional exceedances of health-based guidelines for sulphur dioxide, smoke, ozone, and nitrogen dioxide. In addition, fine particles, for which there is currently no EC or UK health-based air quality standard, are believed to be important in respiratory disease. While the evidence does not point to any individual air pollutant being solely responsible for the observed trends in asthma and other conditions, it does suggest photochemical pollutants and PM₁₀ as candidates for closer scrutiny.' (POST, 1994, p. 23)

EPAQS rejects a causative link between asthma and particulate air pollution (although it accepts that epidemiological studies suggest an exacerbatory effect at low levels of concentration) (EPAQS, 1995), and furthermore that pollution has not contributed to the increase in asthma cases over the last twenty years. EPAQS (1995) argues that epidemiological studies have shown effects at low levels of concentration, which suggests that certain individuals and groups receive high rates of exposure. This result leads the Panel to conclude that an absolute low level of particulate pollution is not known (EPAQS, 1995). The importance of this conclusion cannot be underestimated because if there is not an absolute low level then any standard for this type of pollution should be zero. Importantly, AGMAAPE (1992), the last Advisory Group to report on particulates, does not make specific reference to PM₁₀s (AGMAAPE, 1992), although monitoring of this pollutant began in the same year and is considered to be a research priority (POST, 1994).

6.6.4 Individual Pollutants: Summary

It would seem that there is significant debate between these particular expert groups in the policy area with regard to both initiation and exacerbation of asthma for each of the individual pollutants, and in some cases, direct contradiction. This conflict and contradiction is demonstrated most clearly with the debate over the effect of nitrogen dioxide. The differences are clearly demonstrated in Table 3 below.

Sulphur dioxide is dismissed by POST because of a general decline in emission levels, whereas for NAC the pollutant is still an important concern because of a presumed causal relationship for exacerbation. This conclusion is also reached by QUARG, COMEAP and AGMAAPE, but there is some confusion between the three expert groups on whether the relationship is more prominent in clinical or epidemiological conditions.

There are inconsistent results for the effect of ozone. All of the expert groups report that ozone may have effect on asthmatics, but either that results are inconsistent or will only affect patients in clinical conditions; only NAC is explicit about the effects of ozone of asthma sufferers. In addition, there is dissension within AGMAAPE reports on the effects of ozone as a primer for other pollutants.

Table 3: Assessment of Air Pollution Type by Expert Group

| Group | Sulphur Dioxide | Ozone | Nitrogen Dioxide | Particles |
|---------|---|--|--|--|
| POST | dismissed as less relevant because of general decline in emission levels | can increase sensitivity to allergens and affect some individuals at low levels, but not produce long-term effects | may account for long-term trends in asthma cases | there is a link between small particles and ill-health - PM ₁₀ emissions of particular concern |
| NAC | inconsistent evidence for initiation of asthma, but a presumed causal relationship for exacerbation | is a genuine health risk to those with asthma | | uncertainty as to whether or not particles exacerbate asthma symptoms |
| QUARG | causal relationship for exacerbation, but more so in clinical than epidemiological conditions | | this is 'the pollutant of greatest concern' | |
| COMEAP | same as for QUARG | may affect sensitised patients in laboratory conditions | research is unclear for both normal and susceptible individuals | |
| AGMAAPE | exacerbates symptoms in both epidemiological and clinical conditions; found effects on sufferers at lower levels in epidemiological studies than laboratory tests | can cause lung problems in healthy individuals and exacerbate symptoms in susceptible individuals, but results are inconsistent does not act as a primer for other pollutants, therefore no link with asthma, although some AGMAAPE reports state that this may be the case | any epidemiological link with asthma is tenuous and will affect asthmatics only in exceptional circumstances; indoor exposure and interaction with other pollutants may be more important as nitrogen dioxide is rarely the primary outdoor pollutant; laboratory results show that effects have more to do with physiological profiles of individuals | other than those of acid aerosols levels are considered to be below those likely to cause damage to health; their changing physical nature makes it difficult to predict what might be expected from the present day mixture |
| LAlA | | | inconsistent evidence for initiation and exacerbation of asthma; short-term high levels are more of a concern than long-term low levels | lack of consistent evidence for initiation, but consistent evidence for exacerbation |
| MRCIEH | | | evidence is weak for a direct effect on asthma | |
| EPAQS | | | | epidemiological studies show effects at low levels of concentration, but an absolute low level of particulate pollution is not known |

Probably the most diverse set of results is for nitrogen dioxide. POST and QUARG conclude that nitrogen dioxide is indeed a pollutant of great concern, and may account for the long-term increase in the number of asthma cases. However, COMEAP and AGMAAPE report that the research is unclear and, moreover, that indoor exposure may be more important. The physiological profile of individuals may provide more meaningful research insight. LAIA and MRCIEH are also reluctant to draw a relationship between the pollutant and asthma, concluding that in addition to inconsistent evidence of a direct link with asthma, short-term high level exposure may be more important than long-term low level.

POST is explicit about the relationship between ill-health and particulate pollution, but not about asthma specifically. The problem of this particular type of pollution is its unpredictability. No expert group is willing to claim a direct link between particulate pollution and asthma, although one thing is certain, an absolute low level of particulate pollution is not known. Particle pollution is of contemporary relevance as the primary source is from road vehicles. This conclusion is quite telling as claims of a relationship between particles and asthma would have wide-ranging implications for transport policies.

As has been stated previously, the exact nature of expert influence is dependent on both the internal cohesion and consensus of the expert groups, and the nature of the political climate. It would appear, in general, there is consensus on what is not known, but no positive consensus on what is known. However, although internal consensus may be weak cohesion could be said to be strong. That is, there is a large amount of direct contact between expert groups.

6.7 EXPERT INFLUENCE ON POLICY FORMULATION AND OUTCOMES IN AIR POLLUTION AND ASTHMA

The exact nature of the complexity of the air pollution and asthma policy area has been examined in detail above. What is now required is an assessment of the exact nature of the expert influence. This section addresses why particular groups were co-opted into the policy area and the level of mandate they were provided with. In order to describe the level of expert influence in this policy area two elements of the complexity will be examined: the issues of cause, and key pollutants.

6.7.1 Co-option of Expert Groups

There have been four key changes to environment policy over the past 30 years: environmental policies and standards that apply in the UK are now determined predominantly on a European scale; there has been a growth in the number and importance of international conventions relating to the environment, at both regional and global scale; formal techniques (such as economic appraisal) have been increasingly employed as an aid to decision-making; and, the influence of environmental organisations has grown (Royal Commission on Environmental Pollution, 1998, p. 129).

The problems of air pollution affect the entire country with varying degrees in different regions and localities and, as a result, a vast array of agencies and organisations, in addition to expert groups, are involved in the policy process. As has been outlined above there are a number of government committees and agencies with permanent responsibility for conducting research and informing policy, in addition to the standards and guidelines issued from the EU. The new regional tier of government in the UK will undoubtedly have some impact on air pollution legislation, although it is too early to state exactly how this influence will be manifested. Prior to the development of the Regional Development Agencies (RDAs) there was a strengthening at both central and local government levels, with the centre taking its cue from Europe and local authorities responsible for drawing up and implementing local air pollution management systems, in addition to the role of the EA as regulator. This situation has resulted in a three-pronged attack: Directives at EU level; IPC and air quality standards at national level; and, local air quality management areas.

At EU level the Ambient Air Quality Assessment and Management Directive was formally adopted in September 1996, setting out the framework for air quality policy in Europe, providing the general monitoring strategy and the concerns to be addressed when setting limit values. Twelve pollutants are covered: sulphur dioxide, nitrogen dioxide, particles, lead, ozone, benzene, carbon monoxide, hydrocarbons, cadmium, nickel, arsenic and mercury (House of Commons Select Committee on Environment, Transport and Regional Affairs, November, 1997, p. 8).

In addition to continuing change in Europe, there was institutional change in the UK. The change from the Department of the Environment to the enlarged

Department for the Environment, Transport and the Regions was not merely an administrative convenience, it allows for the co-ordination of a number of policies and has influenced, and will continue to influence, the relationship in policy terms between, for example, transport and air pollution. It is easy to view the extent of the expert influence at advisory level in the DETR by examining the members of the Select Committee on Environment, Transport and Regional Affairs with regard to air pollution.

Covering a wide range of issues on the relationship between air pollution and public health, the select committee questioned the government on the issue of asthma during 1997. Providing evidence on behalf of the government to the Select Committee, in addition to the Minister for the Environment - Michael Meacher - was the Head of Air Quality Policy within the DETR, Brian Hackland, and the Head of Technical Policy on Air and Environment Quality, Dr Martin Willimans. The government accepted that the impact of air pollution on public health 'is reasonably well established' (House of Commons Select Committee on Environment, Transport and Regional Affairs, 1997), but re-affirmed its conviction that despite the large increases in the cases of asthma over the last decade whilst it is aggravated by air pollution, it is not caused by it,

'So the exact relationship, I think, is not clear, but some of the assumptions that have been made, I think, are probably not wholly accurate.' (Michael Meacher, Minister for the Environment: evidence to the Select Committee on Environment, Transport and Regional Affairs, 1997).

The Minister goes on to say,

'.... I think the evidence does not suggest that asthma is caused by air pollution, but asthmatic attacks will be triggered in people who have a tendency to asthma, certainly as a result of air pollution, and certainly air pollution will worsen asthma for those people who are already subject to it. To that extent, it is extremely serious.' (Select Committee on Environment, Transport and Regional Affairs, 1997).

It is undoubtedly true that the reason certain individuals are invited to supply evidence to select committees and become members of advisory groups is because of not only their inherent academic and scientific abilities, but also because of their standing in the relevant disciplines. The Royal Commission on Environmental Pollution confirms this. For example, members of the EPAQS are invited to join on the basis of their expertise in the medical and air pollution fields (Royal Commission on Environmental Pollution, 1998, p. 123). In this respect although there are a number of 'principal participants' involved in the policy area, as

discussed above, those with primary importance are the advisory committees and groups, such as COMEAP, and latterly the EPAQS (because of the movement towards the setting of air quality standards). As the DETR comments, in relation to the NAQS,

'The air quality standards in the Strategy have been set with regard to the scientific and medical evidence on the effects of particular pollutants on health. The Expert Panel on Air Quality Standards (EPAQS) was established in 1991 to advise on air quality standards in the UK and EPAQS recommendations have been used, where they exist, as the air quality standards on which the setting of objectives will be based. Where EPAQS have not made a recommendation, the relevant information from the World Health Organisation (WHO) has been used, where available. For some pollutants, concentration thresholds have been identified at or below which effects are unlikely even in sensitive pollution groups. In other cases, it is not possible to identify levels at which there is zero risk and standards have been set at levels at which the risk to public health would be exceedingly small.' (Department of the Environment, Transport and the Regions, 1997, p. 34)

As has been discussed above the co-option of experts has been made central for certain functions. This is no less the case for air pollution policy and in particular the debate over air pollution and asthma. Experts are granted jurisdiction and supplied with a particular level of mandate by policy-makers. The level of co-option of experts by policy-makers in this area is high, encompassing all three types: ideological, psychological, and institutional. Institutional co-option is certainly evident, because experts operating within advisory groups have been formally co-opted into the policy process. Psychological co-option is also demonstrated. Experts are instrumental in influencing the framework for policy decisions, since they determine to a large extent the nature and extent of the policy problem; they create and maintain the nature of the discourse with regard to air pollution and asthma. The evidence for ideological co-option is less clear, although it can be seen that the policy direction for investigation into air pollution and asthma is provided by expert groups, and in particular their pronouncements on emission standards. In this way there exists a similar pattern of assumption or belief between policy-makers and civil society that accepts the use of expert opinion, representative of ideological co-option.

A related theoretical concept to co-option is that of mandate, and more specifically, the level of mandate granted to experts by policy-makers. It can be seen that for air pollution and asthma experts have been provided with an extensive mandate because the government had to defer consideration of the problems associated with air pollution and asthma to a variety of expert bodies through government

departments who secured a central and eventually permanent position. However, there is an *emphasis* on technical matters, rather than all policy being *dependent* on technical issues. Instead, policy manipulation is still evident, for example, in the desire for scientific certainty to provide policy solution. Policy-makers could easily err on the side of caution, in terms of the effects on health, and impose more far reaching policy solutions. This does not occur and instead further research is undertaken.

6.7.2 Reflection and Shaping of the Complexity

The complexity of the policy area has been analysed in depth above. Within the broad policy context all the expert groups sought to examine the impacts on health, although not all assessed the effects on asthma. The effects on public health has provided the backdrop for all reports and the wider public debate.

The policy area reflects both type of complexity. Social complexity is apparent but is subordinate to epistemological complexity. Epistemological complexity provided mechanisms to keep control of research allowing expert groups to take the lead, with deferment to the EU and WHO, where applicable, leading to the generation of air quality standards.

The primary response to the complexity of the air pollution problem was to attack particular pollutants and focus on their individual properties, rather than the problem in general, although one group did do this. Therefore, they responded and shaped the complexity by undertaking research, with an attempt at common methodologies, and a scientific approach. However, this attempt at a common approach had its shortcomings, because minute differences in the stance adopted by the individual groups led to subtle but significant changes in the result, and as a result shaped complexity and led to policy inactivity. In addition, a lack of common aims and objectives, different approaches in Europe and more importantly the USA, lead to slight but significant differences in each report added to complexity. Therefore, on the policy issues there developed a consensus, but as has been highlighted, on what is not known, rather than what is known.

6.7.3 Extent of Expert Influence on Policy Formulation and Outcomes

It has been beneficial to make the distinction between policy formulation and policy outcome within this case study. In this respect policy formulation concerns government attempts to define the policy problem and to outline an approach. To a large extent this has been determined by EU Directives and guidelines from the WHO. Nevertheless, for the issue of asthma expert groups have also been heavily influential in terms of policy formulation, by providing advice and assistance over the nature of the asthma problem and the extent to which air pollution has an impact. Policy outcomes are more readily recognisable as the standards which are produced and the extent to which government is willing or able to make pronouncement on the relationship between asthma and air pollution. Air pollution and asthma is not a static policy area in the way that the CTRL is, it is constantly evolving and as such it is necessary to set a limit to the assessment, for these purposes, up to the review of the NAQS in April 1999.

It has been discussed at length above that the influence of experts can appear at many different levels. First, through the multiplier effect (Benveniste, 1973), through the symbolic use of experts and symbols (Habermas (1976), and the permeation of a professional or social ideal (Perkin, 1989); a perception that advice is provided on a rational, objective basis with supportive commitment sufficient to create a belief that the policy will become a reality. This influence can also be assessed at policy levels. As shown above experts were provided with an extensive mandate by formal co-option.

It follows that we can assess the extent or type of influence that results from the co-option of experts who are then supplied with a particular level of mandate. This can be carried out for both policy formulation and policy outcomes. With reference to the model outlined in Chapter Two we can ignore the two extremes of expert influence: technocratic influence and servants of power. Political factors are undoubtedly very much part of this policy area at present so technocratic influence is not a correct assessment, but the level of influence is beyond that of servants of power. Within this policy area experts are not used merely to validate or justify political opinion.

Instead, expert groups perform a key role for policy-makers. The various expert advisory groups and prominence of experts within the DETR Air Quality Unit

have supplied information previously unknown and, therefore, the influence on policy formulation has been formal, setting the parameters for discussion in Parliament and beyond. This delegation of power is characteristic of formal influence. Indeed, using the typology developed in Chapter 2 formal influence of experts in the policy has been achieved through a delegation power to experts, because this is a relatively new area of policy, but there is also a cultivation of a relationship between experts and policy-makers. As a result, policy-makers are dependent on the advice provided by expert groups. Duration is an important element of formal influence and this is undoubtedly evident for this policy area. Expert groups are used to provide the starting point for policy determination because of the complex technical and scientific issues. However, perhaps the most important characteristic is the relative centrality of expertise in the policy process, which is also undoubtedly the case.

Formal influence is also evident for policy outcomes. The recommendations of expert groups were translated directly into policies and standards and so expert influence has been definitive for the policy area. Moreover, the NAQS was the first of its kind in Europe. It is to the recommendations of the experts groups that governments turned to justify the relevant policies on air pollution, or the fact that no additional regulations are required to combat a particular problem. As a consequence, they are dependent on expert opinion. Moreover, policy-makers have turned to expert groups on a consistent basis. Groups such as COMEAP and AGMAAPE and obviously individual experts used by the DETR and the EA have secured permanent positions, or at the very least semi-permanent positions, within the policy process. Air pollution and asthma is not a static policy area and, therefore, the influence of expert groups will be felt over a sustained period. The influence falls short of being technocratic because expert groups have not been supplied with a remit for full control of both design and implementation of policy, neither has there been a de-politicisation of the policy area, although a permanent place in the policy process has been secured by some expert groups.

As has been discussed above, to place the emphasis on expert groups and individuals reinforces the role of ideas as a motivating force in policy, and moreover, governments react to the growing consensus and the subsequent momentum created by it. It does not need to be publicly motivated for consensus to have influence. A normative effect of this momentum is that this approach

could lead to efficient policies and consolidate the power of experts and they become influential in setting future policy agendas.

As discussed in the previous section there are three main areas of concern for the policy area: definition and diagnosis; causation; and, the effect of individual pollutants. For the purposes of demonstration it is intended to highlight expert influence on causation and individual pollutants.

During the 1980s there were regular claims made by organisations and individuals about the causative relationship between asthma and air pollution, since rebutted to varying degrees by numerous advisory groups and Royal Commissions. In 1996, in replying to claims made by opposition members about the relationship between air pollution and asthma the Secretary of State for Transport made reference to the COMEAP (1995) stating that,

'[The government] are setting targets to reduce pollution levels, and, in particular, emission levels. The report makes it very clear that there is no evidence that air pollution causes asthma. There is evidence that, to a small extent, asthma may be exacerbated by air pollution, but the causes are unknown and unproven.' (Hansard, 1996a)

The debate continues to persist. Although government acknowledged the effects of air pollution on public health,

'... there is no guarantee that reducing air pollution by particular amounts would lead to a corresponding reduction in the health effects in treatment costs associated with such illnesses. For instance, not all air pollutants affects people with asthma. Also, because some pollutants have no threshold of effects - that is, effects can be detected even when concentrations of particular pollutants are low - there will clearly be an effect at any level for some people.' (Tessa Jowell, Minister of Health, Hansard, 1998a)

In response to calls for the government to explore the relationship between asthma and air pollution the Minister of Health, Tessa Jowell, still made reference to what could be considered 'old' research, for example from the COMEAP report of 1995, claiming that increases in asthma had little, if anything, to do with air pollution. However, she went on to state that since 1995 further evidence has suggested that nitrogen dioxide and particles may 'enhance the body's biological response to allergens', but not as a direct result of air pollutants (Hansard, 1999a).

Evidence provided to the Select Committee on Environment, Transport and the Regions, in November 1997, by the Royal Commission on Environmental Pollution confirmed that although an increasing prevalence of asthma has coincided

with large increases in vehicle emissions, no causal relationships had been demonstrated (House of Commons Select Committee on Environment, Transport and Regional Affairs, 1997). However, evidence from the United States at the time of publication of the eighteenth report of the Royal Commission of Environmental Pollution highlighted a potential relationship between ill-health and particulates, which the Commission, in its evidence to the Committee, stated was the reason for a recommendation of a pre-cautionary approach from government agencies and committees analysing the air pollution issue (Select Committee on Environment, Transport and Regional Affairs, 1997).

The Royal Commission was the first body to recommend air pollution standards, broadly in line with WHO guidelines. The NAQS represents a broad acceptance of this approach. Examining developments in air pollution since 1994, the Commission continued to find it difficult to reach firm conclusions on relationships, and highlighted the distinction between the public's perception of the causative role and the 'experts' view, highlighting the fact that often the public demand a broad brush approach to causation, which is undoubtedly at odds with the expert, scientific approach (Royal Commission on Environmental Pollution, 1998).

The nature of environmental concerns has changed in terms of policy objectives, time-scales considered, geographical scales, and kinds of environmental modifications addressed. The changes have implications for the types of evidence, in particular the types of scientific evidence, required to support policies on policies and standards (Royal Commission on Environmental Pollution, 1998, p. 3). The Royal Commission on Environmental Pollution acknowledged the public concerns as demonstrated by BSE about the relationship between science and policy when faced with great uncertainty and complexity (Royal Commission on Environmental Pollution, 1998, p. 1).

Part of the remit of the twenty-first Royal Commission on Environmental Pollution was to discover just how endemic scientific confusion and argument was in the case of environmental policy, and whether there is substance to doubts that have been expressed over the objectivity and adequacy of the scientific basis for environmental regulation (Royal Commission on Environmental Pollution, 1998, p. 11). It concluded that there are major areas of uncertainty reached in the conclusions about the effects of air pollution on human health. Furthermore, the conventional approach in countering such uncertainties is to apply safety margins

to the scientific data when setting environmental standards. The extent of those safety margins in any given case is essentially a matter of judgement (Royal Commission on Environmental Pollution, 1998, p. 28). Hence,

'A clear dividing line should be drawn between analysis of scientific evidence and consideration of ethical and social issues which are outside the scope of a scientific assessment.' (Royal Commission on Environmental Pollution, 1998, p. 28)

The importance of public perception was recognised by the Chairman of the Royal Commission on Environmental Pollution, Sir John Houghton. In his evidence to the Select Committee on Environment, Transport and Regional Affairs he stated that,

'Public perception is that diseases like asthma, bronchial problems and respiratory problems and, to some extent, cancer are caused by poor air quality. That is a widely held view The increase in asthma particularly in children over the past 25 years by a factor of five or so is very worrying, but the basic cause cannot be put at the door of air pollution. There is as much increase in asthma in children in rural areas as in cities. All the epidemiological evidence shows that air pollution is not a major cause of the increase in asthma. The latest report of the Committee on the Medical Effects of Air Pollution suggested that it is not even as major cause of exacerbation of asthma, although it acknowledges that in some circumstances it could be a reason for that.' (House of Commons Select Committee on Environment, Transport and Regional Affairs, November, 1997, p. 1)

The Royal Commission on Environmental Pollution did, however, emphasise the precautionary principle, because they acknowledged the difficulties in qualifying the exact medical effects of air pollution. It cannot be perfect because,

'.... of the difficulty of carrying out specific observations and measurements and the time gap between exposure and particular health problems.' (House of Commons Select Committee on Environment, Transport and Regional Affairs, November, 1997, p. 2)

Part of the response to the claims for a health directed approach to the problem of air pollution was that of the NAQS. Implemented by the Conservative government in March 1997, it was reviewed in April 1999. The fundamental element of the strategy is health-based air quality standards and objectives. These are for eight pollutants, and are,

'.... based on advice from the independent Expert Panel on Air Quality Standards (EPAQS). The standards are benchmarks, based purely on an assessment of health effects, indicating concentrations at which there is no or minimal risk to even the most sensitive parts of the population of adverse effects.' (Memorandum by the DETR, House of Commons Select Committee on Environment, Transport and Regional Affairs, November, 1997, p. 1)

The change in policy towards local implementation as specified in the Environmental Protection Act (1990) was to improve air quality and the NAQS is an attempt to do this (Hansard, 1996b).

The aim of the NAQS is to improve air quality by being integrated, health and objective-led. The standards for the eight pollutants concerned (nitrogen dioxide, particles, ozone, sulphur dioxide, carbon monoxide, lead, benzene and 1,3 butadiene) are based on recommendations either by a panel of independent medical and scientific experts, or the World Health Organisation (Hansard, 1997a). The benefits of proving a strategy is that policy may evolve over time, because of the scientific uncertainty. Therefore,

'... because of remaining uncertainties over the exact reductions in emissions needed or achievable, for some pollutants, some of the objectives remain provisional. The strategy will be subject to periodic reviews, the first in 1999, to assess progress towards meeting the objectives and ensure their continuing relevance and the cost effectiveness of the proposed measures.' (John Gummer, Secretary of State for the Environment, Hansard, 1997a)

This is the fundamental point, an acceptance on behalf of policy-makers of the scientific uncertainty and why a pre-cautionary approach and more research is always called for. As part of the NAQS an updated version of the Air Pollution Public Information System was launched in November 1997. As well as proposing four pollutant bands ('low', 'moderate', 'high', or 'very high') it also made a connection for the first time between describing the type of air quality and hourly updates not only on levels of individual pollutants (sulphur dioxide, nitrogen dioxide and ozone), but now also on particles and carbon monoxide (Hansard, 1997b). The bands were chosen on the basis of effects on health,

'The "low" band for each pollutant covers levels up to the air quality standards set in the National Air Quality Strategy. These standards are based on the best available consensus view of medical and scientific on the UK Expert Panel on Air Quality Standards.' (Michael Meacher, Minister for the Environment, Hansard, 1997a)

The government was obviously keen to defer in this instance. It stands to reason that a minister will not be able to judge for him or herself on these band levels. This demonstrates the high level of dependence on expert opinion by policy-makers for this policy area, and why the expert groups are able to occupy a central position in the policy process and provide definitive direction for policy.

The NAQS did not come into existence until just before the General Election of 1997, two years after the Environmental Protection Act (1995). A review in April 1999 resulted in a watering down of some existing objectives contained in the strategy, most notably for PM₁₀, argued by some expert groups to be 'the pollutant of greatest concern' (ENDS, 1999, p. 17), although others have stated this to be nitrogen dioxide! The review was needed to take account of the mismatch between UK objectives and EU objectives contained in daughter directives to the 1996 European Commission framework Directive on air quality. As well as numerical standards the European Commission proposals focus on attainments differing from that of the UK by one year, 1 January 2005, compared to 31 December 2005 respectively. It is here that political and economic considerations are also important, Great Britain may just not be able to meet the targets.

The review has highlighted quite starkly the difficulties of countries attempting, or being unable to, meet the guidelines with individual action. Direction from the EU is awaited on ozone and particles because the UK government has suggested that Britain is unable to achieve targets on its own because of the spread of pollution from Europe (Hansard, 1999c). Responding to questions about the review of the NAQS the government stated that,

'During the review process it became apparent that the current PM₁₀ objective would not be achievable in a number of local authority areas with any measure that are currently practicable because of the importance of non-UK sources.' (Tessa Jowell, Minister of Health, Hansard, 1999c)

However, in the select committee which considered the original strategy the government confirmed that,

'... [we] broadly accept the NAQS set up by the previous government, and the standards set by the Expert Panel on Air Quality standards, which have the foremost experts in the field in terms of science and health, and they are partly based on WHO standards.' (Michael Meacher, Minister for the Environment, Minutes of Evidence: House of Commons Select Committee on Environment, Transport and Regional Affairs, 1997, p. 5)

Alongside the debate over air pollution being a cause or having an exacerbatory effect on asthma, and the general concern over air quality and has been the much publicised debate over the relative effects of individual pollutants, most notably, nitrogen dioxide, ozone and particles. The inability to meet guidelines, standards and objectives has highlighted the complex set of variables.

Through the NAQS for nitrogen dioxide the government introduced tougher hourly rates for this pollutant, but even this tough stance is overshadowed by more a demanding objective for annual levels. The cost benefit analysis suggests that meeting the objective cannot be justified, and when the next review occurs in two years time the government will ensure that it does not force local authorities to take extreme measures which might lead to serious damage or disruption to local economies.

The current objective on ozone is not included in local air quality management regulations because of long-range transport from other EU member states. It will, however, be retained as an objective. The European Commission is expected to announce a less stringent non-mandatory standard, with permitted exceedance still to be agreed. The influence of political factors is clearly demonstrated in the policy area over these two pollutants. Such is the difficulty in dealing with the problem that the government has blamed other governments in Europe for the failure by Britain to meet targets on pollutant emissions, and nitrogen dioxide in particular. (Brown, 1999, p. 8).

This situation is no less true for particles. The present government has argued that current objectives for particles are 'unrealistic'. Evidence over the past two years suggests other pollution sources were as much contributory factors to rising levels than local vehicle emissions levels, even in urban areas (Hansard, 1999b). A report from the recently created Airborne Particles Expert Group (APEG) argues that long-range transport of secondary particles from Europe can dominate exceedances of the standard for PM₁₀. Matters are complicated because of the different monitoring techniques used by the UK and EU, resulting in the UK under-reporting emission levels by 30%, thus the picture for the UK is even worse than expected. The DETR acknowledge that even the less stringent proposal will require significant transport measures in major cities (ENDS, 1999).

No simple quantitative treatment can be given for the accuracy of UK emission estimates (Department for the Environment, Transport and the Regions, 1997). In terms of accuracy, sulphur dioxide emissions are the most accurate as they depend largely on comprehensive analysis of coal and fuel consumption by power stations, agriculture and domestic households. Figures for PM₁₀ are less reliable, first because little knowledge is known about them and contributions from sources in addition to emissions from diesel vehicles are not known. Nitrogen dioxide figures are also less reliable than for sulphur dioxide because they are based on

relatively few emissions factors and depend on combustion conditions which vary widely (Department for the Environment, Transport and the Regions, 1997).

This situation is made more complex as research has suggested that there are three types of particles, contributing roughly a third of long-term PM₁₀ concentrations: primary particles from combustion and industrial processes; coarse particles, from construction and road dust; and secondary particles, formed by chemical reactions in the atmosphere. The major contributions are from oxidation of sulphur and nitrogen dioxide, and volatile organic compounds. This may not be the most pressing concern. Evidence suggests that PM_{2.5} may be the more pressing and may be more amenable to management at local level. EPAQS will be considering a case for a new objective for PM_{2.5}. As ENDS comments,

'The backtracking on targets for PM₁₀, nitrogen dioxide and ozone is driven by the Government's concern over both technical feasibility and justification on cost/benefit grounds. The original strategy was widely criticised for failing adequately to explore costs and benefits. The review attempted to fill the gap - but encountered major difficulties in producing useful or meaningful figure on potential benefits.' (ENDS, 1999, p. 20)

This section has highlighted the influence of particular expert groups on policy formulation, in this case the formulation of the policy problem through the various advisory groups and committees: and also the influence of experts on policy outcomes, in this case within the select committee process and through the development of the NAQS. The NAQS highlights the scientific and practical difficulties in assessing impacts and effects, especially as the review found that the standards adopted could simply not be met for a number of pollutants. The select committee deferred to expert input as lay members did not possess the appropriate knowledge or skills on particular issues, a situation recognised by the Royal Commission on Environmental Pollution. It is extremely difficult to provide a precise measurement of this influence and this section has instead provided an assessment of expert influence. Policy momentum is at a European level and the UK government has created mechanisms in order to comply with legislation as well as present the specific difficulties faced by the UK in trying to combat air pollution.

In a practical response to the problem science faces with air pollution the Royal Commission on Environmental Pollution recommended that to prevent development of new understanding being restricted by established regulatory procedures, vested interest or small closed communities of experts, publicly-

funded programmes of environmental research should include provision for independent investigation (Royal Commission on Environmental Pollution, p. 33). In terms of air pollution assessment,

'Lay people can be involved directly or indirectly, but they are effectively excluded if they are not included in defining the problem. Better ways need to be developed for articulating people's values and taking them into account from the earliest stage in what have been hitherto relatively technocratic procedures.' (Royal Commission on Environmental Pollution, 1998, p. 119)

Within this case study it has been shown that a particular set of expert groups operate on an extensive mandate and have formal influence on policy formulation and formal influence on policy outcomes. This is because there is an emphasis on technical solution and a delegation of power to experts in this policy area. Experts have more than a moderate influence on policy-making because it is not transitory, but an important and central element of the process. The evidence they produce is used in parliamentary debates and permanent select committees to justify government policy. Expertise has been instrumental in determining the nature of the debate. The concept of legitimacy is also important in this respect.

6.8 LEGITIMACY

An important part of this policy area is terminology. Experts are instrumental in this element of air pollution, and in particular how the actual policy problem is described. What can be seen is that the issue of air pollution has given way to the problem of air quality, and the subsequent policy problem of providing good air quality (Rydin, 1996, p. 3). This shift in emphasis in air pollution policy is subtle, but significant, hence it can be shown by policy-makers that there is an acceptable air quality level rather than an acceptable level of pollution. This result is politically more palatable than stating that emission levels are at a particular level of harm. It also shifts the emphasis away from the effect of individual pollutants on particular health issues, such as asthma.

The emphasis of air pollution policy, be it on air pollution emissions or air quality reflects the fundamental part that *policy* plays in contemporary society. Policy is the location for the evaluation of government performance and political legitimacy. It is within policy areas that governments attempt to reconcile and satisfy both particular interests present in the policy network, and the general interests of

society as a whole. Legitimacy in this respect has little to do with constitutional issues and the survival of the form and process of government. Rather, it concerns the survival of actual governments, and therefore the extent to which governments may sustain their legitimacy is through evaluation and public scrutiny of policy, in terms of both formulation and implementation.

