

PUBLIC DECISION CONTROVERSIES OVER TECHNOLOGY:  
CULTURAL BIAS AND THE POLITICS-OF-INTEREST

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ABSTRACT

This thesis examines the nature of public decision controversies over technology and its impacts. It analyses the political and social conflicts involved in public policy processes concerned with large-scale, potentially hazardous, technology projects. The central empirical element consists of a detailed case study of political decision-making on the siting of a liquefied natural gas (LNG) facility in the Netherlands (during the late 1970s). Analysis of the Dutch decision controversy highlights the key determinants of policy disputes involving the assessment of risks and benefits of technologies.

This thesis develops a cultural approach to policy analysis, which is more appropriate than traditional 'interest' models for explaining controversy over (so-called) 'technological decisions'. The cultural framework focuses on differences in institutional perceptions, so as to account for the conflicting selection criteria and concerns that underpin dissensus among policy actors. By relating analytical concepts to in-depth case research of decision disputes over technology, this thesis seeks to contribute to further theoretical and empirical understanding of the factors underlying conflicting assessments of technological developments in the public policy domain.

<u>TABLE OF CONTENTS</u>		<u>Page</u>
Abstract		2
Table of contents		3
List of figures and tables		6
Acknowledgments		9
	Introduction	10
Chapter 1	Controversies in technological decision-making	14
	1 Introduction	14
	2 The assessment of technological impacts	20
	3 Disputes among experts: the traditional political perspective	26
	4 Technological controversies as political value disputes	33
	5 Addressing the socio-cognitive dimensions of decision controversy	40
	Notes and references	53
Chapter 2	Decision theory and the politics-of-interest	64
	1 Introduction	64
	2 The politics-of-interest	66
	3 Decision rationality and the pursuit of interest	70
	4 Beyond interest models of social choice	77
	5 Conclusion: the case for a cultural perspective	84
	Notes and references	86
Chapter 3	Cultural bias and policy analysis	90
	1 Introduction	90
	2 Social institutions and cultural environments	95
	3 Cultural typology: grid/group theory	97
	4 Political cultures and policy strategies	103
	5 Cultural analysis of policy dissensus	110
	Notes and references	125

	<u>Page</u>
Chapter 4	<b>Competing perspectives on policy analysis: towards empirical confrontation</b> 131
	1 Introduction 131
	2 Conceptual and definitional issues in empirical analysis 136
	3 Empirical confrontation of the conceptual models 139
	4 Empirical evidence and operational research procedure 144
	5 The explanatory case study as empirical research strategy 153
	Notes and references 161
Chapter 5	<b>Controversial public decision-making: the case of LNG technology in the Netherlands</b> 167
	1 Introduction 167
	2 Policy actors and their contexts 172
	3 The LNG decision process: sequence of events 181
	4 The policy arenas: context of decision controversy 192
	5 Outlining the LNG controversy: the essential policy conflicts 201
	Notes and references 205
	Appendix A: Interviews 213
	Appendix B: Chronology of LNG decision events 1974-1978 214
Chapter 6	<b>LNG decision dispute: policy stances and contending problem definitions</b> 220
	1 Introduction 220
	2 ICONA policy perspective 224
	3 Local authorities: policy stances 232
	4 Industrial actor: Gasunie policy perspective 244
	5 Environmentalist perspective: the Noordzee working group 246
	6 National government: Cabinet policy perspective 250
	7 Contending problem definitions 255
	Notes and references 275



	<u>Page</u>
Chapter 7	284
Determinants of policy dissensus in the LNG controversy: the advance of cultural analysis	
1 Introduction	284
2 Key areas of policy dissensus	285
3 Divergent problem definitions: Groningen versus Rijnmond	290
4 The politics-of-interest explanation	299
5 Rijnmond versus Groningen: contrasting cultural biases	305
6 Cultural analysis of policy contexts	313
7 Explaining the LNG decision dispute: the cultural advance	324
Notes and references	339
Chapter 8	346
Conclusions: the cultural analysis of technological policy controversy	
1 Introduction	346
2 Theoretical and conceptual issues	347
3 The advance of the political cultures frame in policy analysis	352
4 Cultural analysis of technological decision controversies	357
5 Technological decisions: implications for further research	364
Notes and references	371
References	
Empirical data base: LNG decision case study	373
Bibliography	382