The evidence suggests that experts are co-opted into the air pollution and asthma policy area in order to deflect evidence concerning induction of asthma, and instead, focus on the exacerbatory effect within very specific contexts. In so doing scientific debate surrounds ever more complex arguments on very defined elements of particular pollutants and their effects in very correspondingly defined and particular ways, shielding the more important and general issues, allowing for deferment and delay and calls for more research. Policy-makers can be seen to be seeking constant re-affirmation of this approach. By using expertise consistently in this policy area it reinforces this approach and justifies the inclusion of expertise as the policy area becomes increasingly technical and sophisticated. On the majority of occasions expertise is used not to justify a particular policy instrument, but instead to legitimate policy inactivity. The results of research are supplied with numerous caveats that lead policy-makers to conclude that only more research will benefit the provision of policy.

Therefore expertise is used in two ways: at a conceptual level to alter or legitimate the way the air pollution problem is defined and approached; and, at a more specific and contextual level, by focusing on specific debates within respective investigations into the nature and effects of particular pollutants. As a result, policy-makers are able to provide public credibility and satisfy public opinion, and opinion of participants within the policy area. The extent to which this credibility is merely perceived or actually accepted by members of the public or policy network is difficult to judge, as a perceived legitimacy is relative. Some may perceive this as legitimate approach and accept the policy output, others may accept the policy output, but not consider this a legitimate approach. In the same way an objective or moral legitimacy in this area is difficult to ascertain. An objective set of values from which to judge policy in the air pollution and asthma policy area may exist, but even if it did exist its use may not be desirable.

As discussed previously experts can be located in the policy process by using a three-fold criteria. They are legitimated in systems derived from rules. These rules themselves have to be justified and legitimated. One way in which this may

be achieved is through the notion of 'ideas of common interest', that matters of policy and the distribution of power to achieve policy ends serves the interests of both the dominate and subordinate. As a consequence, the air pollution and asthma policy issue is a concern of the general interest, and that the use of expert knowledge in its solution is justified on the grounds that this distribution of power serves all interests, and not just specific interests within the policy network. Ideas of common interest surrounds the notion that policy issues are matters of special knowledge. Experts are co-opted into the air pollution and asthma policy area because the issues are portrayed as matters of special knowledge, yet their results are of symbolic nature as the level of certain knowledge has not increased. Or more precisely, the level of certain knowledge that is required to produce proactive and policy solution rather than reactive and negative policy provision. This situation is used, primarily, to satisfy public credibility in this area, to demonstrate an active desire on behalf of policy-makers that action is being taken on this important issue. The technical nature of this policy area dictates that expert groups be involved. Policy-makers would find to difficult to use their judgement alone.

Therefore, complexity in this policy area is used not only to legitimate the use of expert opinion to produce policy instruments, but also to demonstrate that policy solution is itself a complex issue, and that expertise is crucial in its definition and solution. As stated previously, this is a particular form of 'paternalism'. The belief system within the political domain has within it an implied premise that matters of public concern must be those requiring special knowledge. The policy area of air pollution and asthma is no different in this respect. Therefore, expert groups within this area have legitimated the policy direction of policy-makers. They are co-opted and incorporated into the process because of the complexity, to provide legitimacy for policy because the issues are complex, and to provide legitimacy via public credibility for policy-makers, to demonstrate they are consulting the appropriate expert. An important consequence of this situation is that it does not result in positive policy solution, but rather provides a legitimacy for a piecemeal approach. This situation is caused because there is a consensus among expert groups on what is not known, rather than on what is known.

6.9 CONCLUSION

Asthma certainly has effects at economic, social, and political levels. The important political level concerns are: the level of resources provided by policy-makers to help alleviate or solve the problem; the question of whether or not zero-level emissions are both attainable and/or desirable; and, the level of public concern expressed over the issue and the corresponding desire for action. Asthma and air pollution has also become an important area for government research. This situation is important because the effects of air pollution are dispersed, not only across geographical locations, but also across different social groups. Beneficiaries of a relatively clean atmosphere bear little of the cost and victims cannot be easily identified, nor health effects readily quantified (Stewart, 1979, p. 2).

Air pollution and asthma is a particularly complex policy issue. Not only is there confusion over technical definitions and the relative merits of the various forms of quantification of the problem, but there is the synergistic effect of air pollution. This synergistic scenario has provided ample justification for the maintenance of the *status quo* in terms of policy provision, and has been cited as the main reason for the delay in the government establishing the various EPAQS. This came to a halt to a certain extent with the NAQS and a more positive approach in terms of standards, but not for the relationship between air pollution and asthma.

Part of the problem of this inactivity is that the nature of air pollution has altered. The effects of 'traditional' pollutants, such as sulphur dioxide and smoke, are more readily accepted by expert groups, but not so the new types of air pollutant, such as those produced by vehicle emissions. Another problem is the fact that air quality (in specific regions) and not health is the main criterion. To solve the former solves the latter, but this is to ignore the fact that they are two separate issues. Because of the inherent problem in distinguishing between emission levels and exposure levels there may be improvements in general air quality, but not necessarily reductions in the health risks for some social groups and individuals. Indeed, such is the complexity of the problem exposure could be considered more as a characteristic of the particular physiology of individuals rather than areas or pollutants (Stewart, 1979, p. 11).

There is a relatively small number of key participants in the policy area. Within this community there are varying degrees of agreement and conflict over the

number of issues that constitute the complex nature of this policy area. This conflict demonstrates the fact that the policy area is dominated by epistemological as opposed to social complexity, although social complexity does play an important, subordinate role. There is evidence to show that the policy area is complex because of the number of variables that need to be considered. However, the primary problem is the inability of policy-makers to comprehend fully and objectively across the entire nature of the policy problem. This situation is characteristic of epistemological complexity. It is doubtful that the policy area can be described as technocratic, although it does reflect an administrative conceptualisation and an attempt at de-politicisation of policy. It does not, however, reflect an apolitical ideology, nor a neglect of normative reason. However, this situation does not mean that experts have no influence in this area. It can be seen that there is a tendency towards technocratic management, both in terms of institutional arrangement and policy process. Within the policy area particular expert groups may be said to operate on an extensive mandate, translated into policy influence, formal for both policy formulation and for outcomes. The role of expert groups is very public in this respect. Ministers have little genuine room for manoeuvre, save for insisting on scientific certainty over deliberations by expert groups. Moreover, the influence of European legislation dictates, to a large extent, the policy parameters. Because of the inherent complexity in this area expertise is deemed a necessary requirement for policy-making, especially in the first instance. This influence may become institutionalised in society and form part of the 'multiplier effect', where the use of expert opinion is seen as crucial for policy-making in this area at all times. Within this policy area there is a direct delegation of power to experts.

Despite dispute over its definition there is broad agreement on the increasing prevalence of asthma. However, the definition employed will determine the extent of the problem. There is also confusion over whether air pollution, in isolation, is a direct cause or a problem that exacerbates the symptoms of asthma. As a consequence, it is more beneficial to analyse the nature and effects of individual pollutants rather than air pollution in general. Sulphur dioxide has become more acceptable as a pollutant that exacerbates the symptoms of asthma, merely because the effects have been known for longer. It is also more acceptable to make this connection because overall the levels of sulphur dioxide have been decreasing for many decades. As regards ozone, the information is certainly confusing, especially with regard to low-level exposure. There is a similar situation for

nitrogen dioxide. For this pollutant there is disagreement between expert groups, emphasising the fact that the relationship between these two pollutants and asthma is unclear. With the increased use of vehicles over the past 20 years particles and PM₁₀ pollution have been particularly prominent. But again there is confusion over the nature of the health effects of particles, and the effects on asthma in particular. However, although an accepted methodological tool, concentrating on 'traditional' forms of air pollution denies the measurement of new compounds that may cause health or policy problems (Stewart, 1979, pp. 13-15). Therefore, policy-makers can be seen to be successful in reducing emissions of traditional pollutants, when research may need to be directed at new compounds and mixtures.

It has been argued that the exact nature of influence of expertise will be dependent, in part, on the nature of supply. This supply is the level of internal consensus and cohesion demonstrated by expert groups. For the policy area of air pollution and asthma there is no cohesion between and within expert groups, but a consensus. However, the consensus is a negative one, on which areas require more research. There is agreement on the new pollutants to consider, such as particles (PM₁₀s), sulphur dioxide, nitrogen dioxide, and ozone (Lane, 1996, p. 119). What is also apparent is that there is certainly no positive consensus on the effects of air pollution on asthma. This lack of positive consensus does not mean, however, that the policy area does not demonstrate technocratic tendencies. Policy is certainly produced through the use of expert groups, as the expert panels and research groups help influence the policy outcome. They are instrumental in helping to set emission guidelines and air quality criteria, and in determining the type and amount of information available to the public about air pollution episodes.

This negative consensus provides the opportunity to encourage and produce new research (Anonymous, 1994e, p. 3). Indeed, in 1994, £5m was made available to the Department of the Environment, the Department of Health and the MRC, for research into the effects of air pollution on health (Calman, 1994, p. 20). However, this is a double-edged sword; it can keep the issue on the agenda, but can also push the problem away, with government agencies claiming that the issue is something that cannot be solved quickly. This sort of prevarication can result in 'fudged' results and poor policy outcome. In terms of asthma research, since 1992 the MRC and NAC have only conducted research on one air pollutant, ozone (POST, 1994, p. 29). And in general, most research from these two organisations

has been on mechanisms such as studies of the immune system rather than epidemiological studies on the effects of synergistic pollution.

The level of expert influence is also conditional on the demand for policy knowledge by policy-makers. This demand is demonstrated by the level of co-option, or, the nature of the political climate. Within this policy area there is certainly institutional co-option because groups have been formally co-opted. Even more than this they have actually been created. There is also psychological co-option. Expertise has been instrumental in creating and maintaining particular ideas about air pollution and asthma, since they are instrumental in framing both problem and solution. The final form of co-option, ideological, is more difficult to assess within one policy area. The extent to which similar patterns of assumption between governors and the governed with regard to expertise is a systemic problem, although experts are certainly influential in helping to determine policy direction in this policy area.

There has certainly been an increased use of expertise, not necessarily knowledge, within the policy area, coupled with an increased politicisation of that expertise. These conditions have led successive governments to demand scientific certainty as a precondition for changes to existing policy, while using scientific uncertainty to justify policy inactivity. This inactivity is reinforced by confusing claims from groups within the policy area, such as the claim that just because there is evidence of air pollutants increasing susceptibility to asthma it does not follow that this will be the case for all asthma sufferers (AGMAAPE, 1995). However, some groups argue that it may be prudent to take into account ambient levels of pollutants in determining policies for reducing emissions, standards, and advice to vulnerable groups (Ross Anderson et al, 1996, p. 669). Indeed, one problem of pollution abatement is not that of merely taking the current level as one to be abated, but the fact that unless abatement takes place the levels will increase (Stewart, 1979, p. 50). Hence, what is acceptable is usually equated with what is attainable,

'What is acceptable and how the benefits of abatement may be perceived depends also on awareness, which has grown and will no doubt grow further with publicity about air pollution hazards and with attitudes that have become less permissive towards perceived risks.' (Stewart, 1979, p. 50)

Therefore, expertise is certainly important to policy-makers. Moreover, the use of either regulatory or research agencies to produce policy has increased the level of government intervention, not reduced it. The air pollution policy area forms part

of the general trend towards a regulatory approach to policy-making. Despite this, expertise is not more objective, but instead geared towards the legitimization of particular political and economic interests.

Policy-makers are becoming ever more dependent on expertise in this policy area. A primary implication of this is procedural over substantive participation, and a desire from policy-makers for policy conceptualisation over and above policy enactment. This scenario may be characteristic of many new health issues, especially as they affect other policy areas. Another implication is that the movement towards increased regulation of the policy area, and the utilisation of standards, and the adherence to them, can only reinforce the influence of expertise.

Therefore, experts were co-opted into this policy area because of the complexity and to provide legitimacy, and supplied with an extensive mandate. A mandate which was translated into formal influence on policy formulation and outcomes.

The second case study concerns the siting of the route for the CTRL. This is discussed in Chapters 7 and 8.

CHAPTER 7

POLICY ISSUE OF THE CHANNEL TUNNEL RAIL LINK

'Our faith in the market or in tradition, on experts or consensus, as THE solution merely exposes our desire for certainty.'

(William Burch, 1976)

7.1 INTRODUCTION

This chapter examines the connected nature of transport planning and politics. It also assesses the contention that because of the increasing importance of environmental considerations transport policy-making demonstrates a tendency towards technocratic management. Moreover, it explores the influence of the EU and Environmental Assessments on the provision of transport infrastructure, highlights the complexity of transport as a policy area, and chronicles the development of the CTRL project and the alterations to the route alignment. It also introduces the concept of complexity and demonstrates this to be an important backdrop to the policy area.

The CTRL has certainly been a protracted project. Since its inception in 1989 there have been numerous route alterations, environmental condemnation, from those within and external to the policy domain, conflict between government departments, such as the Department of the Environment and the Department of Transport, as well as protest from local residents' groups not reconciled to the route or to the project in general. These issues highlight the complexity and interrelated nature of politics and transport planning.

Politics and planning are inextricably linked. On the surface they do appear as two distinct areas: a rational, scientific approach presented by planning and planners, with a concern for long-term issues; and, a political process that focuses on short-term goals and electoral success. Politics and planning are, however, connected, because planning involves the allocation of resources and debate over their relative distribution. The allocation of resources is a political issue. Moreover, although planning is concerned with the identification of specific issues within defined

policy areas, it is also part of the community within which these issues are processed. This is because planning is not a backdrop that can be extracted from its environment. It is for this reason that planning, and the planning of large transport infrastructure projects in particular, is such a contentious issue.

Since 1945 concern for the environment has become an increasingly dominant theme in transport planning. This concern had centred upon specific rather than universal issues. Today, the emphasis now is certainly on the latter, and in particular, the universal validity of increased transport provision. This change of emphasis corresponds to an acceptance that transport expansion is not necessary for economic growth, and more importantly, highlights another policy momentum: towards the consideration of transport policy 'in principle'. A principle that has been institutionalised at the European level. Environmental Assessments, which previously had to be undertaken for large transport infrastructure projects, now have to be applied to the overall policy, in addition to the project itself.

The EU has had a major influence over the CTRL project and transport policy in general. The CTRL forms part of the TEN's programme, one of which is for rail transport. The EU also represents a significant layer of the complex policy area, which incorporates land-use, transport, environment, social, and economic considerations, at various levels in addition to the European: community, local, regional and national.. For the CTRL the complexity increases downwards rather than upwards. At the EU level the CTRL could be perceived to be a logical extension of EU policy, whereas at the community or local level the concerns are altogether different. Here, the main concern could be the effect the route alignment may have on house prices, or a total non-reconciliation to the link at all. This level of complexity in the policy area results in the use of many different types of expert and expert group, such as architects, engineers, surveyors, and environmental scientists.

The planning process since 1945 has certainly become increasingly political, as successive governments have developed land-use policies and principles. As this process has taken place, however, expertise has become more rather than less important. Expertise is used to legitimate the particular stance adopted by groups in the policy area. This is highlighted in the debate over the CTRL route alignment by the opposing positions adopted by the (as was) Department of the Environment and the Department of Transport. In this instance, complexity may not be the

driving force behind the need for legitimacy. It may be more for purely social, economic, or political purposes.

The CTRL will be the first mainline railway construction in Britain since 1899. The traditional positive association between railways and the British public has not necessarily been generated with this project, a situation which not been evident in France where the political and public will has been, and continues to be, far greater. These issues have placed huge burden on the residents of Kent, who feel that a national project has been imposed upon them without an opportunity to debate the reasons behind the project in principle, let alone the route alignment itself. This state of affairs has revealed, quite starkly, the relationship between politics and planning.

7.2 POLITICS AND PLANNING

Throughout western Europe during the post-1945 period there has been a steady development in spatial or land-use planning. Planning strictly defined,

'Assumes a knowledge of all choices available, the selection of specific goals from among many alternatives, and the conscious achievement of those goals by prescribed means within a specified time-scale.' (Blowers, 1980, p. 2)

Hence, for planning the emphasis is on rational action. As a result land,

'... is not developed accidentally or at random, but according to rational practices and policies.' (McKay, 1982a, p. 3)

Here, rational practices and policies could mean the extremes of either the mechanism of purely private and free markets, stringent planning control, or somewhere in between. What is more certain, however, is that because land-use planning is concerned with resource allocation it is a political issue. Therefore, policies and planning are necessarily connected. It is so institutionalised in decision-making that it is almost a requirement of government. Politics takes place within,

'... a process of allocating and using power to make decisions and implement action programmes. Planning, which is an analysis of problems and proposals for solutions, occurs within the political process and is an essential component of success.' (Catanese, 1984, p. 16)

Politics is part of the planning process because planning is concerned not only with both the identification and definition of specific issues within defined policy areas, but also because the planning process itself reflects, in part, the political community. Furthermore, planning deals with the appraisal of procedures for dealing with these issues, the subsequent formulation and evaluation of alternatives, and also the recommendation of the most appropriate alternatives with amendments after allowing for community feedback (Catanese, 1974, pp. 44-45). Politics and planning are interrelated, although they are obviously distinct areas in themselves. In a conceptual sense planning and planners are not concerned with political issues such as re-election, therefore, planning goals tend to be more long-term as opposed to short-term. Politicians could claim to be more concerned with public interest, rather than theoretical considerations of the planning issues based on rational and scientific argument (Catanese, 1984, pp. 23-25). As a result, the interaction of politics and planning represents an area of conflict between a rational, scientific environment represented by an established system of professional planners, and a political process dominated by short-term goals.

Planning of the physical environment is a particularly contentious issue as it impinges heavily on the provision of services, the economy, and the environment, and is influenced by political considerations. This situation is no less true of transport facilities. The provision of large infrastructure projects such as the CTRL raises many practical difficulties, but also social problems. The siting and construction of a project such as the CTRL has generated protest from residents' groups, members of Parliament, commercial interests, pressure groups, local councillors, and many other individuals and organisations.

The difficulty with any planning proposal is that in a highly developed landscape large infrastructure projects, designed to provide benefits primarily on a national level, will have some adverse local effects (Truelove, 1992, p. 146). Construction of large infrastructure projects produces local anxieties, such as the 'corridor' effect; when traffic channelled through a region is justified in terms of national economic gains, but causes social costs regionally and locally (Ross, 1995). But there is also another reason, that of imposition. Individuals may fear they may be taken out of the decision process, and instead have decisions imposed upon them by an external authority. This fear of imposition is no less the case for local communities and the CTRL, where the population of Kent has been the focus of

attention not only for local authorities and national government, but also European institutions.

The environment has been at the forefront of planning concerns in recent years. The link between planning and the environment has become increasingly co-ordinated and subject to regulation.

7.3 TRANSPORT PLANNING AND THE ENVIRONMENT: TOWARDS TECHNOCRATIC MANAGEMENT

Attempts were made in the 1920s to co-ordinate and integrate rail transport, but they were subsequently abandoned. It was not until 1947 that the state entered the transport policy area, initially as an operator, through the instrument of nationalised industry (Thoenig and Despicht, 1975, pp. 393-394). This intervention was part of what was considered to be an irreversible shift in the role of the state in the immediate post-1945 period, and formed a key role in state expansion, along with an expansionist economic policy. The size and nature of public subsidy, the merits or otherwise of competition and co-ordination, the environment, and economic growth, have been the dominant themes in transport policy since 1945 (Wistrich, 1983, pp. 21-26). Transport is an important issue as it has a dual effect on society. First, as a major industry (through the operation of services and the manufacture of equipment and development of infrastructure), and second, as a consumer concern (it is part of everyday life, it is a business cost and it has effects on the environment) (Wistrich, 1983, p. 82).

The nature of the planning process was transformed during the 1940s and the 1950s with the introduction of the Town and Country Planning Act (1947). During this period planning was, to a large extent, considered 'acceptable' (in particular with the economy) and mundane (land-use). It was a technocratic approach to planning, not because of an inherent or perceived complexity that required the employment of technocratic or expert solution, but because of a lack of political or ideological debate over the merits or otherwise of state intervention.

This situation altered during the 1960s when, as in other areas of policy, planning was represented by a systems approach to policy-making. Planning was concerned with the processes of planning itself, rather than with the ultimate ends of the planning process, a concern with policy means over and above policy ends

(Thoenig and Despicht, 1975). During the 1960s and 1970s the planning system was said to be overwhelmed and negative (preventing undesirable development) rather than positive (providing good development) in its outlook (Midwinter, 1984). The economic challenge to sustain prosperity and satisfy public aspirations forced not only an extension in state activity, but also institutional change, most notably the creation of the Department of the Environment in 1970, and when land-use and transportation policy were combined under the auspices of the Department of Transport. It was also a period of increasing politicisation of planning (Sharpe, 1975).

The post-1945 period has witnessed many changes in public and government attitude towards transport. Travelling is certainly now considered a means to an end, not an end in itself. Up until the 1960s expansion in transport provision and infrastructure was required because there was an emphasis on personal mobility. The counter-revolution of the 1960s and 1970s placed transport in a more social and environmental context. Mathematical models and cost-benefit-analysis used by policy-makers in the 1960s and 1970s were criticised for being a pseudo-objective mechanism for providing information for political choices. Further sustained criticism, particularly against road schemes, resulted in the Advisory Committee on Trunk Road Assessment by the Department of Transport. This recommended improvements, important among which, was the assessment of environmental factors (Wistrich, 1983, pp. 74-77). During the late 1960s and early 1970s,

‘Environmental Impact Analysis was designed to break those economic fetters It was also introduced during a period when environmental protection was regarded as an important political objective and when influential groups were demanding greater accountability from their politicians and more technical justification from the experts.’ (O’Riordan and Sewell, 1981a, p. 15)

Environmental legislation itself has roots in the nineteenth century and springs from two themes: a concern for health and safety provided by a clean environment; and a concern for the aesthetic (Summerton, 1989). A feature of the latter was a recognition of the psychological and emotional aspects of the environment. Although important the aesthetic has come to include a concern for nature itself, not so much so that mankind may enjoy, exploit or show curiosity, but the fact that it is a limited resource, not merely a way of securing a more cheerful existence. A further feature arising from these two themes is the dominance of the urban. Most early environmental legislation was aimed at preventing urban sprawl. This is still

a factor, but concern has altered to now include universal implications, and represents a more comprehensive and integrated approach to planning. This approach is not necessarily technocratic in nature, but it certainly represents a tendency to provide solutions at a centralised level of decision-making.

British land-use policy since the 1970s has been one of management of urban growth, and protecting areas of natural beauty. It has evolved with the twin objectives of a regard for public health and urban living, and raising the standards of new housing and business developments. In contrast, the 1980s was a period of preoccupation with social and environmental goals, increasing competition, and philosophical questions over individual mobility and personal freedom, and the concept of 'more means better' (Hillman, 1992). It represented a far more complex scenario than could have been anticipated in 1947, especially when combined with increasing influence at the European level, and a greater awareness of the broader economic, social, and environmental consequences of transport policy (Jones, 1980, p. 37). Until the 1970s the expansion in car use was considered an overwhelming good to be accommodated. This situation is no longer considered to be the case because of the cost to the environment (Grant, 1977, p. 10).

The construction of a CTRL would certainly alleviate some environmental problems associated with long-distance travel in Europe, but its provision would not confront underlying questions about the continued expansion in travel. For example, 'faster and more' are not necessarily better. Indeed, the arguments in favour of transference of traffic from road to rail could be seen to be facile. They are complementary forms and not necessarily substitutes for one another. We now make more journeys than ever before, many of which cannot be made by rail (Adams, 1990). If anything, a CTRL could merely increase the level of traffic. As a consequence, Kent would suffer more environmentally damaging traffic, and have an environmentally damaging railway. The 1990s may have recognised these issues, with a rejection of a link between economic growth and road building, but replaced it with a confused approach: an acceptance of environmental considerations, but a corresponding lack of strategic planning, despite a centralised approach to transport problems. This set of circumstances poses very difficult problems for any large infrastructure project.

One development that signals a trend towards strategic planning in the direction of the environment is the use of Environmental Assessment.

7.3.1 Environmental Assessment

The legislative procedure for the CTRL, a hybrid bill, means that the project side-steps statutory environmental provision, both in national and European contexts and rests upon 'best practice' rather than the best available environmental protection. The CTRL has only to meet environmental standards applied to other major projects. Instead of meeting strict environmental standards the environmental impact of its construction is placed against benefits for the link (Anonymous, 1995d, p. 6). Therefore, the overall environmental criteria is contextual rather than based on absolutes. The government defeated amendments to the CTRL bill calling for the use of best available environmental protection and to provide compensation for environmental damage (Anonymous, 1995e, p. 10). It was able to do so because the CTRL was deemed to be already in progress when the EU Environmental Impact Assessment Directive, regarding Environmental Assessments for transport policies, came into force in July 1988, as it was to be part of the Channel Tunnel project. This avoidance of the Environmental Assessment of the CTRL as a transport policy was achieved despite the fact that they were treated as two distinct projects with two separate pieces of legislation (Hunt, 1992a, p. 7).

The movement towards Environmental Assessment of transport policy in addition to projects is important because,

'... the appraisal of individual developments alone is of limited ability, because the impacts of a policy or programme may exceed the combined effects of individual developments required for its implementation.' (Clark et al, 1981, p. 125)

Both projects, the Channel Tunnel and the CTRL, not the overall policies, were considered separately, the combined effects of which, may be greater than if the policy itself had been assessed as a whole. In the early 1980s the government opposed the EU Directive on Environmental Assessments for all major projects, partly because it would remove discretionary powers, but also because it believed the existing planning system could cope with the assessment of environmental factors and the inevitable problem of delay (Lichfield, 1989; Haigh, 1989).

The main themes of the EU Directive on Environmental Assessment are: taking into account the effects of the environment in all the technical processes of planning and decision-making; the damage or exploitation of resources of the environment and ecological balance; the use of scientific knowledge; environmental

protection and improvement; and, bringing in all sections of society to protect and improve the environment (Lichfield, 1989). Although the use of Environmental Assessment could be viewed as providing necessary environmental protection, it also provides a mechanism for legitimating political action. Placing emphasis on these procedures, such as utilising all elements of society for providing environmental protection, represents a response to the complexity of providing large public infrastructure projects, and provides a 'pseudo-objective' legitimacy for its policy result. In this way policy reinforced by Environmental Assessment has greater legitimacy because it is perceived to be based on objective and scientific criteria. Britain eventually implemented the Environmental Impact Assessment Directive (85/337) under the European Communities Act (1972) and not as a separate Act to which they could have added to the basic requirements. In addition to its influence on environmental issues, the EU is also instrumental in the planning of rail projects in general.

7.4 RAIL TRANSPORT AND THE EUROPEAN UNION

At its inception the CTRL formed part of the Common Transport Policy (CTP) of the EU, a programme that did not develop as quickly as other community-wide projects such as the Common Agricultural Policy (CAP), but nevertheless was, and continues to be, an important responsibility of the EU. Europe is well-suited to high-speed rail link projects. However, the development of an integrated rail network, thus far, has been characterised by separate national projects (Charlton, 1994; Hughes, 1990). The CTP policy has been superseded by the TEN's which form part of the Maastricht Treaty (1992) (Ross, 1995). This demonstrates the fact that transport and land-use planning are inextricably linked, and that transport is characterised by an interplay of both local and national initiatives. It was realised that there would need to be a move away from a mere policy towards the design of an actual network. Indeed, a TEN could not be achieved without resolving problems of infrastructure within member states (Whitelegg, 1988).

Progress in rail projects is always likely to be difficult due to the differing method of planning transport infrastructure and delivering transport policies found in Britain and the rest of Europe at present. This is because investment in rail transport is heavily influenced by national policy. Furthermore, geographical location within the EU will influence the acceptance of a TEN. Britain could be

seen to be less enthusiastic because its transport systems are independent of the Continent (Baker, 1994, p. 71). A general reluctance to accelerate the development of TEN's within the EU could be due to the problem of political will within member states, or more likely the issue of cost. After over a decade since the agreement between Britain and France to construct the Channel Tunnel (itself an essential part of the infrastructure required for the rail TEN) the second part, the CTRL, is yet to be built. An infrastructure project of such a large nature will obviously produce a high level of complexity. This is also true of transport planning in general.

7.5 TRANSPORT PLANNING: A COMPLEX POLICY AREA

Large infrastructure projects represent a high degree of complexity, that reflects their cross-policy nature. Projects such as the CTRL are not only issues of transport, but of the environment, industry, employment and the like. Moreover, complexity and inter-relationships intensify as assessment of these projects is made downwards, from a European level to that of local communities. From a European perspective the CTRL is a logical part of the TEN for rail transport in northern Europe. The level of complexity arises, however, when land-use, transport, environment, social, and economic considerations are addressed, not only at the national level, but as the move is made downwards to the region of the south-east of England, through Kent at county level, and the various local communities affected by the route. At this level the CTRL may seem a wholly illogical or undesirable project. Joint decision-making and shared obligations at multiple levels vastly increases the complexity of the policy area (Ross, 1995). Indeed, complexity is provided by the very nature of the CTRL, through the fact that it is 'infrastructure-oriented'. Developments such as the CTRL have,

'... complicated the policy-making process by involving, in addition to state-run industries, actors newer to transport planning such as regional bodies and private firms, with the European Union acting as a facilitator via its TransEuropean (TEN's) initiatives.' (Ross, 1995, p. 117)

This problem represents social as opposed to epistemological complexity and is generated, predominantly, by the inter-dependence of variables within, and external to, the immediate policy area and beyond. It is also generated by an increased selection of possible outcomes, and the social complexity generated by

localisation, whereby the local interests located near to the proposed route are in direct conflict to national objectives.

Complexity in this social form is one of the contemporary issues recognised by the planning profession. Planners have to consider a number of different and difficult issues when designing and assessing planning proposals: increasingly vociferous protesters, concern for the environment and conservation, 'NIMBYISM' ('Not In My Backyard'), the pressures of economic development, the challenging of conventional or accepted scientific wisdom, the length of public inquiries, and the green-belt (Joyner, 1995; Layfield, 1993). These are some of the many issues that require consideration during any planning application and will influence the decision-making process, especially with regard to major infrastructure projects. For example, there are government departments and other statutory bodies that require formal consultation. In addition, there are groups and individuals who are consulted on an informal basis, those consulted because of their forceful objections or support of the project, those adjacent or on the proposed development site, and lobbyists representing those interests (Lichfield, 1989).

Because planning of the CTRL has cross-sector influences this has major implications for policy. At a structural level there is conflict between government departments. The Department of the Environment and the Department of Transport differed greatly in both their concept and solution to the provision of a CTRL. The former taking the view that the CTRL offered the opportunity to involve economic and regenerative considerations. The latter was concerned more with transport implications. But transport is not only an issue for government departments. Expertise is also instrumental in the provision of transport solutions. It is employed because of the complex nature of the planning process. But this adds to, rather than solves, the problem. The Department of the Environment, Department of Transport, and BR all employed consultants to justify and legitimate a particular stance they adopted during the assessments of the CTRL route. Although not strictly offering different interpretations to the same information these groups framed the problem in different ways.

Transport planning is not a policy area dominated by high levels of quantitative, technical information (although this may be the case during the actual construction of the CTRL). The complexity emerges from planning solutions at an institutional level. Government departments place a large emphasis on research and expert assessment to justify a planning solution. Extensive studies of this technical and

expert nature will serve to legitimate planning decisions, to demonstrate that all factors have been taken into consideration. Expert judgement is used to provide a comprehensive solution to planning problems. As a consequence, planning is dominated by certain expert groups. This dominance could be regarded as making the particular policy area 'non-political', not more so, as the developments in planning since 1945 would suggest. This is because any potential change in policy is impeded as evidence contrary to the norm is not accepted into the policy arena. If this were so for the CTRL this would represent a strong, positive internal cohesion between expert groups, and consensus among experts within the policy area. This situation would have implications for the exact nature of expert influence.

A further important element of transport planning is the relationship between transport planning and the public.

7.6 TRANSPORT PLANNING AND THE PUBLIC

As discussed above, the legislation required for the Channel Tunnel took the form of a hybrid bill, a method employed for the CTRL. The government was committed to a hybrid bill for the CTRL (Rudd and Batchelor, 1994), although it was originally conceived as a private bill (Read, 1989). A hybrid bill is essentially a public and government bill, but is partly a private bill as it deals with a particular interest (Read, 1989). For the CTRL the public element was international rail services, whereas the private element was the construction of the Link itself (Holliday et al, 1991, p. 41). A hybrid bill is treated as a public bill in that it relates to matters of public policy through the second reading, but petitions against it are referred to a select committee as in a private bill (Read, 1989). It is considered a method of ensuring a 'safer' passage through Parliament than a purely private bill (Dynes, 1990a). The main criticism for using this system for major infrastructure projects centres on the fact that it can discourage public involvement, because only the most organised groups or individuals will protest (Truelove, 1992, pp. 14-15). Moreover, it represents a method for government to achieve policy without the cost and delay of a full-scale public inquiry. The private bill procedure is a quirk of the British constitution. They are usually required for large engineering works that require the setting aside of general law or, for example, property rights. The system, however, has been described as a 'clumsy

anachronism', and a 'time-consuming irritant' that can lead to both lengthy and complicated proceedings, and be the subject of political sabotage (Anonymous, 1990a, p. 15).

An alternative to a hybrid bill is to undertake a public inquiry. Public inquiries are used for a number of reasons: as a minimum legal requirement of the planning process, as a public-relations mechanism, to diffuse antagonism and protests against planning proposals by providing a symbolic display, and, to legitimate decisions already made (Checkoway, 1981). A planning inquiry has more time to evaluate proposals properly, and may provide a greater chance for local participation. It may also reduce the prospect of purely political considerations being the determining factor in planning proposals (Read, 1989). However, similar criticisms to those of the hybrid bill procedure are made of public inquiries. These include the difficulty in obtaining information about planning proposals, insufficient 'knowledge' in the local area to oppose other interested parties, and, individuals deferring to interest, pressure groups, and domination by economic stakeholders (Checkoway, 1981). Thus ensuring, as in hybrid bills that only those groups with the most organised protest will have any influence on the outcome (Catanese, 1984, pp. 122-123). New rules introduced in 1989 mean that appellants must now bring their full case or what is termed 'statement of case' before the commencement of the full inquiry. This may be hampered by difficulties in obtaining information. Moreover, circumstances could alter substantially between the statement of case and the full inquiry (Gatenby, 1989). But most importantly, the public inquiry system does not officially permit debate about the policy itself. Indeed, inquiries usually deal with minutiae, yet conclusions are based more on broad assumptions about the future (Midwinter, 1983). The opportunity for members of the public,

'... to contribute to national transport policy formulation is limited. Public frustration with public inquiries must stem in part from the fact that the system appears to give them this opportunity, but in reality does not.' (Truelove, 1992, p. 148)

Moreover,

'... in a developed landscape any major works designed to benefit the public may have some adverse local effects objectors' main criticisms may be directed against government policy, and it is not a local inquiry's task to decide policy. There is no national institution for deciding transport policy that does enjoy public confidence.' (Truelove, 1992, p. 146)

The Town and Country Planning Act (1947) attached little importance to planning appeals. Yet there are now over 20 000 appeals every year, arising from 300 statutory provisions under which they may be held (Layfield, 1993). The majority of contemporary procedure is enshrined in the Town and Country Planning Act (1959). The architects of the Act could not have anticipated the increasingly complex nature of inquiries today, particularly 'major' inquiries. This complexity includes elements such as the nature and scale of transportation problems, the importance of environmental matters such as green-belt land, and the increasing use of technical and expert opinion (Layfield, 1993). There is now a wide range of experts involved in planning procedures. Planners, highway engineers, advisers to developers, advisers on planning committees, local authority inspectors and local authority technical advisers, all provide evidence at planning inquiries. However, it is often only 'official' evidence that is given credence (Clark et al, 1981). Moreover, the employment of technical language means that individuals usually defer to interest groups who employ expertise of their own in order to criticise the planning decision. (Midwinter, 1984). Essentially the problem of public inquiries is not one of knowledge gaps (epistemological problems) or ones of practicability, but one of value; that participation is more important than the issue of delay, that it is required for difficult decisions, that participation should be used to provide or collect information, and involves the inclusion of minor groups and the redistribution of political power.

Planning issues are characterised primarily by social and not epistemological complexity. The planning system neatly reflects the conditions for this complexity; the undoubtedly wide scope of any planning mechanism for large infrastructure projects, be it hybrid bill, or public inquiry, and the inter-dependency of the multiple variables. As movement is made downwards from European level to the local level in Kent, the more inter-dependent issues become, where even small collections of villages are deemed to pose electoral problems for government. A further condition is the instability and turbulence of the policy area, where variables may alter swiftly along unpredictable directions. For example, private sector involvement in the CTRL was extremely volatile. The private sector has been both an enthusiastic and reluctant partner of the government throughout the CTRL project. The current stance, despite the promise of public funding, is one of reluctance.

During the 1970s the planning inquiry system was said to be overloaded and inadequate, negative in outlook and did not permit adequate public participation. Attempts were made during the 1980s to reverse this trend, such as the hearing of many appeals in the same location, the encouragement of written rather than personal representations, informal hearings, and so on (Midwinter, 1984). In 1990, the government announced a decision regarding a review of parliamentary procedure, following recommendations made by a Joint Commons and Lords Committee in 1988 (Dynes, 1990b). This announcement made particular reference to railway bills. It was recommended that,

‘... new railway works should be authorised by draft orders made by British Rail and confirmed, if necessary after public inquiry, by the Secretary of State.’ (Read, 1989, pp. 90-91)

This proposal for change was to balance what was deemed the ‘necessity’ of reducing the burden of government, and to provide an efficient handling of conflicting rights in the management of the environment (Anonymous, 1990a). The committee recommended that proposals of a local nature concerning *interalia* railways, should be considered not by a private bill as previously, but by a public inquiry, followed by a ministerial order, and debated in Parliament with government backing, in more or less its final form (Anonymous, 1990a). In contrast to the recommendation, the legislative procedure for the CTRL took the form of a hybrid bill.

Now that general issues of transport planning and the environment have been discussed, more detailed information on the CTRL itself is required.

7.7 CHANNEL TUNNEL RAIL LINK

In France the notion of a high-speed rail link was an integral part of the Channel Tunnel considerations, in Britain it was treated as a separate issue. BR gave assurances in the mid-1980s that existing lines would be able to cope with the demands placed upon them by the proposed Channel Tunnel. When the Channel Tunnel contract was awarded there was no concrete proposal for the CTRL (Whitelegg, 1988). By separating the issues the Conservative government hoped to reduce the potential for organised resistance, as well as maintaining its general policy of minimal interference and market-led policy solutions (Gibb and Knowles, 1994; Holliday et al, 1991; Gibb and Essex, 1993). Moreover, the

government could be seen to be concerned about excessive cost. If the two schemes had been more closely linked together it could have presented the possibility of the entire Channel Tunnel project being abandoned (Anonymous, 1990b, p. 22).

The origin of the contemporary rail link was the 'mousehole', a project proposed jointly by BR and SNCF in 1979, although this did not include a high-speed link to London (Comfort, 1987; Hughes, 1990; Ross, 1995). Indeed, up until 1988 BR had come out strongly against any proposal for a high-speed link. By that year this policy had altered. BR argued that a CTRL was required to prevent the overloading of Network SouthEast. In 1988 BR published six possible routes (four produced internally by BR, one named the Thames Alternative Link International System (TALIS) route, and one produced by Rail Europe) see Figure 2 below)). By 1989 BR had selected a southerly route, close to one of the four options produced internally (see Figure 3 below). BR argued that it was the least environmentally damaging option. The proposal, in conjunction with Eurorail Limited (ERL), BR's development partner, was rejected by the government. BR was instructed to consider an eastern approach, put forward by Ove Arup, a planning and engineering consultancy. At the time, the Department of the Environment was far from enthusiastic about such a scheme. A lack of initial commitment from BR, differences between government departments, and a general reluctance by government to promote the project highlighted the ambiguous attitude towards the proposal. Because of the traditional 'love-affair' associated with railways and the British public it would seem that the construction of the CTRL would be a welcome event. However, this relationship has more to do with line closure than line construction. Many branch lines were closed down during the 1960s and it was the fear of being 'disconnected' from the national network that caused concern in many areas of the country. The relationship is also connected with public attitude towards government intervention (Hibbs, 1982). The railways became an accepted area for government subsidy. It is only during the 1990s that the government returned the industry to the private sector, and the relationship between railways and the public, could be said to have altered significantly (Hibbs, 1982; Anonymous, 1990c; Hutton, 1996).

The issue of the private sector is important. What is fundamentally different from the project of the 1970s is not the nature of the construction of either the Channel Tunnel or the CTRL, but the ideological stance of government, in the early stages,

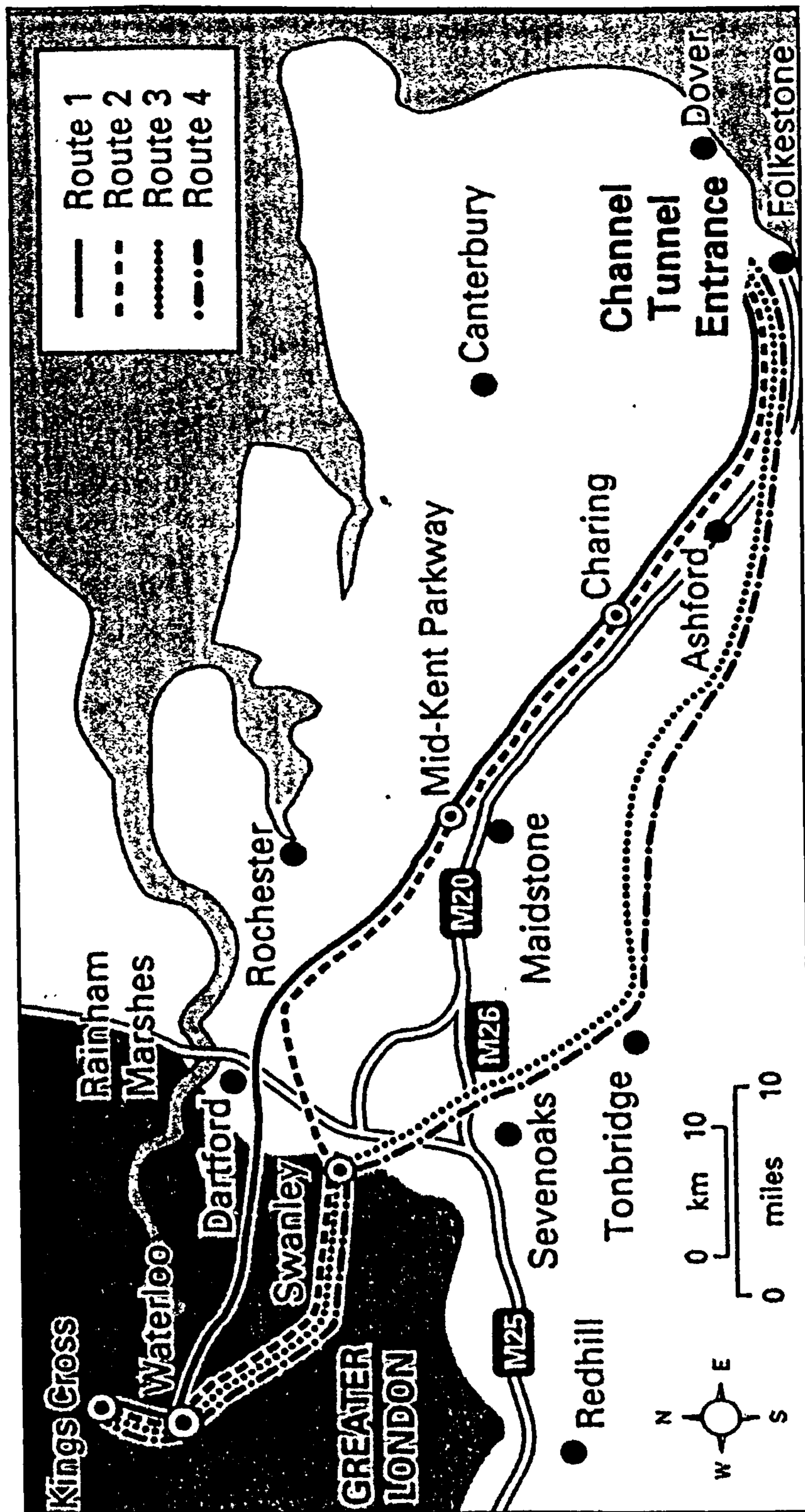


Figure 2: Four Alternative CTRL Routes Proposed by BR, 1988 (Source: Gibb and Knowles, 1994)

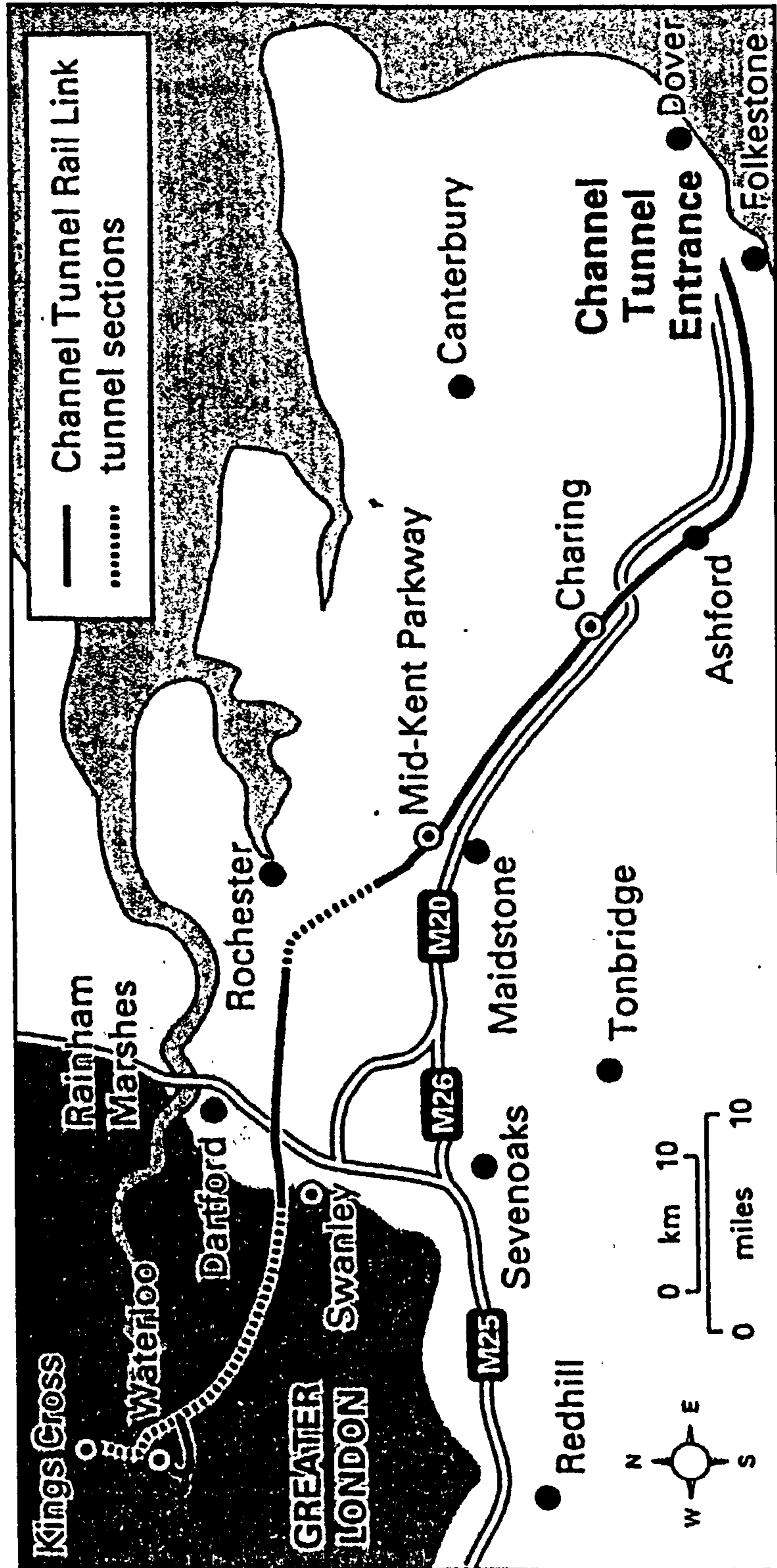


Figure 3: British Rail's Southern Route for the CTRL, 1989 (Source: Gibb and Knowles, 1994)

to avoid the use of public subsidy (Hughes, 1987, p. 150). This was in direct contrast to the link between government and railways that began in the nineteenth century, and continued well into the twentieth century (Truelove, 1992, pp. 1-10). This ideological stance results, not in the removal of political issues of such projects, but means that planning becomes increasingly politicised, a theme that has become more prominent since the 1980s (Joyner, 1995). What was evident during the 1980s and early 1990s was that policy sectors were either privatised by the government or involved in restructuring, that usually resulted in increased centralisation via regulation. The CTRL project forms part of the privatised rail network, although this does not mean that the industry has become decentralised. Regulation is still important in this transport industry. Furthermore, the industry itself may have been privatised, but the facility for its continuing development, that is, the planning system, is a public process.

The CTRL scheme, like the Channel Tunnel itself, has suffered political obstacles. Political will was far greater in north-west France to build the TGV-Nord (Trans-Grand Vitesse) than it is in Kent and the south-east of England to construct the CTRL. It is this lack of political will and the transfer to a private concession that allowed the Channel Tunnel project to drift almost into extinction in the 1970s, and for it to nearly fail in the 1990s (Holliday et al, 1991, pp. 40-41). Claims were made by BR and other interested parties that there was not enough demand to justify a new rail link, and that consideration should be given for the upgrading of existing lines instead (Hughes, 1990), even though at the time, a rail tunnel was considered the only viable technical and financial proposition (Hughes, 1987, p. 150).

To construct a Channel Tunnel without a CTRL would seem incongruous. To travel at high speeds through France and the Channel Tunnel, only to travel into London relatively slowly on lines unable to support high-speed trains would appear irrational. Indeed, in France, the decision to build the TGV-Nord would not have gone ahead without the Channel Tunnel. The completion of a fixed link across the Channel and a CTRL is seen as vital to the EU development of the Single European Market (SEM), although the proposal for a high-speed rail network has gathered its own momentum, as a less environmentally damaging alternative to air and road transport, and as a way of stimulating 'European Spirit' (CER, 1989). However, the completion of the SEM does raise a contradiction. The EU is committed to the pursuit of the SEM, part of which is a TEN for rail.

This will have serious implications for land-use and environmental planning in member states (for which there are no EU Directives). The EU is considered a normal and accepted source of environmental legislation (Haigh, 1989). Therefore, under current EU Directives, if a CTRL was proposed now it may never be constructed as it may face rejection as a planning proposal on environmental grounds.

Planning that seeks to involve environmental issues will become increasingly politicised (Friedman, 1989). Planning is understood as a technical function, but in order to secure environmental claims planning becomes more political, not more objective. Environmental provision within planning is just one element that could be considered, and so its inclusion is a political concern. A movement away from objectivity in planning proposals does not translate necessarily into a removal of expert or technical opinion. Experts operate within the planning of transport infrastructure to deal with the social and epistemological complexity, and to provide legitimacy for policy-makers. This lack of objectivity also does not preclude the existence of approximations to technocratic influence of experts in the policy area of the CTRL. This technocratic approximation may manifest itself as increasing co-ordination between expert groups, the transfer of limited powers to experts, or the ability of experts to determine the policy discourse. Therefore, as in the case of air pollution and asthma, the exact nature of expert influence is still important.

The CTRL scheme uses both the public and private sectors. This is particularly important because of the nature of the CTRL scheme, a national project with serious local implications. A lack of a national transport strategy means that it has become a project-led scheme, by private firms in a project of national worth (Farrington and Tomlinson, 1994). This places the government in an awkward position as developer, decision-maker, and environmental guardian. The environment is an important issue in projects of this nature because Environmental Assessments take place in a context of scientific uncertainty. As a consequence, Environmental Assessments lead to inconclusive scientific judgements, allied to which some interests have a more powerful influence in the policy area than others. Therefore, although expertise is located here to provide legitimacy for particular standpoints or interests, on the basis that these issues are matters of special knowledge, the prevailing power relations structure the actual conditions. Moreover, the distribution of costs and benefits for the CTRL is unequal, and

therefore any planning decisions regarding it will automatically have bias (Farrington and Tomlinson, 1994).

The environment is an obvious concern as Kent has rather unique conditions in Britain. As a whole Kent,

'... has rather more of its surface under some form of wildlife protection than the average for English counties. The White Cliffs, where the undulating surface of the Downs meets the sea, are a vital ingredient in every Englishman's mental and emotional image of his household. Combined with the south-facing escarpment, serrated by deep coombes, which runs west from Folkestone and overlooks the Weald, they constitute a landscape treasured as one of the finest in southern England. When you add to the wildlife and landscape values, the existing pattern of settlements, roads and railways, which is also conditioned by land forms, this becomes a difficult place to insert the essential works of the tunnel system.' (Ardill, 1987, p. 178)

Placing a new international rail link in such an area, even if the more romantic overtones are ignored, poses severe difficulties, made even more so by the fact that railway construction is considered a thing of the past. At less than a 100 miles long the CTRL route will pass through all forms of environment: urban, suburban, industrial and rural, providing a high level of complexity for the members of the policy area to overcome.

What is required now is a more detailed appraisal of the alterations to the CTRL route.

7.8 CHANNEL TUNNEL RAIL LINK ROUTE ALIGNMENT

A more comprehensive chronological assessment of the alterations to the route alignment is provided in Table 4 (see Appendix).

In 1990, despite being forced by the then Conservative government to consider an eastern approach to London, BR resubmitted to government its original route, with substantial environmental amendments, including a tunnel from Swanley, in Kent, to Kings Cross. This revised proposal was rejected by the government because of cost, but the government 'protected' the remainder of the route, the 35m section from the North Downs to the Channel Tunnel at Cheriton. The projected environmental costs were instrumental in ERL withdrawing from the project. ERL had been confident of an 18 per cent rate of return on investment, but by June of

1990 the projected costs of environmental provision persuaded them to withdraw from the scheme.

The southerly approaches first outlined by BR in 1989 and 1990 caused protest in both Kent and south London. At the time Kent County Council (KCC) argued that the CTRL ought to have regard to County and local structure plans. It was also during this period that many protest groups were created, such as Peckham and Camberwell Action on the Rail Link Group, and a residents group in the village of Hollingbourne which launched a campaign for the reconsideration of the TALIS route.

The rejection by the government of BR's southerly approach into London forced them to consider alternatives. BR were extremely keen to complete the CTRL project once it had been launched. It formed part of their redevelopment plans for Kings Cross. By 1991 BR was considering four possible routes into London: a southerly approach to Stratford (proposed by the London Borough of Newham), an easterly approach to Stratford (Rail Europe), an alternative easterly approach to Stratford (Ove Arup), and BR's own southerly approach. In May of 1991 BR decided that its own southerly route was the most preferable.

The environment was an important area of concern from the very beginning of the CTRL project, even more so than for the Channel Tunnel itself. In 1987 the selection of Waterloo as the main London terminal was criticised on environmental grounds, although these criticisms were rejected on the basis that the a limited number of additional daily train services would cause no extra burden to an area that endured a mainline railway station since 1848. During 1989 and 1990 both Ove Arup and BR argued that their respective proposals offered the most environmentally sound project. Ove Arup claimed that their Stratford proposal also offered greater freight and economic benefits. BR came under criticism for its selection of its own route in 1991 because of a lack of a thorough consideration of environmental issues and general environmental protests. This criticism forced the government to postpone the decision on the route until October 1991 (see Figure 4 below). It was Ove Arup's route proposal rather than that of BR that was adopted by the government in October 1991. Indecision and postponement between 1989 and 1991 over the selection of the route led to extensive planning blight over large areas.

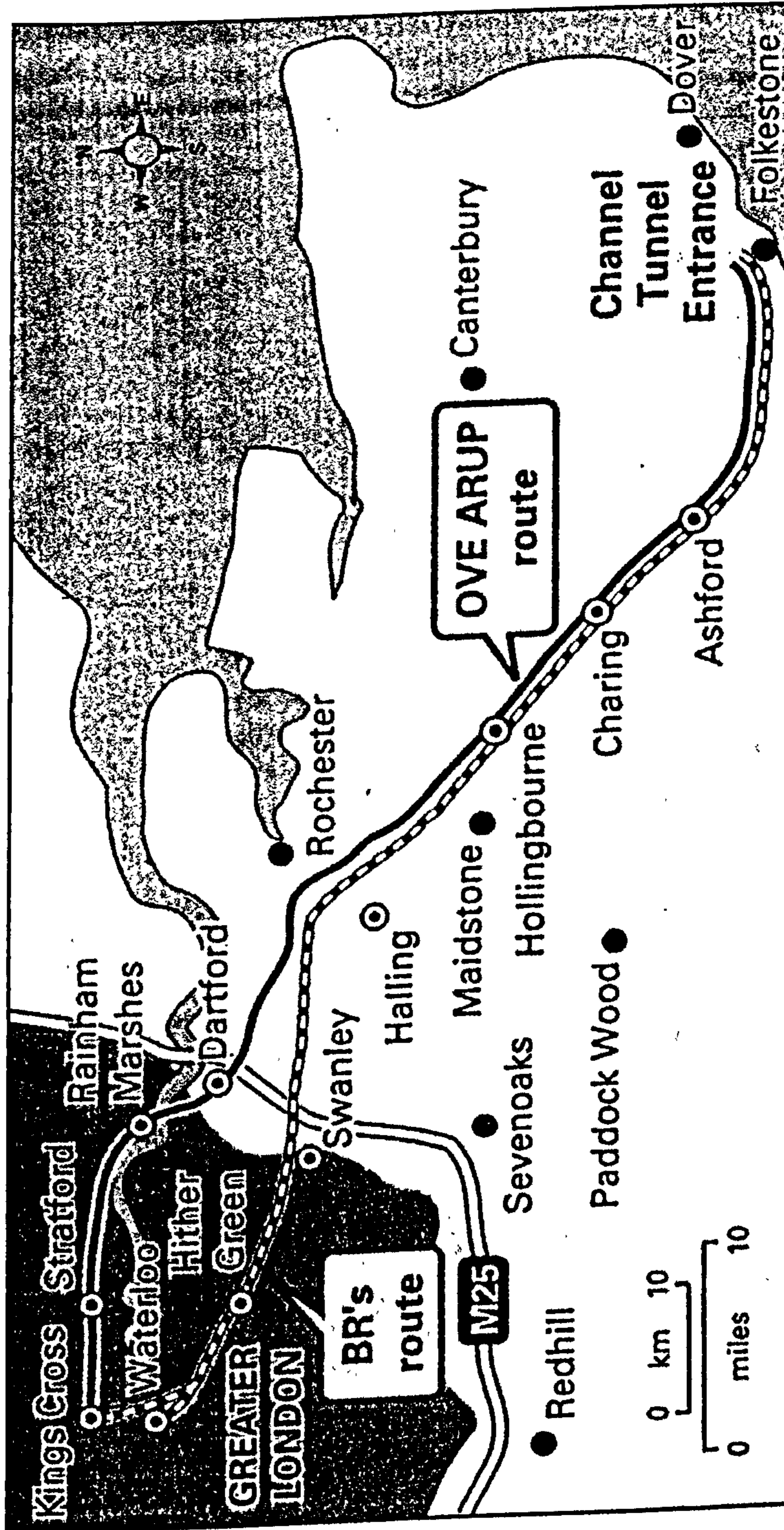


Figure 4: BR's Preferred Southern Route and Ove Arup's Eastern Approach Route (Source: Farrington and Tomlinson, 1994)

In 1992 Union Railways (UR) was created to develop Ove Arup's eastern approach route into a firm scheme. The Ove Arup scheme proposed an underground route into Kings Cross from Stratford. However, by December of that year UR had produced a proposal using the North London Line, terminating at St. Pancras and not Kings Cross, although this was rejected by BR because of legal considerations and potential disruption that would be caused during construction. London Regeneration Consortium (LRC), the developers of Kings Cross, had threatened possible legal action over the re-routing to St. Pancras. As a consequence BR returned the project to UR. This change, to consider St. Pancras above Kings Cross as the main London terminal, and an access route rather than a tunnel from Stratford, had been requested by the government because, if acceptable, it would dramatically reduce costs. These proposals, which included a crossing of the River Medway, were welcomed by commuters, but it was feared they would cause blight across large areas. Moreover, the use of the North London Line could cause major disruption during construction. It was also in 1992 that the Department of the Environment altered its stance towards the Stratford option. The Department of the Environment commissioned a report from a firm of planning consultants to assess the potential of the East Thames Corridor (ETC), along which the eastern approach would run.

By March 1993 UR had submitted new route proposals to the Department of Transport, with further reports towards the end of the year that considered intermediate stations, business considerations, regional and transport studies, and higher environmental specification. The UR reports made no specific recommendations to government. This was probably due to the fact that the Department of the Environment was considering its commissioned report on the ETC, a report which concluded that an intermediate station in addition to Stratford would be required, and that the major concern for the ETC was to ensure minimal impact of the CTRL on potential development sites if the area was not to continue to be perceived as London's 'backyard'. Following the report, the Department of the Environment established a task force of civil servants to consider plans for the ETC. Indeed, the government became extremely proactive over the ETC, (renamed The Thames Gateway in 1994). In the space of five years,

'... the East Thames Corridor initiative [had] been transformed from a response to a regional problem to a significant opportunity for the UK as a whole.' (Llewelyn Davies et al, 1993, p. 3)

UR undertook public consultation over the route published in March 1993. The government had decided to use public consultation over the two route options: the overground route from Stratford terminating at St. Pancras; and the tunnel from Stratford, ending at Kings Cross. However, although the route was not confirmed following this period of consultation, the government did confirm the choice of St. Pancras over Kings Cross as the second terminal in addition to Waterloo. This was seen as a victory for UR and the Department of the Environment over BR and the Department of Transport. The Department of the Environment was in favour of the eastern approach to St. Pancras. In contrast, the Department of Transport had supported the tunnel option to Kings Cross, and BR's original southerly route. The government also confirmed in March 1993 that the project would now be a joint public and private venture. This confirmation represented a reversal of its previous policy. It argued that this reversal was justified on environmental and development grounds, and because of the benefits to domestic commuters. The public subsidy could not be used to subsidise international services as this would contravene the Channel Tunnel Act (1987).

The 'final' route was announced in January 1994, incorporating extra tunnels to reduce environmental impact, including a tunnel into Islington, deemed necessary to prevent extensive demolition and to reduce the impact of noise on residents. Whilst presented as a final route it did not include plans for Ashford and Gravesend, which had still to be resolved. The route through Ashford proved particularly difficult. One of the two central routes proposed was to cut across eight miles of unspoiled countryside. A northern option, preferred by the government, would force the route around the town, with a spur to a new international station. A route through the town was demanded by KCC and members of the East Kent Initiative (EKI), who argued that unless a central route was adopted then East Kent would receive all the environmental impact of the CTRL without any of the corresponding economic benefits. There was also conflict over the route through Pepper Hill, near Gravesend. The residents' preference was for a tunnel under an electricity switching station. The government had rejected this in favour of selecting one of two further options: a tunnel underneath the housing estate, or a viaduct. It was not until May 1994 that a decision was finally taken on these two areas. The route was to run through the centre of Ashford, and there was to be a cut and cover alignment for Pepper Hill.

A station at Ebbsfleet was confirmed in January 1995 and it was in the same month that the parliamentary procedure was launched. The government confirmed that the project would have to meet environmental standards applied to other major projects, and argued that the economic benefits of the CTRL outweighed the environmental impact. The select committee began its deliberations in February 1995. In total the select committee met 71 times in public and heard 1043 petitions against the bill. The select committee process resulted in further alterations to the route for environmental reasons, such as a tunnel at Barking, east London, and changes affecting the Boxley valley in Kent. The final route of the CTRL was announced in February 1996. In March LCR was awarded the contract for the construction, operation and maintenance of the CTRL. The government confirmed the value of the public subsidy: £1.4bn of direct subsidy, the transfer of ownership of European Passenger Services (EPS) to take place immediately, and large areas of redundant railway land. This level of public subsidy was more than the amount requested by BR and ERL in 1990, a request that forced the postponement of the original proposal.

7.9 CONCLUSION

Even before construction has actually begun on the CTRL, parts of Kent have suffered serious imposition. The delay and procrastination has produced extensive planning blight, anger, and frustration during a seven year period. With construction not anticipated to be completed until early in the next century the whole process will have lasted for more than ten years. Various route proposals have all been claimed to be the best option on economic, transport, and environmental grounds, or all three. The Department of the Environment, the Department of Transport, UR, and BR all utilised expert and consultants to demonstrate their 'optimum' solution to the problem, particularly in terms of environmental considerations. This occurred within a political context manipulated by the Conservative government. By selecting the hybrid bill procedure it effectively removed public debate over route options, as the decision by-passed all statutory environment provision. It also prevented a discussion of the policy in general. Indeed, new EU procedures requiring Environmental Assessment of policies may have prevented the CTRL from being anything more than a proposal.

The post-1945 period up to the 1980s witnessed definite trends in planning. First, the influence of professional power on the system, and the increasing use of professionals and experts in the policy-making process. Second, specific rather than universal issues being the site of conflict. And third, a claim that planning was becoming increasingly politicised and less technocratic (O’Riordan and Sewell, 1981a). These trends became increasingly apparent following the Town and Country Planning Act (1968) which introduced new disciplines to transport planning. Planning became supplemented by sociology, economics, and statistical analysis (Sharpe, 1975). As a result experts and professional consolidated their status in the planning process, individual planning proposals became the focus for protest, and the diversification in the number of important variables in the planning process ensured its political characteristic. However, it was the claim for increased participation that led to the development of one important area of planning concern, the environment.