LIST OF FIGURES AND TABLES

<u>Figures</u>		<u>Page</u>
Figure 3.1	Social types and social contexts based on grid/group	99
Figure 3.2	Social contexts, cultural biases, moral justifications, and contending political cultures	113
Figure 4.1	Analytical distinctions on key concepts	141
Figure 4.2	Empirical research approach - thematic content analysis	147
Figure 4.3	Typical policy statements by impact dimension	151
Figure 5.1	The Netherlands: competing LNG import terminal locations	168
Figure 5.2	LNG Decision-making process: flow of events	183
Figure 5.3	Institutional network 1972-75: energy policy arena	195
Figure 5.4	National and local government policy arena 1977	197
Figure 5.5	Institutional network early 1978	198
Figure 5.6	Policy arena 1978: final LNG decision period	199
Figure 5.7	Central decision network LNG: input into the Dutch Cabinet	200
 <u>Tables</u>		
Table 1.1	Conflicting perceptions in the nuclear debate (Nelkin/Pollak)	43
Table 3.1	Political cultures: some major distinctions	107
Table 3.2	Risk perception patterns of political cultures	109
Table 4.1	Illustrative policy perspective summary	151

<u>Tables contd</u>		<u>Page</u>
Table 5.1	Key policy actors LNG decision controversy: summary	171
Table 5.2	National government: ministerial departmental responsibilities	174
Table 5.3	Environmentalist organizations concerned with LNG decisions	183
Table 5.4	Policy issue: LNG importation into the Netherlands	202
Table 5.5	Policy issue: preferred LNG terminal site location	203
Table 6.1	ICONA: policy perspective - October 1977	226
Table 6.2	ICONA: policy views by impact dimension	230
Table 6.3	ICONA: policy evaluations and manifest support criteria	231
Table 6.4	ICONA: dominant impact dimensions	232
Table 6.5	Rotterdam: policy implications by impact dimension	233
Table 6.6	Rotterdam: dominant dimensional criteria	235
Table 6.7	Rijnmond: policy implications by impact dimension	236
Table 6.8	Rijnmond: dominant dimensional criteria	237
Table 6.9	Zuid-Holland: policy implications by impact dimension	239
Table 6.10	Zuid-Holland: dominant dimensional criteria	240
Table 6.11	Groningen authorities: policy implications by impact dimension	243
Table 6.12	Groningen authorities: dominant dimensional criteria	243
Table 6.13	Gasunie: policy implications by main impact dimension	245
Table 6.14	Gasunie: dominant dimensional criteria	246

<u>Tables contd</u>		<u>Page</u>
Table 6.15	Noordzee environmentalists: policy implications by impact dimension	248
Table 6.16	Noordzee environmentalists: dominant dimensional criteria	249
Table 6.17	Cabinet: implicit dominant dimensional criteria on site selection - preliminary position	253
Table 6.18	Cabinet: policy implications by impact dimension	254
Table 6.19	Cabinet: dominant dimensional criteria - final policy stance	255
Table 6.20	Competing reference frames LNG policy problem	258
Table 6.21	Competing policy actors: contending reference frames	260
Table 6.22	Process dissensus: contractual imperatives	263
Table 6.23	Scientific dispute: risk probabilities detonation LNG	265
Table 6.24	Policy actors' risk definitions and risk assessment criteria	272
Table 6.25	Risk positions policy actors in LNG decision controversy	273
Table 7.1	Local government conflicts on LNG assessment	291
Table 7.2	Contrasting political cultures LNG policy arena	328

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"To understand which technologies and which contexts are important to us, and why, is an enterprise that must involve both the study of special technical systems and their history, as well as a thorough grasp of the concepts and controversies of political theory."

- Langdon Winner [1]

## INTRODUCTION

Public decisions over major technological developments have given rise to considerable controversy. One has only to refer to the heated debate over nuclear power to emphasise the significant conflicts involved in reaching 'acceptable' decisions on developments where the 'risks' and 'benefits' associated with technology are seriously in dispute. Furthermore, given the inevitable political and social contexts in which (so-called) 'technological decisions' are embedded, controversy has extended well beyond 'technical' questions, to include other interrelated policy concerns. It is not surprising then, that it has become increasingly problematic - for policy-makers and academic researchers alike - to understand what these disputes surrounding certain technologies are really about.

This study is concerned with the 'nature' of political decision controversies over technology. The political debates that define controversies over 'technological decisions', reveal serious disagreements among the policy participants on the issues at stake and on the appropriate modes for assessment and choice. The challenge taken up in this study is to come to terms with the underlying premises that inform these disagreements over technology in the context of public decision processes.

At the descriptive level actual debates over technological decisions can be examined for the various conflicting arguments that make up the policy dispute. What is needed, however, is to assess more clearly the conceptual terms in which political controversy over technology can be analysed - both theoretically and empirically. This study is an attempt to address this task. The key question is to explain what political and social factors underpin policy dissensus on the crucial issues of acceptability and assessment of technology.

Should we attribute controversy to its 'technical' dimensions and consider the 'politicization' of technological choice as stemming from expert disagreement over technical ambiguities? Alternatively, can disputes over technology be understood in terms of competing organized interests? Are the policy debates over 'technological risk' no more than a clash of self-interested participants, each making 'rational' judgements to achieve their aims? Or can the policy conflicts be better understood as reflecting deeper social and ideological commitments? Or should we perhaps examine controversy for the cultural and contextual differences that impinge on the way we view technology and its political assessment?

This study attempts to develop and apply an appropriate policy analytic perspective on public decision controversy, within which issues of technology can be examined with full account of their social and cognitive dimensions. In particular, I will argue the need for a cultural approach to public decision analysis, that can come to terms with competing institutional perceptions as a central feature of social controversy generally, and of technological decision disputes in particular. This cultural perspective on politics will be applied in an extensive empirical case study of controversial technological decision-making, concerned with the policy dispute over the siting of large-scale technology in the Netherlands (in the late 1970s).

The argument presented in this thesis comprises four interrelated steps. First, I review the existing policy-related literature on technological decision controversies and assess its conceptual strengths and weaknesses. Secondly, I examine the theoretical and conceptual issues pertinent to public decision analysis, and argue the need to address the serious shortcomings of the dominant politics-of-interest model. Thirdly, I examine the recent work on cultural analysis and the sociology of perception, and apply it in a cultural frame for public policy analysis. And fourthly, I confront the conceptual issues and analytical approaches in an empirical setting, and assess the analytical contributions of the cultural perspective in understanding dissensus in the context of the Dutch decision controversy over LNG technology.

In examining conflicts of politics and technology in their appropriate social settings, this thesis seeks to enhance our understanding of the controversial nature of technology, and help us recognize the pressing issues of social assessment and control. Conflicting cultural biases in technological decision



disputes ought not to be dismissed as irrationalities to be overcome, but treated as a potential source of wisdom to be explored. By bringing these biases into the open we can try and understand just where and when technologies are likely to be socially viable, and just where and when their social risks will make them increasingly unmanageable. This study is intended as a step towards such an exploratory mode.

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[1] Langdon Winner, "Do artifacts have politics?",  
Daedalus 109 (Winter 1980), p.135.

## CHAPTER 1

CONTROVERSIES IN TECHNOLOGICAL DECISION-MAKING1. Introduction

This study is concerned with public decision disputes related to technology and its impacts.<sup>[1]</sup> It examines the nature of political conflicts over the assessment of controversial technological projects in the context of public policy. The focus on technology as a substantive issue in research on political decision controversies may be seen as a paradox. In empirical terms, this thesis conforms to earlier studies that have singled out so-called "technological decisions"<sup>[2]</sup> as a legitimate area of research. Conceptually, however, it rejects the premise that public decisions about 'technological' projects can be analysed as distinct from other areas of public policy.<sup>[3]</sup> The central argument developed in this study is based on the view that issues of technology should be considered in their political and social context. My primary focus is to formulate an appropriate conceptual approach to political analysis, within which controversial issues of technology can be examined and understood. This chapter assesses the literature on (so-called) technological decision controversies, and questions its conceptual and analytical

adequacy in coming to terms with the social and cognitive dimensions of such political disputes.<sup>[4]</sup>

Nonwithstanding the real conceptual difficulties in separating "technological decisions" from other policy concerns, public decision-making institutions have often conferred a certain 'specificity' upon political questions concerned with the development and use of science and technology. In this respect, the experience of the last two decades (or so) reveals a considerable number of policy disputes in industrialized nations that have been largely associated with technological (and scientific) issues - both in the public mind and on the part of governmental policy makers. It is at this empirical level that Nelkin has said about technology-related controversies:

"Technologies of speed and power - airports, electric power utilities, highways, dams - provoke bitter political antagonism as local communities protest against increasing burdens of noise, pollution and disruption. Great technological advances are invariably controversial; along with their benefits they generate distressing side effects.."[5]