The dominant themes in transport planning since 1945: public subsidy, competition and co-ordination, economic growth, and the environment, have continued to be present during the 1990s. What has altered is the relative importance of each. For the CTRL all four have been prominent in the decision over the CTRL route alignment, with the latter becoming the primary concern, both in terms of attempts to prevent the CTRL altogether, or to mitigate its impact. It would seem appropriate to concentrate on the environment as that has become increasingly dominant in transport issues during the 1990s, and has been the focus for grassroots political opposition and protest. The environment also represents an area that is becoming increasingly dominated by professional and expert groups. Environmental Assessments, the most important requirement for the progress of any infrastructure project, are dominated by scientific and expert input. Therefore, rather than placing emphasis on the relative merits of the various route proposals it would be more fruitful in the context of this thesis, to examine the expert input into environmental considerations of the final route alignment. And more specifically, to assess the influence of a particular set of expert groups.

Planning is certainly more politicised than it has ever been since 1945, but that does not mean that expertise is utilised to a lesser extent. The issue of the environment, in particular, has produced a situation in which a diverse array of experts are used in transport projects. Furthermore, the expansion at an institutional level to include the EU has further implications. This centralisation of

general policy solutions, such as the TEN's, could be viewed as a tendency towards technocracy. Therefore, what requires assessment is the extent to which this has occurred with regard to the environmental issues over the route alignment of the CTRL, and whether or not the policy area reflects the dominant factors of a technocratic structure: the neglect of normative reason and an apolitical ideology. If this is not the case there needs to be analysis of the exact nature of expertise influence within this policy area and how this has been influenced by the internal cohesion of the various groups, and the nature of the political climate during the 1980s and 1990s.

The diverse nature of the policy network for the CTRL results in a highly complex policy area. A large infrastructure project of this type must take into consideration land-use planning, transport, the environment, social, and economic issues. This complexity can act as a discouragement for individuals to act, by making the policy area more opaque to outsiders, as it alters the nature of the political discourse. On the surface the CTRL would appear to be a problem of social complexity, due to the wide variety of variables involved, yet epistemological complexity is also apparent. Policy-makers are unable to comprehend objectively all the various elements, especially in the Environmental Assessment. Environmental Assessments are produced as documents of scientific certainty, yet they cover a wide variety of elements that contain expert debate and conflict. The debate within Environmental Assessments invariably surrounds not just the development of the project, but the determination of principles upon which the entire project rests, that is, the nature of the actual problem *and* the framing of possible solutions.

Therefore, what remains to be established is to assess which expert groups were co-opted into the policy process, the mandate they were supplied with by policy-makers, and the exact level of influence they exercised on policy formulation and outcomes. A comprehensive analysis of these issue within the policy area is provided in Chapter 8.

CHAPTER 8

EXPERT INFLUENCE IN THE CHANNEL TUNNEL RAIL LINK

'It must be remembered that transport is but an enabling activity, and is such but the response of individuals to the local distribution of land-use activities.'

(Russell Kilvington, 1980)

8.1 INTRODUCTION

Building on Chapter 7 this chapter examines the planning of railways in contemporary Britain, and the political, social, economic, and environmental effects of the CTRL. It also assesses the principal participants of the policy area, the nature of the complexity and legitimacy within it, and provides an assessment of the extent of expert influence. Also, like Chapter 6 it analyses the influence of a particular set of expert groups in the policy areas.

There is an argument to suggest that now a route for the CTRL has been selected the debate needs to move away from a discussion of the local environmental disadvantages, towards ensuring that the wider environmental benefits of a high-speed link to the Tunnel for all regions are seized (Bradshaw, 1994). However, because of the uniqueness of the CTRL project it would be remiss to ignore the process by which the scheme was implemented, and the implications of the CTRL for both national and local concerns.

The CTRL project has generated plenty of hysteria both in Kent and in the media. The media coverage has often been extreme in content, placing most emphasis on outlining the extensive disturbance that the project may cause. Part of the reason for this reaction has been, and continues to be, because the motoring public considers railways an uncomfortable necessity, or merely as an irrelevance to transport needs. Another reason is that environmental campaigners are torn between a desire to see traffic transfer from road to rail, but at the same time they do not wish to see the destruction of some natural habitats that will undoubtedly occur should such a construction take place. Indeed, since the 1960s,

'... many motorways have been built - the impact of which have been similar or more severe than one would expect from railways. Nevertheless, unfamiliarity with high-speed trains reinforced by new media attention causes the Channel Tunnel Rail Link (CTRL) to be treated as if it were something unprecedented in contemporary existence.' (Carpenter, 1994, p. 118)

However, it is not just during the twentieth century that railways have stirred such emotion. Railway construction did not go unnoticed, nor was it free from criticism during the nineteenth century. During the nineteenth century the objections to railways came from large landowners. In the twentieth century any new construction across urban and rural areas will have a far greater social and environmental impact than merely affecting one or two large landowners.

Two developments have characterised transport in the late twentieth century: a revival of train travel, particularly high-speed services; and, the requirements of Environmental Assessment for transport infrastructure. As a result route alignment for high-speed rail lines is a relatively new area of study. In choosing between alternatives routes and track alignments,

'... the high speeds and loads which fast, commercially attractive train services require, have to be balanced against construction and environmental costs. Evaluation of the latter in transport projects is an immature science and often leads to controversial decisions.' (Carpenter, 1994, preface, vii)

The current renaissance in rail travel has arisen because of a concern for the environment and the limits of road expansion, and the inviting prospect of new high-speed rail services competing with existing air services. Environmental awareness, on such a large scale, is itself a product of the late twentieth century. It is due, predominantly, to publicity about levels of pollution and concern about the unsustainable use of natural resources, and a right to a quality of life free from pollution. Because of these factors rail travel has been 're-discovered' by the EU as a cost-effective and environmentally-friendly alternative to overcrowded airways and highways. Yet this enthusiasm for new transport solutions, and in particular rail projects, has not been welcomed by all inhabitants in those areas affected by construction of such large-scale projects. The strong opposition,

'... to proposed HST [high-speed train] services in the south of France, southeast England, and southern Sweden indicates that post industrial, quality of life concerns often outweigh economic ones in determining rail policy, as in so many other areas.' (Ross, 1994, p. 204)

Transport is very important to national economies and as an economic and social activity. Indeed, it is the oldest and most established field of state intervention and regulation in Europe (Thoenig and Despicht, 1975, pp. 390-391). This reality is somewhat ironic as although state intervention in transport is well-established it is a relatively new area of 'planning' in practical terms, as an academic discipline, and as a profession. Planning itself has its roots in utopian thought, the aim being to provide universal solutions. Today planning seeks to alter rather than reform, and is essentially reactive rather than proactive in character (Blowers, 1980, pp. 14-16).

Planning can be viewed as a mode of decision-making or as a political process. In the former, taken to its logical extreme, it can be merely an analysis of 'what men do in the world' ('ultra comprehensiveness'). Viewed this way there is a tendency to believe that planning is everything, therefore social goals can be removed as they are implicit, and planning thus becomes a technical activity (Blowers, 1980, pp. 10-11). In reality it is usually comprehensiveness in terms of defining appropriate action for future choices and can be altered in both the long-term and the short-term.

Large infrastructure projects take time to become appreciated by affected populations (Thompson-Noel, 1994, p. 24). As is often the case, there is a large amount of opposition from residents directly affected by new intrusions into their local area. Once the project has been completed the situation for newcomers to that same area is entirely different. Moreover, the furore that surrounds the CTRL may not have occurred if the Link was to be constructed through what could be considered less picturesque areas of Britain. In France the TGV high-speed link was completed in time for the opening of the Channel Tunnel itself (Dunnico, 1996). This may have had something to do with the nature of the landscape. The north west of France certainly has a different topographical profile compared to the south-east of England.

Complexity is an obvious problem for the route alignment of any railway construction because of the inflexible nature of any such project. Moreover, the more difficult the route, the greater the environmental impact. Complexity also resides in the individual nature of environmental difficulties. This is because for each factor under consideration, such as visual intrusion, construction difficulties, and so on, there are few, if any, universal levels of acceptability. The issues are not clear cut, or the result of objective assessment. Despite this, expert input is

instrumental in determining the levels of significance of environmental factors for the route alignment. Furthermore, expert judgement is employed to justify a particular standpoint because of the social and epistemological complexity. The issues are considered to be matters of special knowledge despite the fact that they are characteristic of social complexity, rather than epistemological complexity; a result of the number and cumbersome nature of variables, not technical difficulty.

Although the planning of transport infrastructure is not new the planning of railways is not a common event in contemporary Britain. Therefore, there needs to be an assessment of the planning procedure.

8.2 PLANNING OF RAILWAYS

As has been stated above transport has a dual effect on society: as a major industry and as a vital consumer concern (Wistrich, 1983, p. 82). Therefore, it is not surprising that there is a large array of trade associations, user groups, environmental groups, and civic societies, all attempting to influence transport policies. These may be permanent organisations or they may develop around a particular issue, although large national groups may emerge from small groups concerned with the latter (Wistrich, 1983, pp. 82-83).

The 1960s reflected a systems approach to transport planning. With regard to rail provision this was seen in the re-defining of rail on consumerist and not public service grounds. Cost-benefit studies indicated that the best prospects lay in technical specialisation and international ventures, thus co-ordination increased. By the end of the 1960s the Ministry of Transport and Ministry of Housing and Local Government merged to form the Department of the Environment. The introduction of planning in the 1960s,

‘... had two effects on administrative practice. First, it became necessary to ‘have a plan’ for any policy to have much chance of succeeding in political terms. Secondly, it became necessary to consult, or to possess within the administrative machine, ‘experts’ capable of ensuring that the plans were good ones.’ (Thoenig and Despicht, 1975, p. 405)

The 1970s heralded a change in both public and government opinion about the necessity of large transport infrastructure. Prior to this period transport expansion (cars in particular) was an overwhelming good to be accommodated, and was required to ‘accommodate the pleasures of the future’ (Wistrich, 1983, p. 160).

This policy approach altered during the 1970s with the rise of the environmental movement. The improvements in international travel in terms of provision and speed were still considered to be a laudable aim, but there was a growing acceptance of the fact that there are limited areas that can be utilised for transport provision. This environmental approach was halted, to a large extent, by the Conservative governments of the 1980s and early 1990s. This period saw a re-emphasis on personal mobility, and paved the way for the resurgence and consolidation of the car as the dominant mode of personal transport, and of the lorry as the preferred method of transporting freight.

During the mid-1980s planning remained in the hands of the Treasury and the Department of Transport, and excluded regional authorities (KCC in the case of the CTRL), from planning deliberations. This was because British economic strategy was a national concern, in contrast to the regional emphasis prevalent in France. Another reason was structural-political; central government rarely provides sufficient regional-national linkages for strategic transport planning (Ross, 1995). Hence, the paucity of strategic co-ordination could be viewed as a result of the lack of a national economic strategy, coupled with the centralisation of government and planning mechanisms. During the 1990s, transport planning in Britain, along with one half of Europe (Denmark, Spain, Ireland, Portugal, Greece, Norway, and Sweden) was characterised by market conditions; demand at lowest cost and intervention where market distortions occur. This situation is in contrast to the other half of Europe (France, Germany, Belgium, Luxembourg, Italy, and the Netherlands) who adopted a longer-term integrated, that is to say, social, economic, and political perspective, and with a corresponding higher level of government intervention.

Two further themes within transport planning during the 1980s and early 1990s were the recognition of the environment as a major political issue, and the corresponding influence of the Treasury on the policy area. There was an underlying objective of reducing public expenditure. However, policies were also justified on other grounds: ideology (de-regulation within transport industries), democracy (share ownership on a wider social scale), efficiency (the private sector is preferable to the public sector); and, accountability (to shareholders rather than the public in general). Therefore, although as has been stated above, transport was a policy area that was privatised and de-regulated, there was an element of centralisation, or re-regulation. It was a new form of, and not necessarily a

reduction in, government intervention. This new form of intervention was replicated with expertise. It was the form and type that altered, not the number of groups or individuals involved, that is to say that input was geared towards political and commercial interests because of the dominance of private sector over traditional public sector methods. However, this is almost irrelevant with regard to the CTRL as the project was a political and ideological project as much as it was a transport issue, and was always going to have a firm input from central government.

The benefits of rail transport have been recognised, some would say belatedly, by British governments of the 1980s and 1990s. There was an admission from the Conservative government in 1996 of the risks of over dependence on the car and its impact on the environment. Moreover, the government recognised the need for integration between the planning of transport infrastructure and other land-use development (Young, 1996, p. 16), a recognition that has been acknowledged by the present labour government with a transport White Paper. Therefore, a new railway is required to meet a specific need or implement a long-term transport plan, which must contain other land-use considerations. Primarily, a route is selected to join two or more points as economically as possible, that is, the most direct practicable alignment. But there are also secondary targets: to provide required operating capacity and speed, to minimise construction cost, and to protect the environment. There are also separate environmental objectives: to avoid valuable features of heritage, habitat or landscape, to avoid centres of population not served by the line, to take account of regional development and land-use plans, and as far as it accords when these three, to make use of existing transport corridors or share with new roads (Carpenter, 1994, pp. 229-230).

Procedures for the planning of new railways have been brought into line with the procedure for new road construction (see Table 5 below) A draft application is made to the Secretary of State for Transport, requiring research to the same level as was required for parliamentary bills. Moreover, an Environmental Statement must accompany this. This element was not compulsory with parliamentary bills. Previously, the promoters had to consult local opinion before depositing their bills to the House of Commons. In addition, the Secretary of State could call for a public inquiry, or a formal parliamentary debate if the project is of national significance. (Carpenter, 1994, pp. 18-20; Anonymous, 1990a). Neither of these alternatives were used for the CTRL.

The inclusion of an Environmental Statement is the only significant alteration between the two systems, although consultation is now third and not first as in the old procedure. Because the CTRL is such a large project it will have effects in political, social, economic, and environmental spheres.

Table 5: Parliamentary Procedure for New Railways

| | |
|----|--|
| 1. | Draft application made to the Secretary of State for Transport, along with an Environmental Statement. |
| 2. | Objections raised by select committee, calling expert witnesses. |
| 3. | After local and detailed consultation the decision becomes formal parliamentary business. |
| 4. | Review by standing committee. |
| 5. | Debated in the House of Commons and House of Lords (initial clauses). |

(Source: Carpenter, 1994, pp. 18-20)

8.3 POLITICAL, SOCIAL, ECONOMIC, AND ENVIRONMENTAL ASPECTS OF TRANSPORT PLANNING AND THE CHANNEL TUNNEL RAIL LINK

In justifying the CTRL and the provision of any transport infrastructure, governments must demonstrate both anticipated commercial and environmental performance. Yet there are further issues in justifying solutions, such as, what is the relationship between the CTRL and other aspects of development and social planning? The understanding that the provision of new transport infrastructure might result in additional commercial development and help solve pressing social problems may help its implementation. Plus, there are the economic and political considerations. For example, will economic and fiscal measures likely to be applied in pursuit of the CTRL as a policy affect social or environmental policies? (Carpenter, 1994, p. 50).

8.3.1 Political

Planning and politics are not distinct areas, they are connected and as such, the relationship between them is more a question of means and ends. Both planning and politics can be means or ends at different times. Planning may be a means for providing policy objectives. Yet, planning may be also a policy end. The mere act

of planning could be considered the final objective. A similar dual role can be seen for politics. Politics could be viewed as a means for debating policy objectives. Yet, politics could be considered also merely the policy end. However, this is rarely the case. As has been discussed above politics and planning in policy areas are interrelated. Indeed, the means to realise certain goals may be the policy ends of others. For example, improvements in transport provision may lead to a better environment. Such political choices and directions cannot be reduced to technical, apolitical criteria. But the conviction that it is possible to,

'... make scientific judgements without recourse to values is a powerful defence against public discussion of many aspects of planning policy.'
(Blowers, 1980, p. 3)

A rejection of this defence, in general, has led to an increasing politicisation of planning. (Blowers, 1980, p. 3). This rejection of apolitical or scientific judgement may be for transport provision overall. It does not, however, prevent the use of such judgement or criteria provided by expertise as a mechanism for other substantive issues within the context of each transport development.

The nature of planning as a *political* process is enshrined in law. In 1995, Justice Harrison in *R v Hereford and Worcester County Council* stated that a planning permission is not to be set aside merely because some members of a planning committee are predisposed towards it, so long as they give it proper consideration (Ward, 1995, p. 14). Hence, political considerations have as much weight in planning as purely technical criteria. Despite legal decisions regarding the political nature of planning the emphasis of political action has been, more often than not, at a much lower level. Transport planning has certainly become the focal point of grassroots political opposition in Britain (Elliot, 1997, p. 16). This opposition has been, in large part, against expansion in road construction, but it has also been present in the debate over the de-regulation of transport industries, and successful in the partial rejection of the primacy of individual mobility promoted by successive Conservative governments during the 1980s and early 1990s.

There are also political issues at the European level. High-speed train (HST) development in Europe has been characterised by competition rather than co-operation in terms of both industries and technologies. The development of new rolling stock and the requisite infrastructure has been complicated and hindered by the reluctance of member states to co-operate on HST projects as, historically, rail networks have been state-owned. Therefore, states have been, and continue to be,

more accustomed to planning nationally rather than internationally. The enthusiasm presented by the EU is somewhat paradoxical, as across Europe as a whole, the use of rail transport has actually declined (Ross, 1994).

The difficulties of co-operation, coupled with the environmental difficulties presented by specific HST projects (in spite of general support for a High-Speed Network (HSN)) means that in the near future the planning of transport infrastructure will remain with member states (Ross, 1994). Despite this fact, a European HSN has been agreed at European level. In 1990 the European Council of Ministers adopted a report by the European Commission recommending the construction of new lines and the upgrading of existing ones for high-speed services. One of these lines was the Channel Tunnel, and the corresponding high-speed link (Bradshaw, 1994).

A further political problem for the EU is the particular nature of Britain's attitude to rail travel. The ridicule regularly directed at,

'... the government and at BR by the British Media and public, while often far overstated, is indicative of the decidedly hands-off approach of successive governments in rail policy, and provides a sobering, if somewhat atypical, example of parochial national attitudes which may never be fully overcome in spite of the EU's best efforts.' (Ross, 1994, p. 198)

At the heart of the desire for the EU to overcome the problems presented by member states is to reduce the time to travel between major centres of commerce. An HST system would indeed bring peripheral regions closer to the geographical, political, and economic centres of Europe, and serve the public interest as an environmentally-sound alternative to road or air travel. Yet, secondary rail services could suffer at the expense of concentration on HST services. Also, there are environmental arguments against an HSN which would not necessarily be applicable for all railways, for example, HST services would undoubtedly produce increased levels of noise and vibration.

The demand for an HSN is certainly political more than economic, with the primary effect being on the environment. Moreover, there is an interesting contradiction between centralisation on the one side, and devolution and de-regulation on the other. The decision of the Council of Ministers in 1991, to dismantle state rail monopolies is at odds with a desire from the EU for greater co-ordination. Indeed, the EU itself could be said to be operating with contradictory purposes,

‘.... in two different senses: by advocating Europe-wide regulatory standards while promoting liberalisation (which promises to fragment the industry); and by calling for lower railway deficits while also promoting greater HST involvement.’ (Ross, 1994, p. 211)

Irrespective of the contradictions of high-speed railway provision at the European level the most significant political impact of the CTRL results from the problem of land-acquisition. This is because the demand for transport infrastructure is based on social preference, or the preferences of industrial enterprises, rather than any *proven* relationship between transport and economic growth (Carpenter, 1994, pp. 343-347). In populated areas it is impacts on specific parcels of land which are of critical concern. Therefore, route alignment is the primary concern of the CTRL project. Any environmental damage caused by the route hinges on what is considered minor and major to the public. One person's minor scheme can be another person's environmental catastrophe (Anonymous, 1990a). The most direct route is rarely, if ever, possible. This problem is exacerbated by Kent's mixed topography; hills where only a new alignment can accommodate fast trains, and sections across flatter land where routes are already in place but the existing track is inadequate. The difficulties of route alignment demonstrate another important paradox: a consequence of avoiding large numbers of areas results in a reduction of radius curves, too many restrictions would soon defeat the objective of a high-speed alignment (Carpenter, 1994, p. 349).

8.3.2 Social

New transport infrastructure for Britain will have significantly long-term implications, not only for the economy, but maybe more so for the country's psyche (Button, 1994, p. 107). Although Britain is effectively no longer considered an island, most inhabitants of the UK will not experience any effects of the CTRL, either directly or indirectly. Therefore, the only real influence it has upon them is the fact that the combination of the Channel Tunnel and the CTRL has brought continental Europe closer to home.

The CTRL will have the socially divisive effect of splitting and separating communities. Some areas of Kent, particularly large settlements in the east of the county, are keen to accept the economic benefits that such a project provides. In contrast, those inhabitants living in smaller villages are concerned primarily with the environmentally-damaging effects of the CTRL and the visual intrusion such a scheme will undoubtedly cause.

8.3.3 Economic

Great Britain is fairly unique in the industrialised world with regard to its railway system. The majority of it was constructed without direct government involvement. In most countries transport systems were constructed in order to facilitate industrialisation. In contrast, Britain's industrialisation took place prior to the construction of the railway system. There was adequate private capital to facilitate it. This set of circumstances is unusual as the major benefit of railway systems is an indirect benefit, that is, it provides opportunities for development. A subsequent effect of supplying scope for development provides a justification for government intervention in its construction (Wolfe, 1963). Part of the justification for the CTRL was the development opportunities afforded in the Thames Gateway. As referred to earlier, despite this fact, the Conservative government was reluctant, initially, to provide public funding for the project.

Nevertheless, despite an initial reluctance on behalf of the government to construct the CTRL with public finance, LCR will receive more public subsidy than had been requested for the original route proposed by BR in 1991 (Harper, 1996, p. 19). If that had been granted by the government at the time the CTRL may now have been completed, instead the work is not due for completion until after the turn of the century. The total amount of public commitment is quite substantial. There is a £1.4bn direct subsidy, the Eurostar train service (31 trains and 2 depots) valued at £450m, and a depot in west London valued at £80m. In addition, there is St. Pancras station and hotel, plus other assets including 120 acres of land at Stratford, where a freight terminal will be constructed, the Waterloo terminal, and 120 acres of land north of Kings Cross (Anonymous, 1996a, p. 14; Anonymous, 1996b, p. 10). This level of public subsidy could amount to three-quarters of the total cost of the project. Moreover, the lease provided to LCR is 999 years, as opposed to the seven year leases awarded to all other rail franchises during privatisation and, moreover, the government decided that LCR will not be able to supply the construction without further assistance from government and Railtrack (Harper, 1998a; Harper, 1998b). However, these assets have been deemed worthless because Eurostar, under the stewardship of UR, failed to fulfil its profit expectations up to the point at which LCR took control. This interpretation of the level of public subsidy has been claimed to be the greatest piece of creative accounting of all time (Brummer, 1996, p. 16; Anonymous, 1996b, p. 10). In contrast, the initial level of private commitment for the CTRL is relatively small.

In the first instance shareholders were asked to provide £100m-£150m of equity in a project that is estimated will cost £3bn.

There is a major difference between Britain and France over the funding of large transport infrastructure projects. In France, the central government focuses its regional assistance on large projects, usually when international capital is involved. This assistance centres on the development of major cities and the region itself. In contrast, British policy is that the benefit should be spread more widely, a more difficult strategy, and certainly a more complex one to evaluate. Moreover, rather than spreading the benefit of the Channel Tunnel from the south-east of England to the remainder of Britain,

'... the proposed new high-speed rail link from the Tunnel into the east of the city [London] may actually add to the longer-term concentration of economic activity there.' (Button, 1994, p. 114)

This lack of equitable distribution of benefit is not necessarily the case for the entire region. It may depend on the relative proximity to the CTRL. Large infrastructure projects cause local concern as the 'corridor' effect may occur, whereby transport routes merely run through an area rather than contribute to it, and thus provide little economic return for the immediate locality (Ross, 1995).

8.3.4 Environmental

Environmental issues are now at the forefront of policy-making, especially with regard to transport infrastructure projects. There has been a rise in the use of environmental sustainability as a strategic policy objective. The forces of consumerism and the green lobby have sensitised the main political parties to formal environmental accountability in policy-making. However, there is a failure within project evaluation mechanisms to deliver public support and social acceptability. This failure has been prompted by the new found political power of environmental 'cause' groups with skills in research, media mobilisation, and local campaigning and education (O'Riordan and O'Riordan, 1993, p. 23).

As a result of these forces there has been 'policy integration' between the environment and various development agencies such as energy, transport, and regional development. In 1990 the Conservative government established a permanent environment policy Cabinet committee, and in 1995 the EA was established, and more recently the DETR combined environment, transport and regional affairs. This is evidence of the extensive social complexity of projects

such as the CTRL, notably, the inter-dependence of variables and subsystems, and from this, the increased selection of possible outcomes of policy. The environment is now no longer a separate element of policy, but forms an integral part of policy-making in general, and as such affects the policy-making process in many different policy areas.

A further development of the 1980s and early 1990s was the influence of science-based land management. Science-based land management influences decisions over the choice of areas for environmentally unsuitable development. It in turn leads to compensatory environmental deals. These are compensatory or restorative instruments to offset the inevitable consequences of environmental losses associated with any project (O'Riordan and O'Riordan, 1993, p. 24). For example, the choice between the provision of new stations on the route of the CTRL and new jobs versus environmental damage.

Environmental planning has been, traditionally, an area of local, rather than national government concern. Moreover, it tends to be reactive rather than proactive, and reflects and maintains the prevailing values and patterns of power (Blowers, 1980, pp. 1-2). This is indeed so with the CTRL. There is some evidence to suggest that different standards were applied in different areas of the route. The government applied strong pressure, successfully, to remove existing listed building status and appropriate planning mechanisms for the proposed St. Pancras development, whereas in certain areas of Kent, undertakings were made and honoured to dismantle and re-erect listed buildings on the route of the link (Binney, 1996, p. 44). Many other sites of ancient monuments will also be affected. Indeed it is claimed that the route of the CTRL has little regard for Kent's archaeological heritage and ancient monuments (Ashbee, 1996, p. 21).

Environmental Assessment became part of the planning process in 1988, under the Town and Country Planning Assessment of Environmental Effects Regulations. These regulations enacted the EC Directive on, 'The assessment of the effects of certain public and private projects on the environment' (85/337/EEC), adopted by Britain in 1985 (Goodenough and Page, 1994, p. 34). The central requirement is the preparation of the Environmental Statement (ES), as part of the Environmental Assessment, using best available techniques. Depending on the size of the project Environmental Assessments fall into two sections: Schedule 1, for which an Environmental Assessment is required in every case; and, Schedule 2, for which an Environmental Assessment is required if the project is likely to give rise to

'significant environmental effects'. The CTRL falls under Schedule 1. This factor was recognised by BR at the outset of the CTRL project. They commissioned Environmental Resource Management (ERM), in October 1987, to advise on environmental matters during the various stages of route planning (Goodenough and Page, 1994, p. 34).

In order to assess the level of influence of experts within the policy area, with particular regard to the Environmental Assessment, analysis must be made of the principal participants.

8.4 PRINCIPAL PARTICIPANTS IN THE POLICY AREA

Part of the difficulty of analysing the policy community for the CTRL is the two-tier planning system that exists between central and local agencies. Parliament authorises railway development, but local authorities approve construction processes, although some legislation covers construction. Therefore, the majority of the construction difficulties have to be negotiated between planning authorities and the contractors (Carpenter, 1994, p. 202).

Lack of strategic planning for the CTRL meant that in the early stages planning and environment organisations were frozen out. One exception was the Kent Joint Consultative Committee (KJCC), which established the Kent Impact Study (KIS) in April 1986. This was the only attempt by the government to examine the relationships between the Channel Tunnel and supporting infrastructure and development policy, although it had little power or influence. This lack of comprehensive strategic planning demonstrates an inconsistency by government. The government was willing to negotiate on planning implications in Kent for the Channel Tunnel, but not think strategically (or allow BR to) for the CTRL (Gibb and Knowles, 1994). A lack of strategic planning led to arguments from groups such as the South-East Regional Planning Conference (SERPLAN) and the London Planning Advisory Council (LPAC) that plans should consider the country as a whole, and London in particular. It contrasts with the treatment of rail projects in other European countries (France in particular) and the enthusiasm presented by the Community of European Railways (CER), and the EU, for strategic planning (Gibb and Knowles, 1994).

Because of the large-scale political, social and economic implications of the construction of the CTRL a vast array of agencies are involved in the development and planning process: from the European Union, which provides recommendations and Directives on transport and the environment as well as supporting transport initiatives and projects, through national governments, and local planning structures. Local authorities in areas situated on the proposed route are involved because it is through these bodies that the majority of environmental legislation is administered.

At a European level there are three issues of consideration: the regeneration effects for rail industries, the regional benefits of the new railway being sited in one location as opposed to another, and the crucial element of the Single European Act (SEA). Although, surprisingly,

'... rail policy, unlike road, air, and maritime sections of the CTP, did not figure in the Single European Act's provisions.' (Ross, 1994, p. 193)

Despite the 're-discovery' of rail in the mid-1980s by the EU, and three-fold benefits that rail HSN would provide, the impetus for the HSN project has come from multiple levels and the EU has been influenced by specific projects in individual member countries such as the TGV train network in France. The rail HSN as a policy area affects not only transport, but industrial policy, regional policy, and environmental policy. A further effect is the fact that an HSN sits uneasily between advanced technologies of new HSN routes on the one side, and old railway systems that are to be re-developed on the other. Problems of definition have even led the EU, in 1990, to establish two different speed criteria for HST systems.

The impetus behind an HST system is undoubtedly political, and to a lesser extent environmental. It is certainly not just a response to economic conditions. In Europe, rail traffic accounts for 17 per cent of the freight market and only 7.5 per cent of the passenger market for international journeys (Vickerman, 1994a, p. 10). At an environmental level co-ordination between transport systems is deemed important (Vickerman, 1994a, p. 13). Therefore, although the environment may benefit from a co-ordinated transport system as opposed to an un-coordinated one, the primary reason for EU influence is political-geographical; to bring into reach of the primary economic core of the Union the expanding borders of the less developed and new member states.

As stated above, the Conservative government adopted Ove Arup's eastern approach to London for the CTRL. The selection of this route as opposed to a host of alternatives was for a number of reasons. In comparison to the routes proposed by BR it provided scope for supplying extra capacity when needed, provided superior environmental performance, and offered extensive development opportunities in the Thames Gateway (Llewelyn Davies et al, 1993). The environmental element was considered crucial, because if the project did not meet strict environmental standards development in the area would be affected. An eastern approach to London was seen as one of the few options left to save the beleaguered London Docklands area, and urban regeneration in east London. It would also complement existing infrastructure such as City Airport, the M11 motorway extension, and the proposed extension to the Jubilee Line on the London Underground. Indeed, a Stratford interchange, an important element of Ove Arup's scheme, was viewed as vital to the future prosperity of Docklands (Houlder, 1992, p. 5). The government was concerned to rectify the imbalance between east and west London, with transport being an essential infrastructure requirement to help overcome the negative perception of the area by the public and developers (Llewelyn Davies et al, 1993).

The Conservative government used the wording of the Channel Tunnel Act to enable it to provide what was previously considered an illegal public subsidy. The Department of Transport argued that the Act did not prevent it subsidising private sector companies in the provision of the CTRL, although this would have been granted, without the need for re-interpretation of the Act, to a publicly-funded BR (Barnett, 1996, p. 1). Further subsidy was permitted because the project was one of European importance. As has been discussed above the difficulty of funding the project dogged the CTRL from the outset. The Conservative government used external advisers to generate support for the project from the private sector. Prior to August 1993 the external advisers were Samuel Montagu, then post August 1993, Hill Samuel, as a result of a re-tendering process. Hill Samuel's primary task was to proactively generate interest in the project from the private sector (Authers, 1993, p. 6). This interest was achieved, although not to the extent that was required at that time by the government. As a consequence, from being hailed as a flagship for private enterprise the CTRL was then proclaimed as the flagship for the Private Finance Initiative (PFI). The PFI aimed to encourage,

'.... joint ventures between public and private sectors to provide infrastructure traditionally regarded as exclusively public, but which also

does not offer a sufficient financial return as a purely private-sector project.' (Armitt, 1995, p. 8)

Indeed, the Conservative government eventually pledged a substantial contribution to the project, securing statutory approval via the hybrid bill. This pledge and commitment included, not only a significant financial contribution, but also an acceptance of risk,

'... [the government] is prepared to accept a share of the risks. Each risk is to be borne by the party better able to manage it.' (Armitt, 1995, p. 9)

In contrast to other European countries, Britain has unique conditions in terms of relatively extensive powers of local authorities in relation to central government. The predominant weight of operational planning expertise lies with the local planning authorities and not with central government (Sharpe, 1975, pp. 371-372).