The special status that is thus attributed to technology as a source of political conflict, pervades much of the literature on controversial technological decisions. Empirical studies have regularly taken the political debate about the potential "side effects" of a technological development as their starting point, thereby identifying their subject of concern (initially) in relation to substantive issues of science and technology.<sup>[6]</sup> Consequently, much of the literature on technological decision controversy has over-emphasised that such disputes frequently manifest themselves in disagreements over the 'scientific' and 'technical' aspects of policy issues. In this respect (drawing from a selection of case studies of controversial technological decision-making) Nelkin concludes:

"Whatever political values motivate controversy, the debates usually focus on technical questions. The siting controversies [for example] develop out of

concern with the quality of life in a community, but the debates revolve around technical questions - the physical requirements for the facility, the accuracy of the predictions establishing its need, or the precise extent of environmental risk".[7]

This study, however, strongly rejects the assumption that such technology-related controversies in public decision-making can be meaningfully analysed by focusing upon their 'technical' dimensions, without taking full account of the social and political contexts in which they emerge. Whilst part of the public debates may be cast in 'technical' terms, the controversy literature has come to acknowledge that what these 'technological' policy disputes have in common is that in the end they involve political commitments from among competing social values.<sup>[8]</sup> Hence, analysis of so-called "technological decisions" needs to start from the premise that controversial issues of "technology" cannot be divorced from the socio-political institutions and developments in which they are embedded.<sup>[9]</sup>

This study analyses the 'nature' of public decision controversies over technology by examining the political processes through which policy disputes are debated and fought out. It attempts to develop a policy analytic perspective that can come to terms with the growing understanding in research on technological decisions, that conflicts over technical issues and political values are closely intertwined. In this respect, my analytic approach concurs with the conclusion (here formulated by Del Sesto) that:

"Even though an issue may be tagged 'technical'... we still find that value and purpose, put into service by means of political power, are at least as important as any other factors in determining the eventual outcome of technical disputes...(...) Ultimately at stake [are] competing values interests and ideological commitments and not simply the 'facts'".<sup>[10]</sup>

The analysis of public decision controversies over technology must proceed from the understanding that dissensus among institutional policy actors involves scientific and technical issues and political value conflicts in their interrelationship; they are "techno-political disputes".<sup>[11]</sup> The controversial issues that emerge in the context of 'technological decisions' therefore, do not only "transcend" science and technology as basis for their resolution<sup>[12]</sup>, but (typically) involve fundamental debate about the appropriate line that is (to be) drawn between accepted scientific 'facts' and conflicting political values. Consequently, the political analysis of technological decision disputes needs to account for the conflicting definitional boundaries that policy actors adopt; for the different frames that inform their conceptions of 'technological' policy issues; and for the contending modes of assessment and choice.

This chapter examines the literature on technological decisions. It highlights that whilst (empirical) policy research has acknowledged in general terms the "politicization" of disputes in technological decision-making, the literature has lacked a coherent conceptual perspective for analysing controversial technology in its proper political and sociological context. In particular, I will challenge the dominance of the traditional 'rational interest' approach to public policy analysis, that reduces conflicting assessments of controversial technology unduly to the level of competing political values.

What is called for is a different perspective on political controversy; a framework within which public decision disputes over technology can be conceptualized and analyzed with full account of their appropriate social and cognitive dimensions. This chapter identifies the analytic shortcomings in current policy research on technological decision controversy. It formulates the conceptual issues that need to be examined in

the theoretical and empirical analysis of public decision disputes over technology and its social assessment, thus setting the scene for the research questions that will be addressed in this study.

### Technological decision controversy: empirical features

In singling out policy problems related to science and technology as the central focus of concern<sup>[13]</sup>, attempts have been made to discern a number of distinctive empirical features that have 'characterized' controversial cases of technological decision-making in the past. In this respect, an OECD study group, for example, identified a cluster of six main factors pertinent to empirical policy controversies over technology, including the novelty and complexity of issues associated with scientific and technological developments, the dimensions of their impacts, ethical and value concerns and general public perceptions.<sup>[14]</sup> Essentially, these factors are concerned with how the impacts of science and technology - on health, the environment, ethical principles, etc. - should be assessed and evaluated. In similar vein, the disparate views on the assessment of 'risks' and 'benefits' associated with technological projects or developments have often been observed to dictate the emergence and outcome of the dispute.<sup>[15]</sup>

The literature on technological decision controversy, reflects this concern with contending 'technological' impacts. In this context, policy research has highlighted three inter-related areas of political dissensus. First, conflicts among policy actors over how the impacts associated with a technology should be identified. Secondly, the lack of consensus over the interpretation and use of scientific and technical evidence on

the risks and benefits of a technology (frequently because scientists themselves are in disagreement). And thirdly, the absence of agreed criteria by which the acceptability of risks associated with a technology can be judged.

This chapter develops the argument that these political dimensions of technological decision controversy have been analysed largely without adequate attention to the interrelated social and cognitive factors that impinge on the assessment of "scientific" and "technical" issues, in the context of such policy disputes. In this respect, I will argue that the dominant political frame for analysing the conflicting evaluations of 'factual' consequences has been too narrowly conceived. As a consequence, the prevailing conceptualization of policy conflicts over technology (as used in the literature) has failed to address a deeper level of political dissensus: fundamental disagreement over the very meaning and boundaries of the 'technological' issues on the agenda, and over the nature of the policy problems at stake.<sup>[16]</sup>

In this study controversies over technological decisions are analysed in terms of the social and political factors that underpin conflicting assessments of the impacts associated with a technology. This chapter then assesses how policy dissensus in technological decisions has been analysed to date, and identifies the areas where our conceptual and theoretical understanding of technological decision disputes may be enhanced. In doing so, it hopes to show that whilst a unified conceptual perspective is still lacking in much empirical research, a dominant approach in the political analysis of technological decision controversies can be discerned.<sup>[17]</sup> Some writers have even referred to an emerging 'paradigm'.<sup>[18]</sup> This provides the starting point for assessing the nature of dissensus in technological decision controversies, and for examining the adequacy of analytical approaches that have been adopted to understand the underlying determinants.

## 2. The assessment of technological impacts

The analysis of technological decision controversies is concerned with conflicting assessments of technology; with trying to account for differences among policy actors in identifying and evaluating potential impacts. The early literature concerned with "technology assessment" has viewed policy controversies over the risks and benefits of a technology as involving two distinct areas of potential dissensus: scientific disagreement among technical experts, and value conflicts as to the social and political evaluation of the technological impacts.<sup>[19]</sup> As technology assessments have increasingly entered the political arena, however, and as (some of) the technologies have become subject to considerable public controversy, awareness has grown that the separation of factual impacts and political evaluations is highly problematic. Moreover, I will argue that this separation is theoretically and empirically questionable, and analytically counter-productive in understanding controversial technological decisions.

My analytical argument is developed from the view that the identification of 'factual' impacts of technology cannot be assumed to be either objective or value-free. By arguing from a position of interdependence between the identification of 'factual' impacts and their evaluation, disputes over 'technical' issues and political values can be conceptualised in a single analytic frame. In theoretical terms, this rejection of the fact-value distinction is underpinned by literature in the 'interpretive' sociology of knowledge (as well as in anthropology), which stresses that what are considered 'facts' ultimately depends on an accepted framework of social (and thereby evaluative) premises. Sociologists of



science have shown that even 'scientific' knowledge is (at least partly) socially-negotiated and influenced by values of various kinds.<sup>[20]</sup> My concern here, however, is less the social-constructivist view in the sociology of science<sup>[21]</sup>, than the policy analytic implications of the entwinement of facts and values in conflicting assessments of 'technological' impacts in the context of public decision controversies.

By acknowledging the interdependence of 'factual' disputes and value conflicts, competing "technology assessments" can be analysed with full account of their social and political contexts. Conversely, this conceptual starting point leads to a view of political decision-making that considers definitional disputes over 'technological' risks and benefits as integral to (controversial) processes of policy assessment and choice. In this respect, I concur with those who have pointed out that the assumptions and commitments implicit in any mode of "technology assessment" are fundamentally political in character.<sup>[22]</sup> What requires explicit attention in the context of public policy analysis, are the conceptual terms by which these "political" dimensions underlying technological decision controversies can be understood.

#### Integrating 'factual' and 'value' disputes

A significant part of the empirical literature on technological decision disputes can be challenged in its implicit assumption that 'consequences' are identifiable separately from (political) 'value' concerns. In this respect, case studies of facility siting disputes (involving large-scale technologies) have been particularly prominent in emanating the view that here policy dissensus stems simply from conflicting evaluations of 'the' technological risks and benefits. In this view, the risks and benefits associated with a technology are not in

themselves considered problematic in policy disputes, but only in the sense that policy actors reveal conflicting preferences on their desirability.