Kent is set to suffer the brunt of all the effects of the CTRL: the prospective new development, new roads, the laying of new railway track for the CTRL itself, the negative impacts on the environment, the positive and negative effects on employment, and social and cultural impacts, as towns and communities come to terms with a major new transport project running through their area. Therefore, the role played by KCC has been quite prominent. KCC undertook a substantial reversal in policy over the CTRL in a matter of four years. By November 1993 the Council had endorsed, in principal, the majority of the route proposed by UR and Ove Arup. This standpoint was in contrast to its policy in the late 1980s when all four routes suggested by BR were rejected out of hand, and the project was considered a poor one for Kent as a whole (Wolmar, 1993a, p. 11).

KCC has produced a number of reports, most notably, the KIS (1987), and the KIS Review (1991) both produced by the KJCC, and addressed these potential impacts on the County in policy documents, the most recent of which being the Draft Replacement Structure Plan (submitted to the Secretary of State in 1993). It was submitted prior to final approval of the route. The KCC has been in a somewhat invidious position. It has had to balance all environment, social, economic, and political factors, coupled with the delay to the final announcement of the route alignment. This complex situation and delay has, at various times since 1988,

'.... affected numerous communities along different corridors in the county. Although it has been able to have an input into decisions over

the final route, it is the government's responsibility to take the decision and the County Council will have to cope with its consequences.' (Breheny, 1994, p.15)

However, although KCC was at the forefront of debate over the route alignment of the CTRL, its influence and power was limited to minimising the negative impacts of the new railway. Its influence has therefore been reactive, rather than proactive. Despite this lack of positive influence, KCC's interests were acknowledged in Ove Arup's route proposals. In their plans for the eastern route Ove Arup had to consider KCC's criteria for development of a rail link, which included demands for the use of continuous-welded track, extensive public consultation, the need for improvements to infrastructure, and the use of existing transport corridors (Carpenter, 1994, p. 233; Farrington and Tomlinson, 1994).

One district of Kent that will endure the direct impact of the CTRL is Ashford. After much lobbying from the council and local business leaders it was finally agreed to route the CTRL through the centre of Ashford rather than around it, to make full use of the international rail terminal to be constructed there. Ashford Borough Council's (ABC) Local Plan (1990) acknowledges in a only a very limited sense the Channel Tunnel and the CTRL, although a revised draft plan in 1994 places emphasis on minimising environmental destruction. Indeed, ABC 'assumed' certain issues over the CTRL, such as International Passenger Services (IPS) being run through Ashford. This acceptance could be viewed in much the same way as for KCC, in ABC having to accept major elements of the CTRL being determined by central government (Breheny, 1994). Yet, 'assumed' is not the same as 'accept' or 'welcome'. Further, there may be a disparity between the groups. KCC may well have objected in principle in the first instance to the construction of a CTRL, whereas ABC may have always viewed the CTRL and IPS as providing potential net benefit for Ashford.

Expert groups were among the principal participants in the policy process. and expertise was a crucial element in the development of route proposals. Indeed, between 1992 and 1996 the Conservative government hired 74 firms to provide advice on the CTRL, paying £72m in fees to consultants, bankers and lawyers for their services (Prynn, 1996a, p. 1). However, emphasis will be placed on the role of particular expert groups in the Environmental Assessment of the route. This advisory work was commissioned by UR. (See Table 6 below).

UR employed ERM as its independent environmental consultant. Their role was to co-ordinate the specialist environmental reports and produce, with UR, an overall Environmental Assessment, to present with the CTRL Bill. Part of the difficulty for ERM was that there were no specific standards for assessing the environmental impact of a railway development (Samuel Montagu and Co. Limited and WS Atkins Planning Consultants, 1993, p. 18), despite the claim by the government that the project should be subject to Environmental Assessment applied to other large infrastructure projects. UR used the Manual for Environmental Appraisal (MEA) (1987) for the Environmental Assessment of the route, and the Standing Advisory Committee on Trunk Road Assessment Report (March 1992) which builds on the MEA. These are provided for road assessments. There are no specific recommendations for rail projects, despite the fact that a railway route is not the same as a road corridor. Therefore, any dispute over particular variables will rely more on expert judgement in terms of issues such as 'significance' and 'effect'. Standards are not directly transferable from the standards for road construction.

Table 6: Specialist Studies for the Channel Tunnel Rail Link Environmental Assessment

| | |
|--|---------------------------------|
| Agriculture | Reading Agriculture Consultants |
| Aquatics | Scott Wilson Kirkpatrick |
| Atmospheric | Arup Environmental |
| Community | The MVA Consultancy |
| Land Contamination | Aspinwall and Company |
| Ecology and Geology | Cobham Resource Consultants |
| Historic and Cultural | Oxford Archaeological Unit |
| Landscape and Visual | Shankland Cox Limited |
| Construction Noise | Arup Acoustics |
| Operational Noise | Ashdown Environmental Limited |
| Planning | Arup Economic and Planning |
| Socio-economic | Pieda |
| Traffic and Transport | Mott Macdonald Environmental |
| Vibration (including ground-borne noise) | Ashdown Environmental Limited |

(Source: Union Railways, 1994b)

8.4.1 Ove Arup

It could be said that the entire CTRL project exists in its present form because of the stubbornness of London structural designers, Ove Arup and Partners, a firm also responsible for, among others, the Sydney Opera House, the Pompidou Centre in Paris, and the Lloyds building in London. Ove Arup deployed 70 engineers on the CTRL project (Reina, 1996, p. 2). It risked £1m of its own money to persuade the government to adopt its scheme ahead of that proposed by BR.

With their eastern approach route Ove Arup sought to minimise environmental impact and maximise development potential, and in so doing felt their scheme to be superior to BR's southerly approach. Further, they felt that the choice of route had to be based on a number of important factors: the opportunities of carrying freight to European standards, the network advantages of avoiding central London in making the link with the north of Britain, the development of re-generation sites, the relative ease of implementation (including the involvement of the private sector), and in minimising environmental impact. As a consequence, Ove Arup felt their route would provide national benefits such as assisting in the development of the regions, and would improve labour mobility, and relieve congestion on existing transport routes. For the Thames Gateway itself the route offered, for example, improved local accessibility, a focus for investment programmes and growth, and the enabling of environmental improvement. There were also regional benefits, such as modifying the geography of the region by altering relative locations, providing urban regeneration, and helping to address the imbalance of development the south-east of England (Farrington and Tomlinson, 1994). Ove Arup employed a set of guiding principles for route selection. These principles included: using existing transport corridors, minimising disturbances to settlements, and minimising visual and noise intrusion. There was no examination of planning and development control, at this stage, but Ove Arup did undertake consultation with local authorities to gauge concerns and understand objectives (Farrington and Tomlinson, 1994).

Arup Economic and Planning (a division of Ove Arup responsible for the planning aspect of the Environmental Assessment) provided a definition of significance for this assessment, as regards planning of the CTRL,

'If either of these impacts [resources protected by policy lost or substantially downgraded, and designated areas severed or fragmented] were

apparent within a local authority area, depending on the status afforded to the designated features (whether they were of national, county or local importance) and the scarcity of the resource or feature within a local authority area, a significant planning effect would be registered.' (Union Railways, 1994a, p. ii)

Arup Economic and Planning sought to gauge the importance of existing proposals, policies, resources, and features affected by the CTRL route, and the magnitude of the impacts on them. Therefore, expert groups such as Arup Economic and Planning were instrumental in determining what was meant by 'significance', and as a result, which elements of the CTRL route were significant. This factor is crucial as there is no general definition of what constitutes significance provided by the Department of Transport. Arup Economic and Planning used the Design Manual Volume II (1993) for road construction, and their own prediction methods to assess significance. Here, Arup Economic and Planning gave consideration to: the relative importance of the resource affected, whether the effect was temporary or permanent, what alternative resources are available for replacement and re-location in order to mitigate the expected impacts, the scale of change (including that resulting from cumulative effects), and, the degree of overall impact in terms of enhancement or impairment' (Union Railways, 1994a, pp. 15-19).

Now that some of the principal participants of the policy area have been analysed, an assessment of the complexity of the policy area is required. As has been discussed previously, transport planning is a complex policy area. It follows that the siting of the route for the CTRL, a sub-sector of transport policy, is also characterised by a high degree of complexity.

8.5 TRANSPORT PLANNING AND THE CHANNEL TUNNEL RAIL LINK: A COMPLEX POLICY AREA

The environmental complexity of the CTRL route alignment is concerned with the impact on the environment in its broadest sense. In general, environmental disadvantages lie in the comparative inflexibility of railway alignment. The more difficult the route, the more significant the environmental impact. Route selection,

'... is a key element in determining the impacts of railway construction on land resources. The faster the train service provided, the straighter and more inflexible is the alignment and the more significant are the environmental impacts, whilst in steep or densely occupied country,

achievement of an acceptable alignment can require substantial civil engineering works.' (Carpenter, 1994, p. 34)

Transport policy and planning is complex. It is more certain from an operational point of view what constitutes transport, but less clear what the context is from a planning point of view (Thoenig and Despicht, 1975, pp. 390-391). It is by placing transport within the social and economic environment that produces the complexity. The number and intensity of inter-relationships intensify as the area of analysis moves from community, to local, to national planning of transport (Catanese, 1974), or in this particular case, it is more beneficial to view the problem in the opposite way, from the level of the EU downwards. This interpretation reinforces the point that the route alignment of the CTRL is a policy area dominated by social as opposed to epistemological complexity. Yet, epistemological complexity does exist. For railway route selection this is derived from a number of sources. First, there is the consideration of visual impact, arising from the sight of trains, the obstruction of views by railway structures, the clash or blend with the landscape, and even the attractiveness of the landscape from the train itself. Although a route is unlikely to be altered for purely visual reasons there needs to be comparison with railways in similar scenery (Carpenter, 1994, pp. 191-192).

Any issues involving both transport and the environment results in complex policy areas. The CTRL is a case in point. There is little information that can be deemed 'objective'. This situation arises because transport itself, or more specifically, the benefits of providing particular types of transport, is a subject of theoretical conjecture, and of the imposition of value judgements. It is seen most clearly when the environmental element is considered. One person's necessity can be another person's environmental disaster. Therefore, any attempt to assess transport policy issues, and in particular the use of knowledge and expertise within these areas, has to recognise the multitude of opposing viewpoints. This is not to say that attempts are not made to provide objective viewpoints within each political or environmental stance. There will be sets of information deemed objective or factual in content. Statistical analysis of particular knowledge sets may provide the basis for particular viewpoints. From a purely transport-oriented perspective the provision of the most direct route for the CTRL would be the most appropriate. Alternatively, from an extreme environmental standpoint, no route would be desirable. The planning of the CTRL may, on the surface, provide examples of objective information, such as, noise intrusion, environmental damage, visual

disturbance, and so on. Yet, these are all open to opinion or counter-expert challenge.

A further element of complexity arises from the nature of the planning system. There are four levels to the planning system in England and Wales. At the summit there is the Secretary of State for Environment, Transport and the Regions. He or she oversees the planning system and is responsible for legislation, appeal decisions, and Regional Planning Guidance, following the recommendations of Regional Planning Conferences (such as SERPLAN). Regional Planning Conferences form the next level. The regional guidance provided by the Conferences is intended to be used by county councils in their structure plans, although this guidance has no legislative backing. These arrangements have existed in the south-east of England since 1980, but have been extended to other regions. Recently there has been the introduction of RDAs, charged with the responsibility of delivering an integrated economic and transport strategy for the regions. The third level of the planning system is provided by the county councils. County councils produce structure plans in the context of regional guidance produced by the Conferences and legislation made by Parliament. These plans are intended to provide a framework for development within the counties over a ten year period. The final level of the planning system is the district council (or Metropolitan authority). In transport policy at this local level there are three sets of actors: council members, salaried officers, and local groups in the community. Local authorities produce local plans, intended to provide a detailed basis for development decisions. Importantly, therefore, these local authorities are responsible for development control, the formal administrative system through which planning applications are determined (Breheny, 1994, pp. 7-8). Therefore, a transport project will have planning regulations and standards at four levels of government.

Complexity also arises from external influences and constraints on the policy area. These can come from factors such as electoral power. For the CTRL, this has been national rather than local. There were disparities between the two main political parties, Conservative and Labour, on CTRL policy. Although not directly translatable from national party to local party these policy differences will have effects at local level. A second factor is special interests. Environmental groups have had much overt influence in transport planning, although the participants are usually limited in number and co-opted into the policy process by government.

This situation has been evident during the last two years during which time there has been an increase in the level of direct action taken by environmental campaigners, particularly with regard to new road construction. A third external influence is the tension between central and local government. For the CTRL this was apparent between central government, Kent, and other UK regions. The two-tier planning system in essence reduces the power of local authorities, and because of this it can prevent rather than promote the implementation of policies. There are also existing policies and resource constraints. Central government has to balance many variables in addition to purely transport policy concerns. For Kent, the issue of the CTRL may be a more dominant factor in their planning priorities. Finally, there is the constraint of implementation. It is vital to have the co-operation of other organisations in the policy area to facilitate effective implementation of policy. With it, it is a powerful resource, without it, it is an undeniable constraint (Blowers, 1980, pp. 29-36). Most of the objections to the siting of the CTRL have been on environmental grounds (Bradshaw, 1994, p. 27). This presents an intriguing problem for environmental campaigners and transport planners in an era of environmental concern over the increasing use of motor transport and a re-emphasis on rail provision. Protest has come from all areas, and not just in terms of re-siting the route, but to have the project abandoned altogether.

Some of these issues discussed above form part of Environmental Assessments, that are now mandatory for infrastructure projects such as the CTRL. Environmental Assessments should lead to decisions that are considered competent and fair, allow consultation and participation by affected parties, and accomplish goals at the level of least costs. Yet, in reality Environmental Assessments operate in a context where scientific uncertainty surrounds the consequence of projects. Conflicts occur amongst the users of the resources concerned, with some interests having a more powerful influence on resource allocation than others, and where the distribution of costs and benefits is unequal (Farrington and Tomlinson, 1994). This set of circumstances produces more complexity as fundamental decisions may be challenged, not just the specifics of the planning decision. Therefore, despite the increased use of expertise, the level of certainty does not necessarily increase correspondingly.

The political, environmental, and economic considerations of the CTRL makes the policy area complex (Truelove, 1992, p. 137). The economic consideration is of lesser importance to the complexity in terms of planning, but more so in terms of

general political considerations. The many alternative route alignments have placed emphasis on environmental consequences, and concerns over the decision-making process have been expressed (Farrington and Tomlinson, 1994). This is because, in terms of individual route alignment to define broad corridors, these procedures are more a product of best practice than statutory procedures as those applying to road schemes (Farrington and Tomlinson, 1994).

The methods employed to reach transport policy decisions have become increasingly more complex in order to meet the demands of the planning process. A process which has resulted in transport planning developing a complex technology and professional practice (Wistrich, 1983, pp. 73-74), because, beyond the issues of defining broad corridors the complexity increases as more local issues become part of planning considerations.

These issues, therefore, are the primary elements of the complexity. What is required now is a more detailed account of this complexity for the CTRL.

8.6 TRANSPORT PLANNING AND THE CHANNEL TUNNEL RAIL LINK: NATURE OF THE COMPLEXITY

The essence of land-use planning in Britain is the re-design of the existing urban environment, an underlying aim that has two implications. First, planning, because of the landscape, is complex in Britain, therefore this re-design is difficult both technically and politically. Second, despite these difficulties, the public acceptance of the necessity of planning is quite high (Sharpe, 1975, p. 329). There is a general tradition in Britain for government intervention. Planning is one such area of intervention, although the extent and nature of it may alter over time. Currently, debate surrounds the benefits or otherwise of a strategic approach to transport planning and the appropriate institutional mechanism for its delivery. Moreover, the CTRL poses problems on an environmental level as there is no environmental standard transferable from roads (Breheny, 1994).

These factors resulted in a highly detailed and complex hybrid bill for the CTRL. Within it many pieces of existing legislation were disapplied and replaced with 600 contractually binding understandings and agreements, including a heritage deed agreement, The Planning and Heritage Minimum Requirements' between the promoters (LCR), English Heritage, and Camden, the local planning authority for

St. Pancras (Amphill, 1996, p. 17; Kennedy, 1996a, p. 8). The CTRL bill, as approved in the House of Lords, included the removal of all normal conservation controls at St. Pancras station, a Grade I listed building. There are vague guidelines for St. Pancras, but the bill denies the government the right to insist on modifications if the plans raise serious heritage concerns (Hunter, 1996, p. 21). This may be because of a combination of the Conservative government's PFI to remove regulations, and a relatively weak Department of National Heritage in comparison to the Departments of Transport and Environment at the time. English Heritage had petitioned the House of Lords Select Committee to amend the CTRL bill to include protection for the listed buildings on the St. Pancras/Kings Cross site (Kennedy, 1996b, p. 4). However, the House of Lords Select Committee wholly endorsed the planning agreement (Shaw, 1996, p. 10). This could be seen as an attempt by government to reduce the complexity of the planning difficulties. Alternatively it could be portrayed as an opportunity to challenge proposals (albeit to a small degree). But it would probably be the first concern that is nearest the truth. It would not be surprising for a government intent on implementing deregulation and the PFI (Worsley, 1996, p. 22).

Europe's HSN is being constructed across highly-populated countryside in northern France, Germany, and south-east England. This area of Great Britain, with its variable topography (hills and valleys), ten per cent or more of woodland, as well as irregular distribution of hedgerows, trees, together with villages, and pockets of urbanisation and various corridors of transport infrastructure, may pose more problems than probably any other region within the proposed HSN. Indeed, railways,

'... from London to Dover and the continent have never been wholly satisfactory, either in performance or capacity. This is partly due to the difficult topography associated with the attractive scenery.' (Carpenter, 1994, p. 311)

Therefore, actual route selection for a high-speed link will be a compromise between scenic protection and accommodation of high-speed practicality, with reference to specific, primary environmental concerns, such as the avoidance of protected natural habitats, and local individual objections on social, economic and political factors.

Allied to the problem of visual intrusion is nature conservation, heritage and amenity. For example, in addition to nationally designated conservation areas

some have been recognised at lower levels. Kent's Sites of Nature Conservation Interest (SNCI), assessed by the county Wildlife Trust and recognised in local authority plans cover, among others, ancient woodland and grasslands. Because of the complexity,

'... and variability of conservation resources, their sensitivity to interference by transport infrastructure and the significance of any loss can only be determined by expert assessment.' (Carpenter, 1994, p. 248)

This highlights a very important point discussed above. Apart from noise thresholds there are few universal levels of acceptability for environmental dis-benefits in transport construction or use. Therefore, ultimately, political decisions on public acceptability are the compromises produced by professional advisers in the final decision-making process (Carpenter, 1994, p. 23). This is the important aspect of epistemological complexity. Attempts at objective assessment cannot be made without recourse to, and influence from, the particular social and historical circumstances. The 'best' solution provided by experts is a result only of the decision-making process as regards transport and the environment. There are, however, other environmental choices that may not be considered, an absolute embargo on unacceptable solutions, or acceptance of negative impacts whilst enhancing positive environmental benefits (Carpenter, 1994, p. 24). This means that the emphasis is placed on mitigating environment damage rather than promoting the economic and financial benefits.

The CTRL has also been affected by the inconsistency of the policy adopted by the Department of Transport. There was constant criticism of BR, especially in the early years of the project. This inconsistency made the production of a financially, politically, and environmentally-sound route to be almost impossible (Goodenough and Page, 1994, p. 28). The market-led criteria adopted could also be perceived as an excuse for policy inactivity.

Another important planning issue is the problem of environmental and economic development associated with projects of national worth. The local region is expected to bear the brunt of a national project and suffer all of the environmental impact. Therefore, the CTRL provides a classic example of national versus local interests. This could be seen as case of 'NIMBYISM'. However, the CTRL is more complex than that. Much of the concern,

'... about the rail route is due to lack of experience with which to compare likely effects.' (Breheny, 1994, p. 24)

In this way the policy area is presented as a matter of special knowledge because of the inherent difficulties posed by the uniqueness of the problem. This does not result necessarily in an increase in the level of certainty, but instead produces the required effect of legitimacy; the development and reinforcement of trust in policy-makers to formulate acceptable solutions to policy difficulties.

A thorough examination of the complexity of transport planning in general, and the specific difficulties of the route of the CTRL in particular has now been made. What remains to be assessed is the level of expert influence in the policy area.

8.7 EXPERT INFLUENCE ON POLICY FORMULATION AND OUTCOMES

The exact nature of the complexity of the CTRL policy area has been examined in detail above. What is now required is an assessment of the exact nature of the influence of a particular set of expert groups. This section addresses why particular groups were co-opted into the policy area and the level of mandate they were provided with. In order to describe the level of expert influence two elements of the complexity will be examined: landscape and visual impacts of the CTRL and the effects of noise.

8.7.1 Co-option of Expert Groups

Policy advisers and experts have been incorporated into the decision-making and policy-making process in a number of different ways. As has been discussed above the co-option of professional and expert groups has often been made central for certain functions. They are granted jurisdiction or provided with a level of mandate in a particular policy area. Seward (1992) shows how this level of co-option can be tested empirically. In contrast to the case of air pollution and asthma, there would appear to be no significant debate between expert groups in the policy area with regard to environmental issues, all groups involved in the Environmental Assessment employed similar definitions of significance. Moreover, this is not surprising as all had a common focus, but with very different remits. As has been stated above, the exact nature of expert influence is dependent on both the internal cohesion and consensus of the expert groups, and the nature of the political climate. It would appear that there is a positive consensus on what is known, or in this case, what the solutions should be, and also a strong cohesion

between expert groups. The level of co-option is high, encompassing all three types, ideological, psychological, and institutional. Ideological co-option because there is a cultural acceptance of planning itself. Psychological co-option because expertise has been instrumental in using and reinforcing words and symbols in the determination of policy. And institutional co-option because there has been a formal incorporation of groups into the policy area.

The reason that experts were co-opted in to the policy area is two-fold: complexity and legitimacy. The ES, a compulsory mechanism required for transport projects of this magnitude, is a highly complex and detailed document. Using 14 expert groups under a co-ordinating group of ERM, simplified the complexity, and simultaneously provided an 'independent' legitimating focus for the work. This independence was highlighted by the then Conservative government during the debate of the bill for the CTRL. The expert groups were selected because of their experience and standing within their particular disciplines. Using one consultancy to co-ordinate the specialist reports made logistical sense because of the vast array of analysis involved in the Environmental Assessment.

It can be seen that experts involved in the Environmental Assessment process were provided, therefore, with an extensive mandate, a comprehensive wide-ranging remit to provide advice for a key area of the project. ERM and the other specialist groups held prominent positions in the policy process, characteristic of extensive mandate, although unlike for air pollution asthma expert groups have secured a permanent position within the policy area. The entire Environmental Assessment was delegated to expert groups in the first instance as would be expected.

8.7.2 Reflection and Shaping of the Complexity

As has been shown transport infrastructure is a complex policy area and as a consequence the CTRL is also a complex policy area. It reflects both types of complexity: social and epistemological. Social complexity is apparent because of the very nature of planning. The Environmental Assessment sought to side-step this issue by providing an independent and objective assessment of the problems. The very nature of the Kent countryside provides a complex situation for the Environmental Assessment and the CTRL. The Environmental Assessment sought to simplify these problems, by providing a document of trade-offs between, for example, visual impact and high-speed practicality. This trade-off was reflected in the complex tension between planning authorities. The

Environmental Assessment provided the mechanism for the government to push through government policy - the detailed dispute over design and implementation will be forced on to local government at a later date.

The same situation is apparent for epistemological complexity. The common methodology framework on the relevance and importance of 'significance' sought to provide a simplification of the epistemological complexity - this was very important for formulation of policy, but as will be shown below a lack of challenge in subsequent debate meant that it had heavy influence on policy outcomes.

At this initial stage, therefore, their dominance was assured. Their appointment was not only a response to political necessity, but also because of practical purpose because of the complexity of the problem. Fourteen separate areas of the ES required different sets of specialised knowledge. This comprehensive approach reflected the level of complexity of the Environmental Assessment. However, unlike for air pollution and asthma there was no disagreement between groups over particular areas, and so the impact of the expert groups in this respect was to reduce the level of complexity in the first instance and provide a model for subsequent debate.

8.7.3 Extent of Expert Influence on Policy Formulation and Outcomes

The scale and complexity of the Environmental Assessment for the CTRL necessitated a detailed approach and was split into the 14 studies as shown in Table 6 above. Moreover, a common methodology was required to ensure common definitions on impact and effect. All of the studies considered four elements for the Environmental Assessment: the physical change to environmental or other factors under investigation; environmental receptors; people or uses of places of employment or recreation, such as dwellings and housing systems; environmental resources, elements essential or of value to the functioning of human and natural systems, including areas of landscape, cultural or historical value; and finally, effects, the consequence of impacts on particular receptors or resources.

A uniform approach was adopted for each specialist study and assessed under the headings of construction activities, permanent landtake and operations of the railway, as relevant (ERM, 1994). The reports sought to assess the negative

effects on the environment of the construction of the CTRL and any unintentional positive effects of a temporary or permanent nature, and whether they are direct, indirect, primary or secondary.

The environment was used as a backdrop for the policy of the CTRL from the outset, and this was confirmed during exchanges in debate of the CTRL Bill. The Government confirmed that environmental consultants had been employed during consideration of the environmental issues of the route alignment (Hansard, 1995). In addition, the committee process was long and extensive. It was the longest running committee for a hybrid bill and it sat for twice the number of occasions as the committee that considered the Great Western Railway. As a consequence, the environmental parameters formed the basis of the debate and those on the government benches highlighted the fact that it provided another criterion for the use of public funds. In the debate the government argued that the link had been assessed in a 'thorough and independent manner' (Hansard, 1995). This demonstrates to the public the attempt by policy-makers to provide an objective analysis of the environmental issues. This factor was reinforced in the select committee proceedings. The ES ran to some 40 volumes and the government felt it necessary to point out the fact that it had been graded 'A' by the Institute of Environmental Assessment (House of Commons Select Committee, 1995). Similar comments were made when the Bill moved to the House of Lords in the debate during the second reading, that the ES had been produced by experienced experts (Hansard, 1996d, p. 811).

It is recognised in the methodology adopted by ERM that there is difficulty in predicting the exact outcome of effects on the environment. Where this is apparent these areas are given 'commentary status' rather than full assessment because of insufficient detail in the project design, or because of difficulties of accurate prediction of outcome. Professional judgement of experts in the individual studies are used in this matter.

It has been argued extensively above that expert influence may operate at a systemic level via the multiplier effect (Benveniste, 1973), through the symbolic use of experts and symbols (Habermas, 1976), and the permeation of a professional social ideal (Perkin, 1989), a perception that advice is provided on a rational or objective basis and supportive commitment of policy to create a belief that the policy based on this advice will become a reality. In this policy area experts operated with a formal level of influence.

For policy formulation we can ignore technocratic influence and servants of power. Political factors are present so technocratic influence is not apparent, but the level of influence is beyond that of servants of power. Expert opinion performs a key role for policy-makers. It is not just used to justify or validate political opinion. The Environmental Assessment was initiated to supply information that was previously unknown. For policy formulation experts, via the Environmental Assessment, had formal influence as the Environmental Assessment formed the central ground for policy formulation and set the parameters for discussion in Parliament and beyond. There was a delegation of power to experts here, a characteristic of formal influence and because this is a relatively new area of policy there is also a cultivation of a relationship between experts and policy-makers. But perhaps the most important factor is the relative centrality of expertise in the policy process, which is undoubtedly the case.

One element of formal influence, duration, is not apparent here as it was for air pollution and asthma. It has been argued above that both centrality and duration need not be present together for there to be formal influence. The issue of duration is less applicable in this instance than it is for other policy areas because it is a unique development. The Environmental Assessment formed the cornerstone of the environmental considerations of the route, and of the route in general, and so formal influence can still be ascribed to expert groups in this instance.

As has been discussed above, placing the emphasis on expert groups and individuals reinforces the role of ideas as a motivating force in policy, and moreover, governments react to growing consensus and the subsequent momentum created by it. It does not need to be publicly motivated for consensus to have influence. The normative affect is that this approach can lead to efficient policies and consolidate the power of experts and they become influential in setting future policy agendas.

For influence on policy outcomes, however, the situation is a little more complex. It is obvious that for some elements of the Environmental Assessment political factors were more important than others. Economic and political considerations are present, for example, in determining the site of intermediate stations. Therefore, on these issues influence on policy outcomes is only of a moderate level. However, for some of the issues of the Environmental Assessment there is formal influence. The considerations of the selected committee did not cover all 14 areas of the specialist case studies. There are no discussions, for example, of

atmospheric, agriculture, aquatic, or land contamination effects. This is because the process is guided by the petitions placed against the bill, and these focused on two areas in particular: landscape and visual impacts, and noise, with other areas receiving limited attention. Underlying these petitions were the twin issues of planning blight and appropriate mechanisms and levels of compensation. Heritage and cultural issues also received a large amount of attention, but this was when the process had moved to the House of Lords. Evidence from the promoters about, for example, ecological effects, were 'accepted' by the select committee over and above protest from Kent Trust for Nature Conservation on disruption of wildlife habitat (House of Lords Select Committee, 1996, p. 8). Therefore, for some elements of the Environmental Assessment expert input was central and definitive, whereas for the remainder other factors were more important. Despite the fact that there was a delegation of power to expert groups in all of the areas of the Environmental Assessment formal influence cannot be ascribed to these groups in all areas.

The level of expert influence falls short of being technocratic influence for two reasons: experts are not provide with a remit to implement policy; and, they have not secured a permanent position in the policy process. In reality this latter element is harder to assess, and is linked to the issue of duration, because experts do enjoy prominent positions in other areas of environmental policy. Any firm conclusions about this are beyond the scope of this thesis.

As discussed above route selection is a compromise between scenic protection and high-speed practicality. The debate on what or what should not be protected was informed, not only by public consultation, but as we have seen, by the Environmental Assessment process and consideration during debate in Parliament and through the committee stages.

The government had hoped that the select committee not consider issues of route selection beyond the construction envelop already designated in the bill. During the debate on the second reading an amendment was tabled which would have forced the select committee to do so (Hansard, 1995, pp. 463-464). The government claimed that it was unnecessary due to the environmental rigour and consultation process undertaken for the ES. An unsuccessful vote to force the committee to consider additional matters could have made the committee to do something that it does not wish to do, that is, not consider issues beyond the envelop because it should follow the will of the house. The amendment was

eventually defeated and despite the government's calculated gamble, the committee ignored the 'will of the house' and considered matters beyond those contained in the bill and the ES!

The specialist study of the Environmental Assessment on landscape and visual effects sought to develop a baseline approach for the quality and character of the resource affected, predict the magnitude of impact, and assess significance of the effects of these impacts (Shankland Cox, 1994, p. 105). Part of the methodology for assessment of landscape and visual impact used subjective assessment, taking its cue from a methodology developed by the Countryside Commission, both objective and subjective (aesthetic) factors were incorporated into some of the assessment.

The assessment of landscape and visual intrusion lies at the heart of the environmental considerations of the route. It is the most obvious and high profile factor. As a consequence, the assessment of the impacts on this area is both complex and detailed. One or two examples can serve to illustrate the impact of expert influence. One such example is that of the Boxley Valley area of Kent. The ES stated that the link would have severe impact on the Boxley Valley, a reduction in landscape quality and woodland habitat, in addition to severing historic park land (Union Railways, 1994b, p. 18). During the reading of the bill an amendment had been proposed to run a long tunnel under Boxley Valley. It was rejected by the government because it was felt that the cost of providing a tunnel outweighed the environmental benefits. This option was put to the select committee, along with two further options: a lower alignment of the track negotiated between the Department of Transport and Maidstone Borough Council, and a third option representing an even lower alignment. Option two was adopted by the committee, accepting expert evidence presented by UR about the poor drainage offered by option three, above the evidence provided by local councils on the same issue (House of Commons Select Committee, 1995).

A number of other tunnelling issues were dealt with by the committee. For example, it accepted the promoter's contention that no additional tunnelling was required for Ashenbank or Cobham Woods (despite the park area being Grade II listed). The committee did overturn decisions on extra tunnelling at Barking and for a viaduct at Mardyke Park, the former to prevent noise to properties, the latter because of visual intrusion to properties (House of Commons Select Committee, 1995, pp. 17-23).

The issue of the Boxley area was re-examined during the select committee stage in the House of Lords in October 1996. The options available were to the committee: the mid-Kent long tunnel, rejected because of cost by the Commons committee; the original reference design (option one); and, a further two options (two and three), that were lower alignment than the reference design. During the proceedings of the Commons committee a consortium of councils in Kent had argued for the long tunnel, but because of the delay to construction and inevitable effect of blight KCC now favoured option three (Maidstone Borough Council still argued in favour of the long tunnel). The House of Lords Select Committee overturned option two approved by the Commons committee and replaced it with option three, because it offered greater environmental benefits than option two with little additional cost in comparison to the entire project (£6m). They favoured the environmental argument of KCC despite claims by the promoter over drainage, evidence which the Commons committee had accepted (House of Lords Select Committee, 1996, p. 7).

Probably the most contentious area of debate for the environmental impact of the CTRL has been over the level, impact and effects of increased noise, both during construction and operation of the Link. The issue of noise was an important feature of the debates of the select committees in both chambers. It was decided in the Commons committee to consider only matters of operational noise and to leave the issue of noise generated through construction to the House of Lords, to allow more time for negotiations between the promoters and the local authorities.

The Commons committee accepted at the outset that they could not make a successful contribution to what was described as a highly technical debate on noise impact. As a consequence, they accepted the ES and the undertaking of the promoter to consent to improvements if estimations provided by them about the noise of trains were exceeded. The bill provided the opportunity for local authorities to pursue the issue of operational noise under its own schedule. Local authorities, in fact, had joined forces to dispute calculations used by UR on the route (16 London borough and Kent councils, including the KCC). In this case the expert group set the parameters for the political negotiations.

The select committee accepted UR's calculations of actual and average noise levels, with a political judgement that if regulation was altered it would be necessary to review and revise all noise regulations in a national context for both road and rail. It had already been noted during the debates on the second reading

that calculations were made on weekday traffic, when in fact, a passenger railway could be busier during the weekend. Moreover, actual levels were accepted by the committee, when in fact, future environmental knowledge and traffic increases means that a more flexible approach may have been more appropriate.

During the proceedings of the select committee the councils also challenged UR on noise created by the higher than average speeds of the trains to be run on the track. The committee pushed another contentious issue over noise to the local planning authorities. Councils, advice provided by their own experts claimed that because the ES presented noise levels in overall terms, trade-offs between visual intrusion and noise levels would be made. The committee sided with the promoter and the ES on this issue doing so on the basis of the promoter providing an undertaking to ensure that overall noise levels did not exceed those specified in the ES (House of Commons Select Committee, 1995, pp. 25-28).

In addition to operational noise at ground level there is also the issue of groundborne noise and vibration from trains as they pass through tunnels. The committee heard expert evidence from both the promoters and petitioners that varied greatly in calculations (by as much as 8dB in some instances). It was agreed that further discussions between all parties would continue and that the promoter would use best practicable means to reduce noise levels. One option was to have recommended 'floating-track slab' to reduce noise levels - an idea rejected by the Committee as it was based upon technology unproved in London tunnels. However, this was factually incorrect, highlighted by the Lords committee, who stated that they had been used in tunnels under the Barbican for over 30 years. However, as the issue was not petitioned in the Lords they did not consider it and assumed the issue to have been resolved. As it turned out the Lords committee, ruled in favour of the promoter, convinced by the arguments of the promoter that sufficient safeguards would be incorporated (House of Lords Select Committee, 1996, p. 9).

It is obvious that the ES cannot be a totally detached assessment of the environmental implications of the CTRL. If this were the case then it would provide for a tunnel to be built from Folkestone to London at extortionate cost. In contrast, the ES represents a combination of the 14 specialist studies assessing various types of impacts and effects of the Link. What is interesting is that the ES contains elements that move beyond those traditionally associated with the environment, to include social, economic and community impacts. The

Environmental Assessment and the ES represent the parameters for the construction of the CTRL. It is a railway that could be built and so the focus of debates in the House of Commons and House of Lords committees was on mitigation - the vast majority of petitions against the CTRL were concerned with noise and compensation claims for blight. The ES represented a rational and cohesive attempt to simplify the complexity posed by the CTRL.

This section has highlighted the influence of a particular set of expert groups on policy formulation, in this case the formulation of the ES and process for the Environmental Assessment, and the influence of the same set of expert groups on policy outcomes, in this case on the debates within the select committee process and the enactment of policy into legislation. The ES highlighted scientific difficulties as well as practical problems in assessing impacts and effects. As has been shown, the select committee did not possess the appropriate skills to enter debate on some of the issues, highlighting a further factor that they were dictated by the petitions placed against the bill, mainly for mitigation for noise and blight. A number of issues were not discussed to anyway near the same degree, such as scientific analysis on atmospheric, implications, aquatics, and land contamination they received little, if any, attention in committee and were passed unchallenged. Economic and social impacts and community impacts also received scant attention - mainly because of the lack of petitions in this area. Local authorities, for example, would have been adequately placed to petition against the economic and social effects of the CTRL on local employment and housing markets. But they quite rightly would have realised that the CTRL could also bring benefits. What has been shown is that for some areas of the Environmental Assessment political, social and economic factors were as important as the technical. Formal influence of expert groups is certainly present in terms of policy formulation, but for some of the policy outcomes the influence is only moderate; expert input was not definitive for the outcome.

Within this case study experts operate as more than servants of power and instead have an extensive mandate which translates into formal influence for both policy formulation and policy outcomes. This is because there is an emphasis on technical solution with regard to environmental issues, and a delegation of power to experts in this area, although as we have seen political and economic considerations of some areas of the Environmental Assessment meant that this influence was only at a moderate level. Therefore, for some elements if the

Environmental Assessment political and economic considerations were more important and moderate influence would be a more accurate description for experts here. Duration is not as important an element in this policy area as it is for air pollution and asthma. Dependence and definitive input are the more important characteristics of formal influence in this instance, and this is why for the majority of areas formal, rather than moderate influence can be attributed to expert groups. Despite the fact that in some of these instances developers used their own expert groups to legitimate a stance it was a political judgement by the committee. Expertise has been instrumental in determining both the nature of the environmental debate and subsequent legislative alterations. The concept of legitimacy is also important in this respect.

8.8 LEGITIMACY

Expert groups through the Environmental Assessment played a crucial role in the siting of the route of the CTRL, primarily because the project itself is highly significant and unique. It represents the first mainline railway to be constructed in Britain for over a century. The project also involves a large amount of public and private finance, and as such its success is of political and economic importance. The principal influence of expertise within the siting of the route was through environmental issues, and more specifically, via the Environmental Assessment, the statutory mechanism by which environmental concerns are analysed for large infrastructure projects. Experts were co-opted into this policy area by policy-makers in order to determine the level of significance of environmental issues. But more than this, by selecting the environment as the most pressing concern of the project policy-makers were able to deflect debate away from other areas, most importantly, the policy proposal of the CTRL itself.

The evaluation and assessment of policy, in terms of both formulation and implementation has become the dominant way in which governments are judged. It is through policy that government performance is assessed, and as a result successful policy is the method through which governments derive their political legitimacy. It is also through policy that governments attempt to reconcile particular interests of various policy areas, and the general interest of society as a whole. This compromise has nothing to do with the legitimacy of government itself, but the political legitimacy of the actual government in office.

The evidence suggests that a particular set of expert groups were used to determine the basis and fundamentals of the environmental issues of the CTRL route alignment. This is in contrast to the air pollution and asthma policy area, because for the CTRL experts were employed to produce positive policy solution, not to legitimate policy inactivity. The CTRL represents an actual policy area without the need for interpretation by experts! The presence of expertise was deemed necessary because the issues involved were unique and as such were matters of special knowledge. Therefore, the results of expert assessment of the environmental issues were not used as legitimation for policy inactivity or mere symbolism, rather they served as the basis for policy solution, although the aim is the same, to satisfy public credibility. Expert groups legitimated the policy direction for environmental considerations. They were co-opted because of the complexity located in the policy area. In this instance the complexity was predominantly social as opposed to epistemological.

Experts were, therefore, used in three ways: to form the basis for consideration of the environmental problems of the route alignment of the CTRL; within the specific debates of the Environmental Assessment, in such issues as the effects on communities, the impacts of construction, visual intrusion of the route, and so on; and, to provide public credibility for policy-makers on these issues. In the same way as for air pollution and asthma, the extent to which this credibility is perceived or actually accepted by the public or the participants in the policy area is difficult to assess, as perceived legitimacy is relative. The alternative form of legitimacy, an objective and so moral set of criteria against which to judge policy is also difficult, if not impossible to ascertain.

As for air pollution and asthma we are able to locate experts within the CTRL case study using the three-fold criteria for legitimacy discussed previously. Experts are legitimated in systems derived from rules. We may accept that policy-making systems are rule-based, but these rules themselves have to be justified and legitimated. This legitimacy may be achieved through the notion of 'ideas of common interest', that the policy issues are matters of special knowledge. This is a direct result of the policy area, and is a particular form of 'paternalism'. Therefore, the co-option of experts by policy-makers took place not only because of the entrenched nature of planning within social and cultural systems, but because the environmental issues of the route were considered to be matters of special knowledge; they concerned 'ideas of common interest'. The particular

distribution of power within the policy area serves the interests of both the subordinate and the policy-maker, not just the policy-maker alone. Environmental issues of the CTRL are of general interest, and therefore the use of expert opinion is justified and legitimated within the policy area for it serves these general interests and the particular interests of the participants in the policy area.

Experts were co-opted into the policy area because the issues were portrayed as matters of special knowledge, when in fact the majority of issues contained little technical information, and indeed, the issues were so unique that experts were forced to move beyond technical and scientific considerations and place value judgements on the significance of various factors. Nevertheless, experts were used to satisfy public credibility in this area, to demonstrate an active desire on behalf of policy-makers to demonstrate that the issue was beyond political importance, and that the environmental concerns were so unique and complex expertise was crucial for policy solution.

This combination of special knowledge and the unique nature of the project is an interesting area, as in contemporary Britain many issues of the environment are taken almost for granted. There is a trend towards a consensus on environmental problems, a factor which reinforced the use of expertise within the CTRL policy area as the results of expert investigation were presented as not open to critical challenge. The government could hardly insist on a new Environmental Assessment. Therefore, in contrast to air pollution and asthma this highlights social as opposed to epistemological complexity, as expert groups attempted to deal with the multiple variables posed by the environmental concerns rather than technical difficulty. They were co-opted and incorporated into the policy process because of the legislative requirement of the Environmental Assessment, and to provide legitimacy for policy-makers because the issues were complex, but also to provide legitimacy for policy-makers through the notion of public credibility, to demonstrate that political issues had been removed from the environmental element of the route alignment of the CTRL. An important consequence of this situation, in contrast to air pollution and asthma, is that it resulted in positive and not negative policy solution, and provided legitimacy for a comprehensive and not a piecemeal approach. This situation was produced because there was a consensus among expert groups on what was known.

8.8 CONCLUSION

Transport has a dual effect on society: as an industry and as a consumer concern, it is part of everyday life, part of business costs, and has important environmental impacts. Because of this dual effect politics and planning are interrelated, and at times synonymous. The extent to which this is true depends upon whether we treat politics or planning as means or ends. Politics or planning may, in fact, be the end or aim of policy, or merely the process or means towards that policy end. This synonymous nature has become more apparent since the 1980s with the increasing politicisation of planning. The past two decades has also witnessed a concurrent rise in transport planning as a new academic discipline.

Not only has transport become increasingly politicised at the levels of local and central government, but it has become the focus of grassroots political opposition. This opposition has been demonstrated most clearly in the high-profile protest against new road construction. The CTRL has not produced a corresponding amount of political protest mainly because it is such a unique project. The majority of the population live near some type of road. That same majority, however, does not live near a railway line and, therefore, new railway construction does not create the same level of political angst in comparison to a proposed road scheme.

The CTRL is as much a political as an economic project. This political importance is due, in part, to the fact that it forms part of the European HSN for rail. The desire of the EU for an HSN is largely political, but also geographical-economic, the aim being to reduce economic distances between major cities of member states, without providing the funds the majority of its construction.

The level (or initial lack) of public subsidy was an important element of the CTRL project, and was an example of the then Conservative government's ideological policy of reducing government subsidy and promoting de-regulation in transport. This policy proved unsuccessful in the long-term. In order to prevent the collapse of the project the Conservative and subsequent Labour governments were forced to intervene both politically and financially, part of which was high-level 'creative accounting' in order to attract the private sector to the project. This is an important fact, as although the CTRL is predominantly a private concern, it is a project of national worth. The problems of finance also reflected the differences in approach to the project of Britain and France. In Britain, the government was the primary actor in the policy area, whereas in France, in contrast, the policy domain revealed

a more regional bias. Here, regional concerns were co-opted at the outset of the project. In Britain, regional interests were incorporated at a much later stage. The dominant regional interest was, for obvious reasons, represented by the county of Kent.

KCC demonstrated a reversal in its policy towards the CTRL. This reversal was caused, in the main, by the necessity for political pragmatism. KCC had originally protested in a forceful manner about the four routes proposed by BR in 1988. By 1993 the policy had been reversed, but the enthusiasm now displayed was due primarily to the fact that environmental impacts were mitigated. Environmental considerations had become the main focus of the CTRL project. The county council could not reverse the policy decision made by government and therefore, was forced to make the policy work in their favour as much as possible. Even within Kent there were policy divisions. ABC and East Kent in general, displayed a more positive approach to the CTRL, mainly because of the perceived development opportunities afforded by the route.

Consultants and experts were dominant in the CTRL scheme from the outset. Indeed, the proposal in its final guise may not have been achieved had it not been for the forceful lobbying of one consultant group, Ove Arup. Ove Arup's plans helped convince the government for an abrupt policy change in 1991, and forced BR to work on a scheme that was in no way its own. Consultants were also employed by BR and UR to legitimate the work undertaken on various scheme proposals. This was most prominent with matters of the environment. UR employed ERM to co-ordinate 14 separate expert organisations to work on all matters regarding the environmental impact of the route.

The number of expert groups reflects the essence of the complexity of transport planning, particularly for the environment. The situation was made more complex because of the uniqueness of the project. Expert groups were employed to assess the 'significance' of various factors, such as noise, vibration, visual intrusion, and effects on communities. Although these assessments built on existing knowledge of previous transport infrastructure provision the CTRL is a unique project. Hence, all the important criteria for judgement of the scheme were made solely by expert opinion. Initial route options concentrated on engineering parameters and environmental constraints only, and therefore not community interests. The ES was presented as a document not open to challenge. Because of the complexity involved within this area expertise was deemed a necessary requirement, especially

in the first instance. The hybrid bill submitted to Parliament is an example of this particular complexity, including 600 contractually binding agreements between developers and interested parties. The level of complexity was also highlighted by the mixed topography of Kent.

Although experts were highly prominent in the Environmental Assessment it is doubtful that the policy area may be described as technocratic. It does not reflect an apolitical ideology, nor a neglect of normative reason. This conclusion does not mean that experts have no influence in this policy area. It can be seen that there is a tendency towards technocratic management, both in terms of institutional arrangement, with the EA and Environmental Assessments within the policy process. It could be said that experts operated on an extensive mandate, and this will be further reinforced as Environmental Assessment becomes standard practice.

Policy influence was fairly straightforward in this respect. The Environmental Assessment was a method through which policy-makers could delay the obvious political and social repercussions of the final decision on the route. In this respect the advice did not need to filter to ministers because they were public decisions, what remained was the debate within the select committees.

The influence of government within the policy area highlights an important paradox. The Conservative governments of the 1980s and 1990s introduced a policy of de-regulation and encouragement of private capital in transport policy. Yet the CTRL will, in part, be publicly funded. Moreover, the government was instrumental in the selection of the route, forcing BR to adopt and develop a scheme it had no interest in. Not only was the policy area heavily influenced by government, but dominated by expert knowledge, as the issues involved were considered to be matters of special knowledge. Since there were no specific guidelines for route appraisal, experts were employed to determine the significance of all factors concerning the environment, and so legitimate the policy direction of policy-makers. Because of the power exercised by experts in this area groups in opposition to the project were forced to meet expertise with counter-expertise in order to have legitimacy in the policy area.

It has been argued that the exact nature of expert influence will be dependent, in part, on the supply of expertise, that is, the level of internal cohesion and consensus within expert groups. This is true for this policy area as there is a positive consensus and a strong cohesion. The formal influence will also be

dependent on demand, that is, the level of co-option, or the nature of the political climate. Within this policy area there is certainly institutional co-option because expert groups have been formally co-opted. There is also psychological co-option. Expertise has been instrumental in creating and maintaining particular ideas about environmental issues. The final form of co-option, ideological, is also apparent. This is the extent to which similar patterns of assumption between policy-makers and the public exist. Although this is a systemic issue it can be argued that there is a public acceptance of planning. This acceptance is no less true for transport planning.

Therefore, for the environmental element of the CTRL, a particular set of expert groups were co-opted and provided with a moderate mandate, subsequently translated into formal influence for this policy area. There was a delegation of power to expert groups for both policy formulation and policy outcomes, in order to deal with the complexity and provide policy legitimacy for policy-makers.

CHAPTER 9

CONCLUSION

9.1 INTRODUCTION

The conclusion of this thesis is that there are numerous definitions of what may be considered the expert, or expertise in general. What is important, however, is a definition that combines trait, contextual, and abstract elements. Fundamentally, therefore, experts are purveyors of advice, as agents of formal knowledge. Their role in policy-making has developed and altered since 1945. These incarnations have ranged from a technocratic form in the immediate post-war period and into the 1950s, through influence via a systems approach to policy-making during the 1960s and 1970s, to a more political role in the 1980s and 1990s, in order to legitimate policy decisions and direction. Their particular nature will depend on the supply, that is, the nature of the relations between expert groups, and the demand, the level of co-option by policy-makers. Within the two case studies presented here, air pollution and asthma, and the siting of the route of the CTRL, experts operate on an extensive mandate. In terms of influence on policy formulation and implementation in both case studies it is concluded that experts have formal influence, although for some elements of the Environmental Assessment, on which the CTRL case study is focused, the level of influence is moderate in nature. However, there is evidence of a trend towards technocratic control. It is further concluded that the primary reasons for this trend are the complexity of the policy areas, and a requirement of legitimacy on behalf of policy-makers. This analysis has several implications for democracy, namely the effect on individual participation, the extent of centralisation of policy determination, and the relative power that is afforded to expert groups within policy areas.

The traditional depiction of experts operating in the policy process is through theories of technocracy. Technocracy is usually employed at a systemic level. This traditional application of the concept does not preclude, however, its use at a sectoral level, or sub-sectoral level, as it is more beneficial to use the characteristics of technocracy, an apolitical ideology and a neglect of normative reason, within

empirical analyses of policy areas. The use of the concept in this way facilitates a combination of technocracy and theories of both the expert and expertise.

Because expertise is able to alter the language of the political discourse we need to inquire as to the exact extent or nature of its influence within individual policy areas, whether or not experts have limited or extensive amount of influence. Another important element are the reasons for the use of expertise. Primarily, it is because of the complexity of policy areas, and a requirement of legitimacy for policy-makers because of this complexity. However, legitimacy also exists independently; it is required to provide reinforcement to a particular policy decision or direction.

The post-1945 in Britain period has witnessed an expansion in and diversification of expert groups. The immediate post-war period saw a technocratic approach to policy-making with policy detail left largely to experts. This situation altered during the 1960s and 1970s with a systems approach to policy matters. Here, through the emerging new professions, and policy scientists, expertise was used in the assessment of policy process over and above that of policy output. The 1980s and 1990s witnessed a further change, as expertise was used increasingly to legitimate commercial and political interests. This was through mechanisms such as think-tanks and regulation.

Regulation is at the heart of the two policy areas selected as case studies: the siting of the route for the CTRL, and air pollution and asthma. For the latter, policy solution has historically been achieved through an incremental approach and regulation. There was a recognition during the 1980s and 1990s, that the combination of institutional reform and regulation was not necessarily the most appropriate approach to environmental issues. As a result, a moral element was introduced to policy design. For the planning of transport infrastructure in general, and the CTRL in particular, regulation is still an important element of the policy process because of the issue of the environment. Environmental Assessment, in contemporary terms the most crucial factor in transport infrastructure provision, is an extension of the institutional approach, that is regulation, within policy areas. Both policy areas have also endured influence at European and international levels. Despite the fact that it is outside the remit of its original charter, the EU is involved in environmental policy issues.

The dominant effect of both policy areas is on environmental issues, although there are also effects at political, social, and economic levels. At a political level policy-makers are concerned with the levels of air pollution that may be permitted and the level of public concern over the issue of air pollution and asthma. In contrast, the political element for the CTRL is focused on Kent, rather than for Britain as a whole. The issue of the topographical nature of Kent is important as it forms part of the complex nature of the policy area. This is in addition to the complexity resulting from the various aspects of the Environmental Assessment of the route. This social form of complexity is in contrast to that which predominantly characterises air pollution and asthma. Here, it is epistemological complexity. It centres on determining not only the nature of individual pollutants, but on the severity of their effects in isolation or combination. Both elements of complexity, social and epistemological, are present in both policy areas, but at different levels.

Because of the high level of complexity in both policy areas policy-makers have utilised expert groups in order to legitimate particular policy decisions, or in the case of air pollution and asthma, to legitimate, to a large extent, policy inactivity. The level of expert influence is on a formal level, although evidence suggests that there is a tendency towards technocratic control for certain areas. These areas cannot be formally described as technocratic, as political issues are still important in policy formulation.

What can be seen is that the analyses have important implications for democracy. Consultation takes precedence over and above participation. There is also a high level of centralisation, with the government as the primary actor, and a desire for conceptualisation ahead of enactment by policy-makers. This situation leads to particular expert groups being able to exercise power in both policy areas through the transformation of formal knowledge into policy knowledge. Formal knowledge is not necessarily based on objective criteria. Both policy areas demonstrate the fact that objective knowledge is not possible, let alone desirable, even though it forms an important element of the policy process.

In order to explore the relationships between the two areas we need to review what is meant by expert and expertise.

9.2 DEFINITION OF EXPERT AND EXPERTISE

We can examine what is meant by expertise in a number of ways. First, by assessing what an expert means in contemporary society. This is a functionalist approach, whereby an expert or expert group is that which fulfils that function. The nature of this function will obviously alter over time. Another method is to examine the traits or characteristics of expert groups to produce an ideal type to which approximations may be made. Finally, there is occupational control. Here, expertise is legitimated by the existence of control by the group itself through, for example, professional associations, or by the user of the expert knowledge, in this case policy-makers. What is evident is that one type does not provide adequate explanation for all expert groups operating in policy areas. All types need to be considered. Also, a more important concern is the exact role that the expert plays in the policy process.

Expertise is an integral part of the policy process in contemporary society. In broad terms experts are purveyors of formal knowledge and their primary role is to supply advice. The exact nature of this role, that is, the level of influence they possess, depends on the level of co-option into the policy process and the particular level of mandate they are provided with by policy-makers. This role will range from acting as servants of power right up to technocratic control. The exact form this will take will also be dependent on the nature of the policy process. Experts are not necessarily more influential only in areas of technical difficulty. They often move beyond the supply of advice in purely technical policy areas to providing normative judgements.

9.3 EXPERTISE IN POLICY AREAS

Governments are becoming increasingly responsible for more areas of human activity. As a result, policy-making has become more dependent on research and expert opinion. Today, in Britain, governments are responsible for the maintenance of the welfare state, the provision of favourable economic conditions, and for limiting the impact of collective and individual behaviour on society. The rise in state responsibility occurred primarily after 1945.

The expansion in state activity immediately following World War Two was viewed as a political necessity, rather than a systematic removal of ideological

confrontation between political parties or policy-makers, characteristic of a technocratic approach to policy-making. Nevertheless whatever the reasons, policy detail was left largely to experts. This deference to expert opinion continued during the 1950s when political debate over policy was less prominent than discussions over implementation of policy and technical detail. This process was effected through a professional civil service, resulting in the establishment of an expert culture in Britain. The extension in government responsibility provided the primary mechanism for the incorporation of expertise within policy-making. As such, the development of the welfare state was directly dependent on professional expertise, and experts became the mediators between the public and the state.

Economic difficulties and cost implications put this expansion under pressure during the 1960s and 1970s. It was this situation that led to calls for increased levels of expert input, such as the creation of policy units. Their creation reflected the belief that the *process* of policy was the fundamental problem with policy solution, not the aim of particular policies themselves, and led to the systems approach to policy-making. It was hoped that expert input into policy processes would present information to policy-makers free from bias. Therefore, in contrast to the 1950s, when policy detail was left largely to experts, the 1960s and 1970s were characterised more by expert input into *process* over and above policy *outcomes*. This knowledge, in and of the policy process, reflected the development of the policy sciences. It led to an expansion in the teaching of social sciences at universities and polytechnics, and the incorporation of social scientists into government.

This 'output-optimising' form of policy process waned during the late 1970s and early 1980s, and reflected a change in political circumstances. The issue of cost-effectiveness forced expert knowledge into defined and tailored research, geared towards providing legitimation for particular commercial and political interests. The 1980s and 1990s witnessed a backlash against the notion of 'big government' and a critical challenge to public sector expertise by private sector expertise. This situation occurred as a result of state and perceived public demands for policy efficiency, financial constraints on public sector investment and expenditure, and policy effectiveness from a right-wing political perspective, although criticism of the public sector came from both ends of the political spectrum.

The fundamental change of the period was that knowledge should serve political actors, justifying and rationalising particular policy instruments. New expert

groups such as think-tanks provided legitimacy for new policies. Contrary to what has been suggested by some observers this did not signal a withdrawal of the state in all policy areas. New methods of state involvement such as regulation, and the introduction of agencies altered the type, not the level, of government intervention. It reflected the growth of administrative regulation across Europe. The emphasis on policy delivery during the 1980s and 1990s was on professional management, on standards of performance, taken directly from the private sector. This period did not witness a decrease in the number of expert groups. Instead, it reflected a more pluralistic environment.

Policy and planning, therefore, have altered from being areas of technocratic control, typical of the late 1940s and into the 1950s, through a systems approach to policy provision in the 1960s and 1970s, to areas dominated by pluralistic environment for expert opinion in the 1980s and 1990s. These theoretical and historical issues have been examined in the case studies.

9.4 CASE STUDIES

In Britain, there is a general public acceptance of planning, in all areas of policy. The exact level of intervention will vary between policy areas and the particular circumstances of the individual policy problem. It is also dependent upon the severity of that problem. Transport, the environment, and public health are three areas which have been subject to government involvement since 1945. Today, government continues to be involved in these areas of policy. Because the exact level of intervention in each area will vary there are certain elements of contrast and comparison between the two policy areas: air pollution and asthma, and the siting of the route for the CTRL.

Both policy areas are not only political in nature, but also highly contemporary, in that they are at the forefront of political debate in the late 1990s. This prominence is not difficult to justify for the CTRL, but it is also true of the wider issue of transport in general. Air pollution and asthma is related to this as the emphasis on air pollution episodes is directed towards the effects of air pollution from motor vehicles. It is also an issue in its own right as the number of cases of asthma continues to rise throughout the western world.

Travel is a fundamental part of EU policy concern, forming part of the Treaty of Rome. In contrast, neither the environment, nor public health is an explicit part of EU policy remit. Nevertheless, the EU is considered a legitimate forum for health and environment policy. The CTRL is first and foremost a transport issue, but it has quickly become an environmental issue. Therefore, although it is considered a traditional area for EU involvement it is because of environmental as much as for transport reasons that the EU is important to this policy area. Similarly, there is a dual concern for air pollution and asthma: it is an environmental as well as public health issue. What is beyond doubt is that both policy areas are of international and European concern, with the environment a dominant element.

Both areas of policy are affected by policy constraints similar to those found in other policy areas. These include: the influence of political parties at both local and national levels; the relative power of local, relative to central, government; and, the difficulties presented by the implementation of policy. These factors certainly affected decisions over the exact route for the CTRL. The Conservative governments of the 1980s and early 1990s came under pressure from their own MPs in Kent over decisions about the route, especially during the build-up to the 1992 general election. The policy area also witnessed a powerful influence of central over local government and different views expressed by local government within the county of Kent. It remains to be seen if further protest by residents and interest groups will hinder the actual construction of the CTRL.

For air pollution and asthma the influence of political parties has been less overt, since it is not considered a party-political issue. However, there is the influence of central over local government, despite the huge array of local government powers in this area, as with planning in general. Implementation of policy is also problematic, as the reduction in emissions of individual pollutants relies on the co-operation of industry and transport with policy-makers.

The main focus of attention for the Channel Tunnel was its financial viability. For the CTRL it was environmental impact. During the 1980s, Kent was part of the backbone of Conservative Party support. The appearance of vocal opposition to the construction of the CTRL, from the Council for the Protection of Rural England (CPRE), and local protest groups such as the Dulwich Village Preservation Society proved particularly awkward politically. Because of the complexity of the project it is difficult to assess the real level of public objection, and attitude in general, to the CTRL. This assessment is problematic because it

could be either against the project in principle, or an objection to a particular part of the route, or the fact that the route should be placed through a particular corridor.

The level of expert influence within the two policy areas is demonstrated primarily through the analysis of the principal participants.

9.4.1 Principal Participants in the Policy Areas

There is a contrast between the two policy areas in terms of general government response to the problem. For air pollution and asthma, the government employs advisory groups on health and environmental issues to produce air quality standards and emission guidelines for individual pollutants. In contrast, transport planning is confined, in the most part, to the planning profession. The profession has developed complex technology within a professional practice in order to meet the demands of the planning process.

For air pollution and asthma, the policy area is dominated by two co-ordinating government agencies, the EA, and the MRCIEH, the latter of which co-ordinates a number of separate health and advisory groups. As the CTRL is a time-specific area of policy the nature of expert groups under analysis is slightly different. In general, transport is characterised by many interest groups. What concerns us here is one part of transport policy, namely the environment and the influence of the CTRL upon it. The Environmental Assessment for the CTRL was dominated by one co-ordinating expert group, ERM, with thirteen others, each responsible for individual areas of the Environmental Assessment of the route.

The nature of the expert groups affect how, to a large extent, information is gathered. For air pollution and asthma there is non-comparable gathering of data, particularly with regard to information on exposure rates to particular pollutants for individuals. This disparity is a result of data being collected using advisory groups, some created specifically to conduct research on the relationship between air pollution and asthma, with some on a more permanent basis routinely gathering information. In contrast, for the CTRL, methods of assessment are contained within the planning profession and environmental consultants used to assess the route. They assessed the implications of particular route alignments of the CTRL. It is a subtle, but significant difference between the policy areas. In addition to routine information gathering, individual events are very important in both policy areas. Because air pollution and asthma have implications for public health,

individual episodes of air pollution are important. Although these episodes have little effect purely in isolation they are able to galvanise public opinion. Here, the media may play an important role. The media is able to magnify or distort opinion on the implications of particular events.

The type of media exposure also varies between the two policy areas. Issues of health, that are deemed to have implications for the nation as a whole, may receive more coverage than a transport issue viewed as a concern primarily for the south-east of England. Railways do not generate as much public angst as road construction, so blanket coverage in the media is unlikely in the way that it might occur for air pollution, for the route alignment at least.

Government medical and environmental agencies are instrumental in determining both the problem and solution for air pollution and asthma. They determine the strategy for approaching the policy problem and provide normative judgements as to its severity and implications. As a result, the relevant agencies determine a number of issues: the definition and physical nature of asthma itself; the level of emissions permitted from industrial and residential sources; the extent of exposure on individuals; the implications of these levels of exposure; and, their relative danger. This level of involvement also occurred for the CTRL. Expert groups were instrumental in drawing up assumptions about the potential impacts on the environment of various route options, and for the subsequent assessments of significance about these potential impacts. Therefore, what can be assessed is the exact nature of this influence.

9.4.2 Nature of Expert Influence

The thesis has shown that experts are co-opted into policy areas and provided with a mandate by policy-makers, be it on a limited, moderate, or extensive level. This mandate translates into influence on either policy formulation or policy outcomes, or both. For air pollution and asthma it would seem that expert groups are instrumental in determining the nature of the discourse within the policy area. For air pollution and asthma there is certainly institutional co-option and psychological co-option. Expert groups have been formally co-opted by policy-makers and are instrumental in framing both policy and solution characteristic of institutional co-option, and they create and maintain ideas about air pollution and asthma, characteristic of psychological co-option. The assessment of ideological co-option is more problematic. However, the policy direction for this policy area is provided

by expert groups. There exists a similar pattern of assumptions or belief between policy-makers and the public that accepts the use of expert opinion, characteristic of ideological co-option.

The particular set of expert groups were provided with an extensive mandate, in this case to formulate the policy problem and suggest policy solution to policy-makers. They held a prominent position in the policy area and were provided with a wide ranging remit. This mandate was translated into what has been described as formal influence, a move beyond moderate influence because of the delegation of power to experts and the subsequent impact on the final policy outcomes. In this case, centred on the government stance towards air pollution and asthma and setting air pollution and air quality standards. This is a direct result of the complexity of the policy area. There is evidence to suggest that as air pollution and asthma is designated an area of technical difficulty by policy-makers and the public, this influence will also operate at the level of the multiplier effect, as it becomes institutionalised in society. Moreover, as policy co-operation develops at European and international levels this influence may move towards a technocratic form.

The level of influence is itself dependent on the level of consensus and cohesion between experts and expert groups. The policy area reflects no apparent level of cohesion, but does reflect a negative consensus, a consensus on what is not known.

In the same way as for air pollution and asthma, expert groups were co-opted into the CTRL policy area. Here, there is also evidence of psychological co-option, as experts were instrumental in creating and maintaining particular ideas about environmental issues and transport through the Environmental Assessment. However, in contrast to air pollution and asthma, ideological co-option is more readily apparent because there is a public acceptance of planning. This situation is no less true for the planning of transport infrastructure. Once co-opted, expert groups were provided with an extensive mandate by policy-makers to operate in the policy area. In this case the analysis was made of the mandate for the Environmental Assessment. Here, the role of expert groups was prominent.

In the same way as for air pollution and asthma experts also had formal influence in the CTRL policy area. Since there were no specific guidelines for the environmental elements of the route selection, experts were instrumental in

determining the significance of these effects on environmental variables. They formulated the policy problem and provided the policy solution. This was, however, the case for all elements of the Environmental Assessment, and so influence in particular areas was only moderate. Here too there is evidence to suggest a trend towards technocratic management in planning projects of this sort, as Environmental Assessment becomes standard practice.

As for air pollution and asthma this influence was dependent on the supply of expertise, that is, the level of cohesion and consensus between expert and expert groups. For the CTRL, in contrast there was a strong cohesion and a positive consensus.

It would seem that consensus is important in both policy areas. For air pollution and asthma there is a stalemate for policy solution. There are numerous expert groups involved in the process and because of this fact expert knowledge supplied by one group has the effect of cancelling out information supplied by another. In contrast, the CTRL is not characterised by stalemate, although here too there is a large number of expert groups, all operating with special remits within the Environmental Assessment. Rather than a stalemate in policy solution there was limited challenge to expert opinion in particular areas of the ES, whereas in others political scrutiny was high. Both areas, therefore, demonstrate the continuing importance of political considerations. It is for these reasons that the levels of expert influence are formal for air pollution and asthma and the CTRL, although for the latter the influence is moderate for some elements of the Environmental Assessment.

Evidence to demonstrate expert input has been provided in the form of statements from ministers and evidence presented and examined in select committees. The latter process has provided the primary mechanism in which policy has been produced, especially for the CTRL as a public inquiry was by-passed. Expert opinion passed to policy-makers in a very public way through research for air pollution and asthma and a comprehensive scientific evaluation for the CTRL. Many decisions, however, within both policy areas will have been influenced by private conversations between policy-makers and advisers which are undoubtedly beyond the scope of this thesis. An alternative methodology, highlighting particular pollutants or specific spatial areas for air pollution and asthma, or one individual report within the ES for the CTRL may have yielded more detailed results. This would, however, have not provided enough material to generate

conclusions about the wider implications of expert influence, such as the levels of mandate and technocratic tendency. It is to an assessment of the latter that we now turn.

9.4.3 Tendency Towards Technocracy

In contemporary Britain questions are being posed by the government and the public about air pollution and transport in general, about the necessity of co-ordinating solutions, and strategic approaches to both issues. The establishment of the EA, to co-ordinate *inter alia* air pollution policy, reflects a desire to see a strategic solution to policy difficulties. Strategic solution has been seen most readily in the regional policy of RDAs, and potentially Regional Assemblies. The environment certainly became a dominant political issue during the 1980s and this continued into the 1990s, reaching its zenith with the establishment of the EA to co-ordinate environment policy. To a large extent issues have moved from the specific to the universal. Air quality policy now includes a NAQS. There has been a similar occurrence for transport during this period; policy debate surrounds strategic approaches to transport provision and so the policy momentum is in this particular direction. A government department, the DETR, is now responsible for this strategic planning. This approach to transport issues will require more government co-ordination and responsibility, not less.

Throughout the 1980s and 1990s environmental policy has been a combination of moral and regulatory themes. The establishment of the EA is thus a logical progression, and reflects a technocratic tendency in this area. There is nothing of similar institutional nature for transport, although the policy stance of the present Labour government is moving in this direction. The two policy areas are linked, however, by the fact that both are characterised by a rational, scientific, and professional environment that is nevertheless tempered and manipulated by the demands and constraints of short-term political and economic goals.

Because policy areas are dominated by certain groups it is contended that this makes the policy area non-political rather than more so. This contention assumes close collaboration of expert groups. However, experts are often reluctant to cultivate relationships with other experts. Nevertheless, if close relationships between experts and expert groups do exist then a consensus or collaboration may highlight a technocratic approach in that policy area. Both policy areas reflect some degree of collaboration, or cohesion, between experts, but this results in a

negative consensus for air pollution and asthma and a positive consensus for the CTRL. Despite this difference both areas demonstrate a technocratic tendency towards policy solution. For the CTRL this is in terms of administrative conceptualisation of policy and is reflective of the increasing influence of Environmental Assessments in transport and environmental issues, which could signal a movement towards an apolitical ideology. A similar conclusion can be drawn for air pollution and asthma, where a greater co-ordination of policy at national and international levels, could also be seen as a trend towards an apolitical ideology. The policy area also reflects a trend towards an administrative conceptualisation of policy.

The dominance of particular expert groups within the air pollution and asthma policy area ensures that they determine the nature of the discourse within the policy area. It does not follow that there is intellectual consensus, nor that the area can be described a purely technocratic. Political factors play an important part and exert necessary influence. For the CTRL, the prevalence of expert groups is just as prominent. The influence of professionals such as transport planners and environmental scientists is very much apparent.

Air pollution and asthma is dominated by a need for objective and standardised criteria, that is, a standardised case definition of asthma and an objective diagnostic test for it. This aim has not been achieved. The desire for objective information is not as strong for the CTRL. There is no obvious issue of objective knowledge, yet each viewpoint expressed, on separate environmental issues, within the policy area will possess knowledge sets with objective content. There is a sense that what is to be known is what is seen with regard to route selection. Yet, this is not objective information, rather this is the background conditions against which decisions based on expert assessment, such as the extent of visual intrusion of the route once construction has been completed, are judged.

Both policy areas, therefore, are not dominated by the presence of objective knowledge. This situation is most strongly demonstrated with the various government advisory groups for air pollution and asthma. It leads to the conclusion that policy is advanced using results that are not clearly proven, a result that is replicated with the CTRL. Here, policy is advanced with no universal levels of acceptability over important issues. Therefore, in one policy area policy is generated despite general disagreement over the effect of various pollutants. In the other, policy is generated using supposed objective criteria when none actually

exists. Yet for both policy areas information is presented as objective. For air pollution and asthma this is not the case because of disagreement over fundamental principles; whereas for the CTRL there is less debate, despite the fact that these principles are not a product of scientific certainty. If these policy areas are dominated by such problems, what are the reasons for the use of experts?

9.4.4 Reasons for Expert Influence

The reasons for expert influence are primarily a prevalence of complexity in policy areas, and a corresponding requirement of legitimacy on behalf of policy-makers. Legitimacy may also be present as an independent factor.

9.4.4.1 Complexity

A dominant theme of this thesis has been the issue of complexity. For the CTRL complexity in the policy area extends downwards. At the level of the EU the policy of a high-speed rail network, of which the CTRL forms an integral part, holds little complexity. The complexity is developed as the political, social, economic, and environmental issues are encountered through policy implementation at the various levels. The policy area of air pollution and asthma is also complex. Here, complexity extends upwards. At a very local level one pollutant affecting a small community is considered a manageable problem. As a pollutant increases in range it encounters further pollutants and other factors, such as greater population levels, thus increasing the level of synergy and complexity. Producing policy solutions to this problem becomes increasingly complex.

For the CTRL, and for transport planning in general, the policy area is not dominated, or perceived to be dominated, by a large core of quantitative and scientific knowledge and information. This is because there is little technical dispute about what the problem is, rather there is a consensus over the technical implications of certain route alignments. With air pollution policy there is little dispute over the nature of individual pollutants in isolation which may be connected with asthma. This lack of dispute is portrayed as a large core of technical information. Yet although the perception is of a large core of technical information this is irrelevant as there is huge disagreement over the exact effects of these pollutants. Therefore, the policy area of the CTRL is not perceived as containing a large core of technical information, when, in fact, there is a large consensus between expert groups on many factors. For air pollution and asthma

the policy area is perceived to be characterised by a large core of technical information accepted by expert groups, when, in fact, this is not the case.

Complexity within the air pollution and asthma policy area arises from a number of factors: the dispute over definition and diagnosis of asthma; the relationships between asthma and rates of exposure to individual pollutants; the environmental and social context of the air pollution; the synergistic effect of air pollutants between themselves and with the surrounding environment; and finally, the physiological nature of individuals exposed to such pollutants. For the CTRL, direct complexity results from: determining the extent, and balancing the effects of, *inter alia* the visual intrusion and impact of a new railway; conservation of important landscape, conservation and preservation of important heritage sites; and, protection of local amenities. Therefore, a distinction can be drawn about the type of complexity. For air pollution and asthma the primary form is epistemological. For the CTRL it is the social form of complexity.

The difference in the types of complexity is demonstrated by the type of research material utilised in each policy area. Despite the fact that Britain possesses a relatively large railway network route alignment is a relatively new area of academic and professional study. This fact is not that surprising, although transport has historically been an important part of government intervention, transport planning itself is a relatively new planning profession. The issue of route alignment is not an area dominated by quantitative material, that is, the collection of large amounts of numerical data in order to form a basis for policy selection. This situation is not the case for air pollution and asthma. Quantitative data of this sort is deemed vital for policy-makers in order for them to assess the extent of the problem. To accept this viewpoint is not also to accept that the alternative form of complexity is not present in both areas. Social factors, for example, are certainly important in the formulation of air pollution policy. Similarly, epistemological complexity is important in the CTRL policy area, especially in the designation of significance of environmental factors. The important issue is that one form of complexity dominates one policy area, and the alternative form dominates the other.

Part of the social complexity evident in both policy areas results from their cross-sector nature. Transport policy impinges on environmental, industrial, economic, and regional policy. Cross-sector influence brings into conflict the relevant government departments. For the route of the CTRL there was direct disagreement

between the Department of Transport and the Department of the Environment over the original alignment of the route. Air pollution policy affects economic, industrial, regional, and transport policy. For air pollution there was also direct disagreement between government departments, this time between the Department of the Environment and the Department of Health. This element of the social form of complexity results from the incorporation of social, economic, and political factors.

What can be seen from both policy areas is that the influence of particular expert groups actually adds to, rather than reduces, the level of complexity. They act in response to it, but by their implicit and explicit actions they help to shape it. Because there is disagreement over, for example, fundamental principles this encourages an increase in the use of professionals and expertise in all areas of debate.

A further element of complexity derives from the nature of the relevant policy areas. For the CTRL this is the institutional elements of the planning system. There are four levels of the planning system in England and Wales: the Secretary of State and the DETR, Regional Planning Conferences (and the recently empowered RDAs), county councils, and district councils (including metropolitan authorities). For air pollution and asthma there are three areas, rather than levels: central government itself (the DETR and Department of Health), government advisory committees, and third-sector organisations and pressure groups. The nature of the planning system means that transport policy is still heavily influenced by central government, but with no strategic overview. Whereas in contrast, the three levels of the policy framework for air pollution means that policy is heavily influenced by government and does possess a strategic overview. The centralisation of the planning process for the CTRL is clearly demonstrated when we consider that the government has a dominant role in the CTRL project, yet the majority of planning powers lie with local authorities. This set of circumstances is also true with regard to environmental guidelines for pollution emissions. Both policy areas are affected by another level, that of the EU. The European issue is important as once policy momentum is achieved at this level it is difficult to reverse.

9.4.4.2 Legitimacy

Analytically distinct from, but complementary to, complexity is legitimacy. Policy-makers employ expertise in order to legitimate policy decisions. The desire of policy-makers is not merely to provide a public facade by using expert groups to legitimate policy, but also to meet the technical competence of interest groups within the policy area. Policy-makers may also come to believe expert opinion over time. This situation is particularly evident in air pollution and asthma, as evidence is gathered over prolonged periods. It is important as legitimacy can be either amplified or squandered, it is not a factor that is present or absent. Legitimacy is also an important element for the CTRL. Expertise was used to understand the policy problems in regard to government preferences for environmental mitigation along the route. Therefore, governments seek to understand policy preferences through the advice of experts and expertise, and their legitimate status to provide public credibility. The extent to which this public credibility is merely perceived or actually accepted by members of the public or participants in the policy area is difficult to assess, as perceived legitimacy is relative. Some members of the public may perceive a particular approach as legitimate and accept the policy output, others may accept the output, but not consider the particular approach as legitimate. An objective form of legitimacy, or a set of objective or moral criteria against which to judge policy may or may not exist for these two policy areas, but even if it does, its use may not be desirable.

The issue of legitimacy reflects the central role that *policy* plays in contemporary society. The critical evaluation of policy is the method through which government performance is judged. Policy is thus the location for the assessment of government performance and political legitimacy. It is through policy areas that policy-makers seek to reconcile the interests of the public and the interests of participants in the policy area. Legitimacy in this form has nothing to do with the legitimate status of the constitutional system, but of the legitimacy of the actual government in office.

The important issue for both policy areas is not the institutional procedure that is employed to deal with policy difficulties, be it the hybrid bill for the CTRL, or epidemiological research for air pollution and asthma. Rather, it is how expert information is used within these processes. This issue is important, as what could be considered identical evidence does not guarantee unanimity of solution in the light of that evidence. On the surface, expert opinion is deployed in an arena of

scientific certainty. The prevalence of scientific certainty is apparent for both policy areas. The Environmental Assessment for the CTRL was far from being an objective analysis based on scientific certainty. All elements were open to interpretation as the project was unique in character. Moreover, experts were instrumental in determining the significance of the important issues. Scientific considerations were not the only factors used to produce policy decisions: political, social, and economic elements were also part of the decision-making process. These circumstances are replicated for air pollution and asthma. For all individual issues contained within the policy area, such as the effects of certain pollutants, the relationships are deemed 'not clear' or 'not proven'. An important result of this fact is that issues in both policy areas become more politicised, whereas the intention is to make them less so. It does not mean a movement away from the use of experts. On the contrary, it results in the increased use of expert groups as differing political approaches become involved in the discourse. Experts are thus employed to justify a particular standpoint. In the case of air pollution and asthma this is, to a large extent, to justify policy inactivity over the relationship between air pollution and asthma: for the CTRL it is to justify or legitimate the high level input of experts to demonstrate that political issues do not determine entirely the policy outcome for the Environmental Assessment.

At the core of the air pollution problem is the conflict between political decisions and an understanding of science and technology, or more precisely, how a particular understanding of science and technology may be used in policy decisions. The influence of science and technology is not necessarily the same for the CTRL. Here, there appears to be little opportunity for expert conflict with the issues remaining purely or predominantly political. Yet, the policy area is treated in much the same way, with policy preference being reinforced by expert opinion. Despite this appearance there is internal conflict. Part of the problem results from the fact that the opinions of expert groups will vary as to what they consider to be objective and subjective. This factor is important as so-called 'objective' opinion will filter down to the public where it will then be considered to be subjective opinion rather than objective knowledge. The filtering of objective knowledge is most obvious for air pollution and asthma, where 'objective' data collection will form the basis for conclusions that are perceived by the public to be objective. These results will help form the opinion of the public. The filtering process is less the case for the CTRL as the criteria for environmental evaluation of the route alignment was not as much a public issue.

The link between political issues and objectivity is an important one with regard to certainty and legitimacy. Although the problem of air pollution and asthma is not a new policy area, it is new in that attention is focused on the new types of pollutants that may be to blame. Because of this, policy-makers have placed emphasis on conceptualisation over enactment, and quantitative information over qualitative information in, for example, the assessment of how large the problem is. There are signs of change here with the NAQS and standards for particular pollutants, but not whether air pollution or particular pollutants are causes of asthma.

The same cannot be said for the CTRL, for it was not a question of proceeding with the policy or not, but a problem of which route. Hence conceptualisation cannot be placed above enactment. Therefore, it is extremely difficult in both policy areas for 'independent' analysis. No group is able to claim the technical high ground. Because there are no universal levels of acceptability for environmental criteria for the CTRL and no universal objective definitions of asthma or universally accepted effects of exposure to individuals pollutants, policy-makers cannot claim scientific certainty for policy decisions. Therefore, government can only legitimate policy decisions reinforced by expert judgement, they cannot claim certainty over the information provided.

The important consideration is that within both policy areas experts are co-opted because the issues involved are treated as matters of special knowledge, and as a result are 'ideas of common interest'. In other words that matters of policy and the distribution of power to achieve policy output serves the interests of both the dominant and the subordinate; policy-makers and participants in the policy area, and members of the public. The use of experts within both policy areas is justified and legitimated on the grounds that this distribution of power serves all interests, and not just specific interests in the policy community.

What has been shown, however, is that expert groups have been unable to establish criteria independent of social and cultural factors; hence it is inevitable that there will be different, legitimate interpretations. This conclusion, of course, has implications for the democratic process.

9.5 IMPLICATIONS FOR DEMOCRACY

The extensive use of expert groups within policy areas has three main implications for democracy: the effect of expert influence on the level of public participation, the tendency towards centralisation, and the power exerted by experts and expertise.

What is certain for both policy issues examined here is that the respective policy areas cannot be extracted from the community on which policies are imposed, because politics and planning are connected. The Conservative governments of the 1980s and early 1990s were intent that the CTRL be a private project. This ideological policy aim eventually proved impossible and it was recognised that public finance was required to complete the project. For air pollution and asthma air quality is deemed a public good, therefore government intervention, at least at a co-ordinating level, is important, but so is the input from the public. Therefore, for both issues it is imperative that community concerns are incorporated. The planning aspect of both policy issues is not a purely technical endeavour.

The social impact of any connection between air pollution and asthma is important, as this will vary across populations and regions because of the synergistic effects of air pollution between its various constituents and on its environment, despite the fact that the policy area is not treated in this contextual manner. In contrast, transport is treated as a contextual policy area as it is an enabling area of social intervention. Transport is no longer deemed not to be a public good in itself. However, as has been shown, for both policy areas the social and economic context of regions provides one form of the complexity within them. The specific topographical conditions of Kent produces a complex arena for the provision of the CTRL. Similarly, urban areas pose different policy implications than rural areas for asthma sufferers and policy-makers with regard to the potential effects of air pollution.

In addition to social factors both policy areas are political. In contrast to air pollution and asthma, transport has been a test-bed for policy innovation by successive governments. This treatment of the CTRL policy area resulted from the fact that the route of the CTRL was, to a large extent, a policy area characterised as a means to an end, rather than an end in itself. The alternative is true for air pollution and asthma. Air pollution and asthma, or a connection between them, is a policy end. Nevertheless, as policy issues they both compete for resources in relation to other policy areas. There are political and ethical implications in

producing any level of pollution, and the choice of whether or not to construct the CTRL at all.

Despite the veneer of objectivity air pollution issues have always been, in part, political. The legacy of BPM and its subsequent incarnations ensures the political nature of air pollution issues. Therefore, any changes or improvements in any direction or variable will be dependent on social norms, legislation, and policy implementation, as much as on the level of available technology and 'objective' analysis. For the CTRL these issues are not as important. Although the project is unique, the methods for considering route options and levels of significance with regard to environmental impacts of transport projects have been available for some time, as has the technology required for construction. Therefore, both asthma and air pollution, and the CTRL have become important political issues, but in different ways. Transport, in general, has become the focal point of grassroots political opposition because of the perceived problems caused by congestion, especially on roads. Whereas air pollution, in general, has generated media interest because of the potential risks to public health, and in particular to asthma sufferers.

The political element is most evident in the air pollution and asthma policy area with regard to the treatment of scientific uncertainty, and it is here that there is a paradox. Policy-makers require scientific certainty in order to alter policy, yet they do not require certainty in order to refute, for example, that individual pollutants may induce asthma. Scientific certainty is also an issue for the CTRL. Here, the ES is presented as a factual document not open to challenge. However, the CTRL is a unique project with no environmental precedent. Not only does this mean that environmental assumptions were not challenged within the ES, but that different environmental value judgements were used in different areas of the route. Therefore, there can be no claim to universal validity of scientific assumptions in either policy area.

These two policy areas have certainly witnessed an increase in the use of expert groups. This expansion in expert input does not translate automatically into an increased level of knowledge and understanding for policy-makers and the public. If anything, the number of expert groups reflects the complexity of a policy area, not a greater understanding of it. Even so, the use of experts in the 'optimum' or technocratic and most rational manner may not lead to the most desirable results. In the case of the CTRL a strategic approach to the Environmental Assessment may not be satisfactory as strategic issues are placed above local ones. Local level

concerns are not always involved merely with the location of the route. There are many important factors to consider, including noise pollution, and any other direct nuisances to residential life; the problem of construction activity; particular amenities that may suffer disruption or closure; intangible factors such as undefined visual intrusion; and, the effect of the above on property values. Any railway construction will have physical impacts on the environment and subsequent impacts on both people and resources. There are also social impacts, such as the influence on jobs, housing, and facilities. There will also be visual impacts such as obstruction and intrusion. These can come from those living near the train or those travelling on it. Construction will also have a huge impact. There will be disturbance by noise, dust and traffic, with secondary impacts such as the dispersal of spoil and the transport of material.

In the case of air pollution and asthma increased use of expertise results in a *status quo*. As a consequence, government agencies and committees are concerned with describing the exact nature of pollutant emissions, and by doing so it provides a method of demonstrating they are being reduced. If results cannot be replicated between countries there is nothing to suggest that this is not the case for regions within countries. Hence, the political, social, and economic implications of asthma and air pollution will vary from region to region. The result of this scenario is that participation within the policy area within those regions may need to vary. Despite the various disagreements over the effects of individual pollutants the entire policy debate may have more to do with the individuals affected, that is, that the impact or effect of air pollution may be more to do with the physiological nature of the individual, rather than the nature of the pollutants themselves. In a similar way, the entire environmental debate for the CTRL could have had more to do with the topographical nature of the particular area affected, that is to say, the county of Kent.

For the majority of health-related issues, especially those concerning local hospital and local health provision, there is a democratic deficit. It is difficult, in general, for individuals to raise issues of health and place those issues on the political agenda. Health policies are the product of a debate between government, health care planners, and health care professionals and experts. There are similar democratic difficulties for the CTRL and its environmental implications. The focus of these difficulties has to do with the nature of Environmental Assessments. Even if expert opinion is accepted, in terms of providing adequate, rational information

to aid policy decisions, there is a fundamental problem with Environmental Assessments. Environmental Assessment is a major advance in environmental research,

'... in relation to the assessment of development impacts and ways of mitigating the overall impact. Yet when the Environmental Assessment process is operationalized, critics argue that local concerns tend particularly to be sacrificed in relation to wider strategic concerns, particularly in the case of transport corridors which affect a number a social, economic and natural environments. Thus, the impact of a transport scheme which may have a limited benefit on one community can have a detrimental effect which is legitimized by the Environmental Assessment process in favour of wide strategic aims. This is one possible explanation of why a project on the scale of the RLP [CTRL] will face major environmental opposition by communities along the route since the strategic considerations of transport benefits of the project are incompatible with the concerns of local communities.' (Goodenough and Page, 1994, p. 47)

This problem highlights the reason why participation is a crucial element of the policy process. For these two policy areas participation is important to meet community needs, and to educate the public, which in turn enhances citizenship. Moreover, it provides additional information that is crucial, or could be crucial, in determining effective policy outcome. It may result in the same policy solution, but it would be legitimated by a different, more comprehensive process. In addition, there are practical reasons for public participation in environmental and health issues: it may provide additional information, it provides reinforcement of the accountability of policy-makers, and produces an enhancement of public confidence. However, the democratic implications are not restricted to participation.

The planning procedures in Britain are highly centralised, meaning that local authorities and organisations were heard on specific impacts of route selection for the CTRL only, rather than being able through the public inquiry system to question the fundamental principles of the project. Only the details were open to challenge. This situation highlights the paradox for transport provision in Britain. The role of central government has been reduced to ensure market forces dominate, yet the state has adopted a stronger and more centralised decision-making approach. As a result, the environment has been at the forefront of debate over the CTRL in Britain. Environmental groups are certainly 'involved' in controversial environmental issues. Their opinion is treated seriously by policy-makers, the media, and the public. They are afforded legitimate status in the policy process. Yet, this is concerned more with the details rather than the policy or project in

principle, and has occurred despite the policy of the EU in this area. EU Directive 85/337/EEC (Article 5) states that in addition to 'concerned' authorities given an opportunity to express their opinion, the 'concerned' public is given the opportunity to express their opinion before the project is initiated (Carpenter, 1994, p. 18).

This centralisation of the decision-making process poses an organisational problem for government and local communities. For the CTRL, the lack of a national transport strategy and more overt government and public involvement, has resulted in a 'project-led' scheme by a private firm in a project of national worth. Yet, the government is also developer and decision-maker. The government was viewed, most certainly, as environmental guardian for the CTRL, especially when its political survival during the late 1980s and early 1990s was threatened. Successive governments since 1997 have made policy for the CTRL in their role as developer (employing private contractors), whilst also playing the role of environmental guardian. In effect, although the government posed as a neutral observer in the project, the stance was, in fact, highly centralised and politically motivated.

Centralisation is also evident in the case of air pollution and asthma. The policy area is dominated by a small number of groups at government level. There is a general consensus of expert opinion among campaign groups (such as the NAC), advisory groups (for example, the AGMAAPE), and academic bodies (such as, The British Thoracic Society), that air pollution does have a role, but that there are other important causes. As well as being vague, this approach demonstrates that this is merely a consensus on what is not known. Since 1979, there has been an increased use of expert groups by policy-makers in air pollution policy to justify policy decisions on the basis of expert knowledge. This masks an important paradox. Cost-effectiveness and scientific certainty have been two pre-conditions of policy change in Britain. Yet, there is a shared recognition by experts that the complexity of environmental interactions virtually precludes the establishment of a precise certainty for air pollution and asthma issues and also, the fact that the government insists on the criterion of scientific certainty for pollution abatement when they (and industry) are unable to satisfy this criterion when stating that current activities are *not* harmful to public health.

Therefore, these are the democratic implications of complexity in air pollution and asthma: confused information for patients; a lack of comprehensive knowledge;

public resources being employed in the wrong areas; and, a lack of political participation. This complexity is important at a political level because to a large extent government medical agencies set the political agenda. Statements by the MRCIEH such as that 'no clear relationship' exists between asthma and air pollution adds to the complex nature of this policy problem.

What has been evident is the way in which experts are instrumental in defining and developing the discourse in the policy area of air pollution and asthma. They operate as technical advisers and administrators, define the particular policy problems, determine solutions, the selection of strategy, and present normative judgements about the needs of the policy area. All these go beyond the usual conception of 'advice'. The way professions perceive the society in which they operate will influence, obviously, the way they operate in the particular policy area. Also, their form of communication, in this case technical language, does not translate easily, and will affect the participation of non-technical participants. Solutions are usually requests for increased regulation, enforcement, or the tightening of standards, thus ensuring the importance of experts and professionals in the enforcement process. In this way the employment of expert groups is self-perpetuating. What is shown is that expertise is co-opted primarily because of the complexity of the policy area. Because no positive solutions can be determined this means that more research is required, and so expertise will continue to be utilised.

In addition to participation and centralisation the notion of power is also important. Environmental appraisals of policy may be subject to possible 'distortion' by the perceptions and attitudes of professionals who staff the relevant planning agencies. The 'personal constructs' of the expert are important because of the difficult role they play, in comparison to laymen, in the Environmental Assessment process. This factor is important because there will be differences within and between groups as regards perception and solution to particular problems. In the CTRL, experts with appropriate technical skills and experience played substantive policy-framing roles in complex technical issue areas. For air pollution and asthma the technical and scientific knowledge is a vital component in understanding the nature of air pollution problems. Manipulation of the nature of the policy discourse is a power that may be exercised by experts in policy areas; the ability to alter the language of the policy discourse by placing emphasis on technical matters.

9.6 SUMMARY

Both policy areas may be characterised by a tendency towards technocracy, rather than being examples of technocracy itself, because political influence is still important to both. However, expertise is instrumental in framing both problem and solution, and is clearly necessary in policy-making, so its effect is substantial. This factor is demonstrated in the two case studies. For the CTRL expert judgement formed the basis for the Environmental Assessment and the CTRL route. For asthma and air pollution expert groups determine the extent of any problem, as well as determining the effects of individual pollutants that may be responsible for an increase in the cases of asthma. Despite this substantial effect a more important conclusion is that experts within policy areas do not necessarily agree on the nature of the policy problem, the policy solution, or both. This result was clearly shown in the opinions provided by expert groups on the effects of individual pollutants on asthma. The reasons for this dominance have been the complexity inherent in both policy areas, and a desire for legitimacy on behalf of policy-makers. Legitimacy also exists independently of complexity. Policy-makers may seek to justify a particular standpoint, irrespective of complexity. This legitimacy means that expert groups are used by policy-makers to justify non-decision-making and indecision by policy-makers, as well as provide information and legitimacy for positive policy solution.

A combination of a prevalence of complexity and a desire for legitimacy on behalf of policy-makers leads to procedural forms of participation because information is dealt with in predominantly quantitative form. It also results in individuals deferring their active participation to large interest groups who are forced to enlist expertise and expert groups of their own, in order to 'compete' with other participants in the policy process on a more or less equal basis. This policy environment means that individuals are able to participate or intervene in policy-making, but that this is likely to be increasingly a sophisticated business, in which professional and expertly-advised specialist groups play a leading role. Participation is thus replaced with consultation. Consultation above participation was most evident with the CTRL. A centralised planning system meant that only details of the route, rather than the project at a fundamental level, could be challenged. Indeed, with new rules for railway construction any consultation now appears third in the new procedures, rather than as first priority in the previous regulations. Moreover, any participation was bound to be negative as consultation

was sought on mitigating the physical and social impacts on areas and populations. Therefore, the *process* of consultation seems to be more important than the end result.

For air pollution and asthma individual consultation is not even presented as a possibility. The highly centralised nature of this policy area makes individual participation almost impossible. Here, participation is also negative rather than positive, since policy is concerned with the BPM or BATNEEC approaches, dealing with issues that can be proven only with scientific certainty. Yet, as has been shown, the policy area could be treated in a more positive manner as the policy area is not determined by scientific certainty.

It has been shown that in both policy areas experts have formal influence, their role is beyond that of mere 'servants of power' as they possess institutional and professional autonomy. There is an emphasis on technical solution, and a tendency towards placing expert groups as the central component in the policy process, and there is delegation of power to experts, characteristic of formal influence. Yet, their influence falls short of technocratic control. On the surface, it would seem that this tendency towards technocracy would be far greater for the case of air pollution and asthma in comparison to the CTRL, as the issue is dominated by epistemological as opposed to social complexity. This is not necessarily true. In the case of the CTRL experts are used to generate a positive and not a negative consensus on specific issues, and hence, their relative centrality in the policy process could be said to be greater.

The difference in social and epistemological complexity is an important distinction as it affects the legitimation that the use of expertise conveys. The air pollution and asthma debate is dominated by scientific argument over the effects of individual pollutants in isolation or combination, that is, epistemological complexity. In contrast, the social complexity evident in the case of the CTRL regards, predominantly, the difficulty in balancing all the various elements in determining the environmental criteria for a transport project. This is not to say that both areas are characterised by only one type of complexity, rather that one form dominates each policy area.

Therefore, in terms of legitimation, expert groups are used in air pollution and asthma because of the scientific complexity, and to legitimate the policy output because of the complexity. For the CTRL, legitimation is required because of the

social complexity, but also to legitimate policy output independently of this complexity for specific areas of the Environmental Assessment, that is to say, the levels of significance of environmental impacts.

Expertise, therefore, is an important variable in policy areas. It can be seen that the development of this expertise has been predominantly demand-led. This resulted, in the 1980s and 1990s in a proliferation of experts operating along narrow confines, allowing expertise to be directed towards political and commercial interests as opposed to providing independent, objective opinion. In a liberal democracy experts are involved in policy in a number of ways, and supplied with different types of mandate. The important implication is that it leaves us with a political system, but an inadequate policy analysis system. This method of policy analysis identifies individuals as clients or spectators, rather than as citizens or participants. Participation is beyond symbolic or perfunctory arrangements. Thus, there is a need to blur the distinction between expert and individual through a participatory democracy. However, this would represent a dramatic change in the conditions of political life. A solution may be found in the pursuit of a policy science of participatory democracy, whereby the political process of producing policy itself is subject to expert evaluation, rather than the policy solution.

Experts are able to exercise power through the systematic transformation of formal knowledge into practical knowledge, via interpretation and implementation. Although this is not done uniformly or consistently, there will be different perspectives created both by the particular demands of the work they do and the demands of particular clients. Yet, influence may be of a more subtle nature. Extensive higher education, which has provided the resources for the continuing development of professions, has produced an ambivalence towards experts in industrial societies. There also continues to be a widespread tendency for adulation of experts and expertise. This is due to the 'person-orientation' and not 'abstract-orientation' of the majority of experts in policy. Judgements are made by conformity to traditions, such as personal relationships between experts and clients. Judgements do not tend to be made on the basis of abstract reflection. This orientation has disastrous potential. Reinforced by mass media, it presents a volatile, almost 'mythical' trust of expertise.

Any assessment of policy in respect of the extension and development of government responsibilities concerns the relationship between authority and liberty. Analyses are required on the increasing complexity, the extension of

burden and responsibility, and the reconciliation between the autonomy of the individual and the power capacity and remit of the state and its agencies. Knowledge, one of the defining characteristics of expertise, be it in the abstract or in practical group-based terms, is not a solid basis on which to build policy. If expert status is built upon this element alone it can be radical and de-stabilising, because expert knowledge is modified in areas of social and political conflict. This conclusion has implications for democratic solutions to policy problems. If policy problems are so intractable where does this leave democratic structures? If modern policy is 'impossible' then we may have to look at 'policy learning' as opposed to making the 'best' decision in advance. Part of the solution to this dilemma may mean accepting there is necessary uncertainty in policy areas.

This thesis demonstrates the key role played by particular groups in two distinct policy areas, and of the importance of complexity and legitimacy to the policy process. It concludes that the influence of particular expert groups in the siting of the route of the CTRL and in air pollution and asthma is extensive because of the knowledge they provide. The concept of expert knowledge is based on the premise of objective opinion. If anything, this thesis suggest that whilst policy-makers may have a desire to use objective opinion to combat the inherent complexity of policy areas, and to provide a corresponding legitimacy for policy decisions, this objective knowledge may not be attainable. This situation, however, will not prevent the future use of experts in the policy process.

APPENDIX

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-------------|--|-------------------|---|---|---|---------------|
| 1979 | BR and SNCF propose a 'mousehole' single track rail link. | | BR, SNCF. | | | |
| 1985 | | | SERPLAN identifies the area from Tower Bridge to Southend (Essex) and Sheerness (Kent) as the ETC. CPRE produces studies calling for an emphasis on east-west development in London. | | | |
| 1986 | | | BR announces that a CTRL is unnecessary due to the decline in demand for rail services and the planned road extensions to the CT. KJCC establishes the KIS in April, to examine the relationships between the CT and supporting infrastructure. | | | |
| 1987 | BR selects Waterloo as its first international terminal ahead of Victoria and Docklands. | CT Act passed. | BR, Lambeth Council. | The selection of Waterloo rests as much on environmental grounds as well as economic and operational considerations. BR commissions ERM to advise on environmental matters. | There is protest about Waterloo being used as CT rail terminal. It is left off the CT bill after public enquiry on the grounds that three extra trains a day would cause no burden to an area that has had a mainline station since 1848. | |
| 1988 | | | BR argues that CTRL required to prevent the overloading of Network SouthEast. | | | |
| 1988 (July) | BR publishes four alternative routes produced internally, and two others; RACHEL and TALLIS. | | BR conducts route assessment internally. There is involvement from groups with statutory responsibility for planning or the environment. | EU Environment Assessment Directive (1985) comes into effect under British Law. | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|--------------------|---|---|---|--|--------------------------------|---------------|
| 1988 (November) | Ove Arup and BR propose a joint venture to identify most viable route in engineering, economic, environmental, and transport terms. | | Ove Arup, BR. | | | |
| 1989 | Route set to pass near Hollingbourne village, possibly through a tunnel. | | Local campaign is launched in Hollingbourne for the adoption of the TALIS/Rail Europe route. KCC argues that the CTRL ought to have regard to the County Structure Plan and local plans. Peckham and Camberwell Action on the Rail Link is created. | | | |
| 1989 (March) | BR selects least environmentally damaging route. It rejects the four previous route options and selects a new one. This would run from Kings Cross (in a tunnel) and Waterloo (existing tracks) to Warwick Gardens, to the east of Swanley in a 19.4km tunnel; from Swanley to a new North Downs tunnel, crossing the River Medway north of Maidstone, following the line of the M20 motorway, through a tunnel at Ashford and on to the CT at Cheriton. BR argues that the Stratford option would necessitate an extra link to Waterloo. | Government prevents BR borrowing money from the Treasury to construct the link, which is possible under existing legislation. Government rejects the £3.1bn proposal from BR and asks that the private sector become involved in the project. | Government, BR, DoE, Treasury, London Borough of Newham. BR anxious to deposit a bill for the CTRL before the end of 1989 to keep within the timetable for the redevelopment of Kings Cross. London Borough of Newham use transport consultants to argue that a Stratford option would be cheaper than Kings Cross, and would provide more capacity. | Stratford option considered by many to present least potential for traffic congestion, would aid development opportunities and job creation, plus provide a rail link to Docklands and central London. | | |
| 1989 (July) | BR insists on the selection of Kings Cross as the main CTRL terminal. BR announces southerly approach, and spends £40m on buying houses in South Darenth that are situated on the route. BR requests individual proposals for the construction of the CTRL. | DoE expresses doubt over the potential benefits of a terminal at Stratford for Docklands. | | | | BR. |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------------|---|---|---|---|--------------------------------|---------------|
| 1989 (July-Nov) | ERL (BR's prospective partner) created and route submitted to government. £2bn subsidy requested; £900m in cash and £1.1bn in interest-free loans. | Government reacts angrily to the proposal and returns the project to BR. | BR, ERL | | | |
| 1989 (November) | Two proposals are under consideration: a line ending in Stratford (proposed by Ove Arup), and a link to Swanley in Kent with a faster link to London to be built later. | Government confirms that no public subsidy is available. | Ove Arup expresses wish to operate with BR on a route to Stratford. The consideration of Stratford seen by many as a humiliation for BR, as it is not a project of its own. BR still concerned over timetable for Kings Cross redevelopment. | Stratford is considered by many observers to be a more environmentally-friendly option. | | |
| 1990 (February) | ERL expected to announce its southerly route in April 1990. The proposed tunnel into London from Swanley is abandoned due to excessive cost. | | ERL, BR ERL confident of an 18 per cent return on investment without government subsidy. Fierce opposition expected from residents groups. | | | |
| 1990 (March) | Ove Arup publishes alternative route proposals; an easterly approach into London. | | Ove Arup. | Ove Arup considers that its alternative to the southerly approach provides greater environmental, freight, and economic benefits. | | |
| 1990 (May) | | Government expected to give go-ahead for the CTRL (southerly) route. The Cabinet is to decide whether to abandon the private bill for the CTRL in favour of a hybrid bill. | Government, Treasury. | | | |

continued/...

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-------------------|--|---|--|--|--|--|
| 1990 (7 June) | Householders living outside the 240m route corridor discover they will not have their homes compulsory purchased under the CTRL scheme. | Government announces postponement on a decision about the CTRL, and reiterates its opposition to public subsidy. | | | It is argued that those outside the corridor suffer imposition during planning, such as blight, time delays, and because of the uniqueness of the project. | |
| 1990 (10 June) | BR's route is designed to run from Kings Cross, through an existing tunnel under the River Thames, along upgraded routes to Swanley, where a new line is to be built to the CT. BR is also assessing two rival schemes to enter London from the east. | Government expected to abandon the project because of cost. Government officials play down the need for a CTRL arguing only six per cent of freight traffic would utilise the route. | ERL, Government, BR. | It is argued that abandonment of the CTRL would be welcomed in south London and Kent because of public protests and planning blight. | | ERL claims that a national poll shows a majority in favour of a high-speed link. |
| 1990 (14-21 June) | BR convinced of planning permission and broad agreement for most of one route from the North Downs to the CT (Folkestone to Swanley). BR to re-assume responsibility for work on the line between Swanley and London. Ove Arup route to be considered. | Government rejects BR's southerly route because of costs, but 'protects' the route corridor from the North Downs to the CT, and confirms Kings Cross as the second main terminal. ERL had requested a £500m grant, £400m for Network SouthEast, and £1.1bn for upgrading the existing line converted into a loan. The government believes ERL would have used this to finance construction of the link. | Government, Labour Party, Ove Arup, BR. Government confirms (14 June) that although the existing route is to be safeguarded it does not pre-empt the study of alternative routes. Government asks BR to consider alternatives west of the North Downs, taking account of rail routes to the rest of Britain via a terminal at Stratford. BR argues that although the Ove Arup route would provide a basis for a national freight network, pressure is on passenger capacity, and would require too much development. | Indecision over the route claimed to be causing extensive planning blight. | Labour Party suggests to government that a committee of experts be set up to consider all route options. | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

continued...

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------------------------|-----------------|---|--|----------------------|--------------------------------|---------------------------|
| 1990 (14-21 June) continued | | | Dulwich Against the Rail Link consider re-forming as the decision to cancel does not lift blight. The London Channel Tunnel Forum is equally disappointed and concerned that the government dismissed the east London alternative. | | | |
| | | | Lambeth Public Transport Group accuses government of 'confused thinking'. Campaigners in Kent urge the government to consider the TALIS route, but fear BR will continue to look for a route through the Kent countryside. Dover Council state they would not have supported the CT bill without the relevant infrastructure, i.e., the CTRL. The AMA argues that the decision is bad for the regions. | | | |
| | | | BR is concerned that the project can only be completed as a joint public/private venture. | | | |
| | | | ERL is critical of the government postponement of the project. It argues that of the £2bn subsidy requested, £1.6bn would have been spent anyway; £500m to Network SouthEast for developments at Kings Cross (capital grant) and £1.1bn for upgrading the existing line. | | | |
| 1990 (27 June) | | Government is criticised by the Labour Party for lack of investment and delay over the CTRL, and for not permitting a government subsidy. | | | | Government, Labour Party. |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------|-----------------|-------------------|-----------------|----------------------|--------------------------------|---------------|
|-----------|-----------------|-------------------|-----------------|----------------------|--------------------------------|---------------|

| | | | | | | |
|------------------|--|--|--|---|--|---|
| 1990 (August) | | | Proposed environmental improvements forces ERL to withdraw from the project because of the projected increases in costs. | | | |
| 1990 (September) | BR announces changes to the southerly route to reduce environmental impact; a 3.5m section between the CT and Upper Halling, near Swanley. The remainder of the section is to be that announced in November 1989. | Government announces it will 'safeguard' the 3.5m section. | BR, Fine Arts Commission. | BR announces proposals for a viaduct, that will be designed in conjunction with the Fine Arts Commission to carry the link above trees between the A249 and A229 to avoid going through Boxley Valley at ground level, which contains ancient woodland and an historic park. | Despite environmental proposals hostility is expected from residents who remain non-reconciled to the link passing through the North Downs. They are campaigning for it to be built further north. | Viaduct deemed necessary to preserve the 1 in 90 gradient for the efficient running of international rail services. |
| 1991 (Jan-Apr) | BR considers the following routes: i A southerly approach to Stratford (proposed by the London Borough of Newham). ii An easterly approach to Kings Cross (Ove Arup). iii An easterly approach to Stratford (Rail-Europe). iv BR's southerly approach. | | WS Atkins appointed by BR to evaluate BR's assessment of the four routes. | Ove Arup identifies the following environmental features during the environmental assessment of their route proposal: SSSI's, sites of local conservation interest, woodlands and hedgerows, special landscape and greenbelt areas, agricultural land, long-distance footpaths, mineral workings, landfill sites, and noise-sensitive activities. | Ove Arup undertakes consultation with local authorities to gauge concerns and understand their objectives. There is no examination of planning and development control at this stage. | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|----------------|---|--|---|---|--|---------------|
| 1991 (May) | BR selects its own route from the four considered and requests a £3.5bn subsidy. The route runs across Kent via Ashford, the Medway gap, Swanley and south-east London, with a final section in a tunnel under the River Thames as Blackfriars. It includes a junction at Warwick Road to take high-speed trains underground to Kings Cross, to link with its redevelopment. The CTRL is to be named the New Kent Main Line. | | DoT. WS Atkins completes its evaluation. Peckham and Camberwell Action on the Rail Link Group created. A2 Rail Action Group begin campaigning. | Peckham and Camberwell Action on the Rail Link claims that BR has been informed that the route is technically, financially, and environmentally unsound. The group is to appeal to the DoT as the plans are causing planning blight. BR is criticised for not carrying out a detailed Environmental Assessment of the impact of each route, and insufficient attention to work needed to minimise the noise of high-speed trains. | There are protests to the DoT against the proposed route. | |
| 1991 (July) | | The protests in May force the DoT to postpone a decision on the route. | DoT. | | | |
| 1991 (October) | Ove Arup route adopted. The route runs through 48km of the ETC. The new station at Stratford will be linked to Kings Cross by a new underground route. | Government rejects BR's route and instead adopts Ove Arup's scheme of an eastern approach into London, on consideration of environmental and freight implications, and because it integrates land-use planning and transport planning. | BR, Ove Arup, ERL, DoE The adoption of the Ove Arup route is seen as a political victory for protesters in south London. | Ove Arup proposal deemed to be based on more environmental and strategic concerns to provide BPEO. It is argued that environmental concerns took precedence over transport and commercial interests. | High-speed link considered to be subject to Environmental Assessment under EU Assessment Directive (1985). | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------------------------|---|---|--|--|--------------------------------|---------------|
| 1991 (October) continued | | Government instructs BR to draw up an eastern approach and for it to be funded entirely by the private sector. Secretary of State for the Environment announces that there will be a study of development prospects in the ETC. | Eastern route viewed as a victory for the Secretary of State for the Environment, and a victory for the DoE over the DoT; the DoE was in favour of east London redevelopment and the benefits to freight that this approach promises. BR argues that the Ove Arup scheme makes little financial sense. BR uses Pineda (planning consultants used on its route options) to show that benefits of the eastern approach are only £100m. | | | |
| 1992 (May) | | It is argued that the collapse of Canary Wharf could affect the potential for trackside developments of a CTRL. | | | | |
| 1992 (July) | | | UR created to develop Ove Arup's route into a firm scheme. UR hopes the route will be safeguarded by May or June of 1993 in time for a hybrid bill later in the year. | | | |
| 1992 (September) | BR considers variations along the route: i. The crossing of the Medway River will not be next to the M2 motorway, but further down the river to enable a station to be built on the west bank serving the Medway towns. ii. The route north of Detling is to be no longer via a tunnel. | | Llewelyn-Davis (planning consultants) submits report on the ETC to the DoE. | The proposed Medway River crossing is welcomed by commuters, but feared will cause blight across a large urban area. | | |

| Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) | | | | <i>continued/...</i> | | |
|--|--|---|---|---|--------------------------------|--|
| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
| 1992 (September) continued | <p>iii) It is unlikely that a tunnel will be constructed under Ashford; instead a route to the north of the town, nearer to the M20, with Ashford station on a spur. A 450m path along the route from Delling to Maidstone is 'safeguarded' by KCC.</p> <p>There is also a suggestion that the Stratford to Kings Cross connection could be built overland through Hackney and Islington.</p> | | <p>KCC expresses anger over BR's treatment of the Bluebells Estate on the A229 between Maidstone and the Medway towns. BR purchased houses when the estate was on the original southerly route. When the eastern approach was adopted BR started to sell. Now the estate could be back on the route and BR is looking to re-purchase.</p> | | | |
| 1992 (Nov-Dec) | | <p>Government requests that UR consider St. Pancras as the main terminal, and an access route from Stratford. It is considered a cheaper alternative.</p> | | | | |
| 1992 (December) | <p>BRB rejects UR's route proposal prepared between October 1992 and December 1992 because of legal concerns and the potential disruption that would be caused during construction to freight and passengers traffic.</p> <p>The proposed route uses the North London Line through Hackney and Islington, through east London overground from Stratford, with St. Pancras, not Kings Cross, as the international terminal.</p> | | <p>LRC (chosen developers for Kings Cross) object to potential re-routing to St. Pancras and argue that it contravenes the contract negotiated with BR.</p> <p>BR instructs UR to re-submit new route proposals by 14 January 1993.</p> | <p>It is claimed that using the North London line would be difficult because of pinch points at Hackney and eastwards towards Stratford. It would also affect freight traffic between East Anglia and the rest of Britain as the line would be closed for five years.</p> | | |
| 1993 (January) | | | | | | <p>UR submits revised scheme to BRB.</p> |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|---------------------------|---|--|---|---|--|--|
| 1993 (February) | St Pancras and Stratford options submitted to government by UR. Route would bring trains on the North London Line through residential areas of Hackney, Canonbury and Islington, and run into St Pancras or a new station on vacant railway land. | BR instructed by government to consider a lower cost scheme for the CTRL, with most of the saving coming from the adoption of St Pancras over Kings Cross. | BR, UR, Government, Samuel Montagu and Co. Limited, WS Atkins Planning Consultants. | | Details of the revised route are to be published towards the end of March 1993, followed by a period of public consultation. | Government appoints Samuel Montagu and Co. Limited and WS Atkins Planning Consultants to evaluate methodology for route assessment undertaken by UR. |
| 1993 (February) continued | BR still favours a tunnel from Stratford to Kings Cross as part of the £1.4bn upgrade of InterCity and suburban railway interchanges at Kings Cross and St Pancras. | | BRB expresses view against the rejection of Kings Cross redevelopment. At £3.4bn it would be the largest inner-city regeneration in Europe. | | | |
| 1993 (February/March) | | Government expresses preference for the eastern approach because of its scope for development and environmental enhancement. | DoE argues that, although transport is seen as an essential infrastructure to the area, the CTRL route is only part of the solution to the relief of potential capacity problems associated with development, particularly the London to Gillingham Line. | DoE argues that the CTRL would serve most effectively the needs of the ETC if: there is an intermediate station in addition to the one at Stratford, new speed domestic lines, and minimised impact on development sites. | DoE argues that the eastern route provides better environmental performance, and thus will aid development. However, constructing a railway could perpetuate the area's reputation as London's backyard. | |
| 1993 (March) | UR submits full report on the eastern route to the DoT. The report provides many transport and economic regeneration options (depending on the rate-of-return on investment expected). It calls for an intermediate international station between Ashford and London, and an international parkway near the M25 motorway. | | DoT. | The environment and the rate-of-return on investment are blamed for the soaring cost of rail projects. | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|---------------------------|--|---|--|----------------------|--|---------------|
| | a domestic parkway station at Halling (between Maidstone and the Medway towns), a domestic parkway station at Ebbsfleet or a junction with Network SouthEast lines at Purfleet (Essex), an international station and domestic parkway station near Dartford, and an Eastern Gateway Station. The report also outlines the St. Pancras option: From Stratford through a 6 km tunnel to Dalston, then on two segregated tracks on the North London line for 3 km turning south near York Way on an elevated line to enter St. Pancras from the north. UR believes that the report on St. Pancras to be inconclusive because of the short time to produce the proposals. | | | | | |
| 1993 (March) continued | | | | | | |
| 1993 (15 March) | Government set to announce two route options into London: i BR's North London Line from Stratford to Dalston Kingland (east London), through a tunnel to surface and join the existing four-track North London Line through Canonbury, Islington and Barnsbury. After passing through Caledonian Road and Barnsbury station, the route runs south at a new junction and into St. Pancras. ii a tunnel all the way from Stratford to a new underground terminal at Kings Cross. | Government set to announce in the budget that the CTRL can be a joint public and private venture under new guidelines set by the Treasury. Government publishes both route options because of a dispute over the site of the new international terminal. | BR, Treasury, Government. UR favours St. Pancras option because of cost. BR favours Kings Cross because of existing redevelopment plans for the site. DoT understood to favour BR; the DoE supporting the UR proposal. | | DoT decides to use public consultation over the choice of the terminal and route. UR option thought to be causing concern to north London residents near the overground sections. | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------------|---|---|---|---|--------------------------------|--|
| 1993 (16 March) | Government announces that St Pancras will be the CTRL terminal. | Government confirms that the CTRL will be a joint public and private venture. The Treasury campaigns successfully for the adoption of the cheaper St. Pancras option over Kings Cross. | Treasury. | | | |
| 1993 (19 March) | Government postpones announcement of the route until the last week in March due to a leaked document outlining the route from where it crosses the River Thames to the CT at Cherriton. | It is claimed by the Labour Party that the leaked document shows that the cost of the link is reduced from £4.5bn to £2.5bn. Chancellor announces in the budget that the CTRL will be a joint public and private venture. | The leaked document was an insert due to be published in the Kent Messenger newspaper in the last week of March, following the announcement of the route in Parliament. | The Labour Party claims the leaked details show the route to be environmentally unsound. The affected areas include: two listed buildings at Brickham Farm, (Charing Heath), Clay Ponds and Temple Woods (part of a SSSI), ancient woodland at Merralls Shaw, and ancient woodland near Boxley. | | |
| 1993 (22 March) | UR publishes CTRL route. | Government announces that the public subsidy is justified on the grounds of the environment, development potential, and commuter services. | Government, DoE, UR. | | | |
| 1993 (27 March) | | | Blue Circle announces plans to construct a privately financed international railway station near Dartford (north-west Kent). Blue Circle is also examining further developments options around the immediate area on land they own. DoE establishes task force of civil servants to consider plans for the ETC. | | | Blue Circle to undertake local consultation over station proposal. |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|------------------------|--|---|---|---|---|---------------|
| 1993 (29 March) | Fears are expressed that the new international station being constructed at Waterloo at a cost of £170m could be obsolete in six years. Waterloo was part of BR's original southerly route. | | BR confirms that most or all of CTRL services will switch to St Pancras or Kings Cross from Waterloo when the CTRL opens. | | | |
| 1993 (March and April) | Route is planned to pass overland near Hollingbourne village. | | Residents of Hollingbourne village, UR. | | Residents of Hollingbourne propose to build their own tunnel if UR is not prepared to. | |
| 1993 (May) | | The methodological approach adopted by Ove Arup in development of the eastern route (the integration of land-use and transport planning), is developed into PPG 13 by the DoE and the Welsh Office. | Ove Arup, DoE, Welsh Office. | | | |
| 1993 (October) | UR issues a further report (29 October) to government. This includes considerations of intermediate stations at Stratford, Rainham, Ebbsfleet, and Nashenden. It also includes studies of business, environment, regional, transport, and economic factors, with no recommendations to government. | Government publishes UR's proposed route. The government announces that the final route is due to be published by the end of 1993, in time for publication of a parliamentary bill in March 1994. | DoT, UR, residents groups. | UR report includes: higher standards for environmental protection, improved standards of design to reduce noise during construction and operation, the use of deeper tunnels, additional environmental proposals for Kent, and plans for a full Environmental Assessment. | The UR report is a result of a six-month consultation exercise on the March 1993 options supplied to the DoT. | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|--------------------|---|---|--|--|---|---------------|
| 1993 (November) | <p>Modifications to St. Pancras proposal are planned. These include: dropping plans that would have affected the Kings Cross redevelopment site, a natural extension to St. Pancras to accommodate new platforms and possible Thameslink redevelopment. Plus, new approach options to St. Pancras: a tunnel all the way from Barking and Stratford, tunnels at Stratford, Newham and Barking, landscaping at Rainham, and two alternative routes at Purfleet (plans for an international station there are dropped).</p> <p>Final decision on the route not expected until early 1994.</p> <p>KCC submits a report to the DoT on possible alterations to the route. The main changes proposed are:</p> <ul style="list-style-type: none"> i A longer tunnel under the North Downs between Bluebell Hill and Detling to protect an AONB. ii The route to run through the centre of Ashford rather than by-pass it to the north. iii A small diversion to avoid building a shallow tunnel under housing at Pepper Hill on the edge of Northfleet. <p>KCC endorses the CTRL in principle, as a quick route to London and offering the potential for regeneration. It also calls for a station at Ebbsfleet.</p> | <p>Government keen to bring in the private sector over the route proposals before the political uncertainties have been resolved, against the advice of UR. Government decides to include revenue from existing EPS services to the winning consortium.</p> | <p>KCC, UR, DoT, local environmental and residents groups.</p> | <p>The KCC report supports half the proposals for improvement put forward by local environmental and residents groups.</p> <p>The report criticises the proposed route on environmental and freight transport grounds.</p> | <p>Modification options include requests from residents for doubling the length of proposed tunnels, evaluation of an overground station at St. Pancras, and proposals for three extra intermediate stations.</p> | |
| | | <p>On 11 November government announces further postponement of the route alignment until January 1994.</p> <p>The hybrid bill will not be deposited until November 1994.</p> | | | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-----------------------------|--|---|--|---|--|---------------|
| 1994 (24 January) | The CTRL route is announced by the government: There will be a two mile extension of tunnelling in Islington. The tunnel starting in Barking, east London, which would have ended in Dalston will now end east of Caledonian Road, Islington. The Kent villages of Hollingbourne and Sandley will receive short tunnels. A tunnel at Blue Bell Hill, requested by KCC is rejected because of cost. St. Pancras is confirmed over Kings Cross, as the main terminal. | Government will not support proposals for a tunnel underneath an electricity switching station at Pepper Hill. Government expresses preferred route for Ashford; to run the line to the north of the town rather than through the centre. Legislation for the CTRL is to be prepared. | Government, KCC, local residents groups. | The proposed tunnel into Islington is deemed necessary to spare demolition and reduce noise levels. In general 40 houses will be demolished to make way for the route. Residents of Pepper Hill demand a tunnel. The delay to the decision extends the problem of blight and delays possible claims for compensation. | A2 Rail Action Group considers legal action against UR. | |
| 1994 (24 January) continued | The announcement concerning Pepper Hill, (Gravesend) and Ashford is further postponed. The decision not to construct a tunnel at Pepper Hill leaves two possibilities: a tunnel underneath the estate, or a viaduct over nearby fields. There are three possibilities for intermediate stations: Ebbsfleet or Rainham (to link with the M25 motorway), or Stratford (to link with BR and London Underground routes). The decision will be left to private developers. | | | The residents of Ashford claim that to run the route through the centre of Ashford would affect adversely villages to the north-west of Ashford where the line rejoins the confirmed route, and would affect 8m of unspoilt countryside. KCC expresses concern that the route is not completely finalised and will continue to fight for environmental improvements. | | |
| 1994 (31 January) | BR commences the selling of houses in South Darenth, originally on the site of the southerly route. There is still no decision on the corridor width. UR announces that it is unlikely to be more than the 36 metres usually required to protect a twin railway track. This is in contrast to the 240m declared by BR on its first route abandoned in 1991. | | UR, BR, KCC. | KCC calls for compensation for those outside the 36m corridor expected to be announced by UR. KCC claims that the compensation offered is based on 20 year-old data used for motorway noise levels. | BR agrees not to place houses in South Darenth back on to the market at 'distress-sale' prices. Stratford residents are reported to be generally enthusiastic about the project. | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|--------------------|---|---|---|--|---|---------------|
| 1994 (24 February) | <p>UR proposes three possible options for Ashford:</p> <ul style="list-style-type: none"> i A southerly route cutting across countryside, and running through the town. ii A middle route that runs through the town. iii A route that takes the route to the north of the town, with a spur to the new station (government preference). | | UR, Mayday Group. | | <p>Mayday Action Group threatens first legal challenge over taking the route through Ashford.</p> | |
| 1994 (April) | The building of Ashford station commences. It is due for completion at the end of 1995. | | Government, ABC, KCC. | If the northern route is adopted for Ashford KCC fears that east Kent will have the environmental drawbacks of a CTRL, with no corresponding economic benefits. Development opportunities would be seriously curtailed if the northern route is adopted. | | |
| 1994 (April-May) | Decisions on Gravesend and Ashford taken; the route will run through the centre of Ashford, and be diverted away from Pepper Hill, not by a tunnel, but by a cut and cover alignment nearer the A2. | | Government (DoT), Ashford campaigners. The EKI and local civic leaders argue that placing the route through the centre of Ashford is essential for the development of Ashford and East Kent. | | | |
| 1994 (October) | Ebbsfleet confirmed as an intermediate station. | | | | | |
| 1994 (November) | Although the route into London is confirmed it does allow for small variations within the designated 'envelope'. | Hybrid bill receives first reading in Parliament on 24 November. The second reading is expected before the end of 1994. | Government, UR. | Environmental Statement published and submitted along with Bill. | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996) *continued/...*

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|-------------------|-----------------|---|---------------------------------|--|--------------------------------|--|
| 1995 | | | Federation of Small Businesses. | Kent region of the Federation of Small Businesses is set up to urge government to consider planning and pre-planning blight with regard to the route. | | |
| 1995 (14 January) | | Parliamentary procedure launched; it is expected to take two years. Public subsidy for the CTRL likely to be £1.1bn, part of which will be state-owned assets. | Government, UR | | | It is estimated that 800 jobs will be created during construction, and 2000 permanently. |
| 1995 (16 January) | | Second reading of the CTRL Bill takes place. The Bill provides powers of construction, maintenance and operation of the link. Government defeats an amendment calling for a station at Stratford, but the area is designated an 'open box'. | Government, Labour Party. | It is confirmed that developers must meet environmental standards applied to other major projects. Government argues that the benefits of the CTRL outweigh the environmental impact. The government defeats an amendment that demands best environmental provision and extra tunnelling at Boxley (Maidstone), Caledonian Road (Islington), Barking, Dagenham, West Thurrock, and Purfleet. | | |
| 1995 (February) | | Select Committee begins consideration of the CTRL route. There are 993 petitions for amendments to the route. | Select Committee. | | | |
| 1995 (1 April) | | Responsibility for UR taken over by DoT. | DoT, UR | | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|---------------------|---|---|---|---|--------------------------------|---------------|
| 1995 (30 September) | Amendments are made to the route following Select Committee recommendations. There are to be tunnels at Barking, east London, and Islington, north London. The route will now divert away from Mardyke (Thurrock, Essex). There are also local changes affecting Harrietsham and the Boxley Valley. | The government agrees to route changes that are proposed on environmental grounds. £170m is to be provided for extra tunnelling. Government accepts in full the majority of the recommendations of the Select Committee considering the bill. | Government, Select Committee. | | | |
| 1995 (5 November) | Second group of amendments deposited relating to three matters: St. Pancras and Stratford stations and the River Lee Navigation and Waterworks River - all accepted by the Select Committee. | | Select Committee. | | | |
| 1996 (February) | The CTRL route is finalised. The tunnel underneath London will be extended at Barking, east London by 4km. There will be a less intrusive surface route near Mardyke. There will be a revised approach at St. Pancras (improves development at Kings Cross) that involves a viaduct over the East Coast Main Line after the route emerges from the London tunnel. | Select Committee completes its consideration of the CTRL route. Hybrid bill to move to standing committee in March 1996, and then to the House of Lords in April or May. It is expected to receive Royal Assent in early 1997. | Select Committee. Camden and Islington Councils both support the revised approach to St. Pancras. | Changes to route secured because of environmental concerns. | | |
| 1996 (Feb/March) | LCR is awarded the contract for the construction and operation of the CTRL. Consortium comprises: Virgin Group, National Express, Ove Arup, Bechtel, Sir William Halcrow, and SG Warburg. There is confirmation of an international and domestic station at Stratford. | Government announces the provision of £1.4bn of direct financial contribution, the transfer of ownership of the Eurostar service to LCR (to occur immediately), and large areas of redundant railway land. | Government, LCR | | | |
| 1996 (5-21 March) | | CTRL Bill moves to Standing Committee. | Standing Committee. | | | |

Table 4: Channel Tunnel Rail Link-Chronological Overview (1979-1996)

| Year/Date | Route Alignment | Government Policy | Groups Involved | Environmental Issues | Participation and Consultation | Other Factors |
|---------------------|---|--|---|----------------------|---|---------------|
| 1996 (29 April) | | First reading of CTRL in the House of Lords. | House of Lords. | | | |
| 1996 (21 May) | Priorities of Bill confirmed in second reading in House of Lords and the amendments proposed by House of Commons Select Committee. | Second reading of CTRL Bill in House of Lords. | House of Lords. | | | |
| 1996 (June) | House of Lords Select Committee considers 293 petitions for alterations to the route unresolved by House of Commons Select Committee. Includes a petition to re-route the link around a spiritual site near Sandley, Maidstone by extending a tunnel by 340m. | | Odinic Rite, House of Lords Select Committee. | | Members of the Odinic Rite appear before the House of Lords Select Committee. | |
| 1996 (30 September) | | Government accepts all House of Lords Select Committee's decisions and recommendations on route alignment. | | | | |
| 1996 (3 October) | House of Lords select Committee reconvenes on 3 October to hear a report on progress on negotiations between UR and commercial and industrial petitioners. | | | | | |
| 1996 (Oct-Nov) | 'Normal' planning restrictions are removed from St. Pancras and replaced by negotiations between LCR, Camden local authority, and English National Heritage. | | | | | |

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