This interpretation does not attribute controversy to 'factual' disputes over what the risks and benefits are, but to the distribution of these impacts.<sup>[23]</sup> It focuses on 'objective' differences among policy actors, to account for the fact that technologies may affect various groups in society in different ways.<sup>[24]</sup> In this context, disparities between national and local interests, between general and specific concerns, have typically been identified as underpinning conflicting impact assessments.<sup>[25]</sup> In "facility siting controversies", O'Hare et al. have characterized the issue as "the problem of locally undesirable though generally beneficial" projects.<sup>[26]</sup> Similarly, the detailed case study by Ackerman et al. about a technological pollution control project (in the Delaware River Basin) highlights how the distribution of costs and benefits is identified as the main source of controversy.<sup>[27]</sup>

Nelkin's work stresses the equity issue as central to the emergence of many technological disputes, when she generalizes:

"Many controversies arise when citizens in a community become aware that they must bear the cost of a project that will benefit a different much broader constituency. Airports and power plants [for example] serve large regions but neighbours bear the environmental and social burden."<sup>[28]</sup>

Such accounts of so-called "NIMBY" disputes (standing for "not-in-my backyard") are conceptually deficient in that they assume (or at least suggest) that 'technological impacts' can be unambiguously defined in their 'factual' dimensions. Studies of other controversies over technological impacts indicate that the absence of conflicts over the identification of "risks" and "benefits" may be an empirical outcome, but cannot be taken as a conceptual premises for analysis. In many health-related controversies (e.g. over the health hazards of

low-level radiation, or the effects of certain drugs), the question of determining "risks" and "benefits" are at the centre of the dispute.<sup>[29]</sup> Similarly, environmental controversies often manifest themselves in conflicting stances as to what are to be taken as the ecological impacts of (technological) developments.

The empirical literature on decision disputes concerned with 'technological' impacts, highlights that policy actors regularly adopt strikingly different notions of "risks" and "benefits" associated with technological developments. Here one only has to refer to the growing literature on "perceived" risks, to emphasize that conflicting 'measures' of (technological) impacts must be accepted as part of empirical reality in policy discussions over risk and controversial technology.<sup>[30]</sup> Moreover, many disputes involve disagreement among scientific experts over the nature and effects of various potential impacts. (This issue is discussed in more detail below). The political analysis of technological decision disputes must be based therefore on the understanding that both 'technological impacts' and their social evaluation may be subject to controversy.

#### Political values and impact assessments

Acknowledging that facts cannot be assumed to be value-neutral, most political accounts of technological decision disputes have accepted that the identification of 'risks' and 'benefits' inevitably involves evaluative commitments. However, in the dominant political perspective, the value stances of policy actors are advanced as the central determinants for the identification and assessment of technological impacts. Hence, despite the rejection of a naive separation of 'factual' disputes from political value conflicts, the traditional approach in the political analysis of technological decision

disputes fails to come to terms with the structural interdependence of facts and values in controversies. In trying to account for the contending boundaries that policy actors set to the identification of 'technological impacts', most empirical controversy studies reflect an instrumental view of the political selection process. They have considered conflicting definitions of 'technological' consequences not as being in themselves problematic, but simply as manifestations of underlying dissensus over social and political values. It is this narrow political conceptualization of technology assessment disputes in decision controversies that I wish to challenge.

The political literature on technological decision disputes has failed to recognize sufficiently that any demarcation between 'factual impacts' and social value dimensions in technological choice reflects in itself a significant controversial feature that needs to be explained. It has not acknowledged adequately that processes of 'impact assessment' are inherently ambiguous, and, as such, open to political debate. What is considered a 'technical fact', and what is seen as belonging to the realm of social values, needs to be treated as part of the empirical dispute over definitional boundaries that is integral to technological decision controversies. What is lacking therefore in most of the political literature is the acknowledgement that impact assessments reflect not simply a conflict over independently formulated social values, that determine how 'technological impacts' are defined, but involve the interpretive frame in which both 'facts' and 'values' are bound up. Some authors, such as Nowotny have convincingly argued this structural ambiguity in impact assessment. In the context of the nuclear power controversy she has concluded:

"The societal images of nuclear risk... display the same [ambiguous] quality: depending how one looks at them the risks involved are entirely technical, in origin as well as in terms of a solution to the problem they contain, or they are entirely social, depending on the functioning or lack of it, of social institutions from the initial planning to the control of safeguards". [34]

From this perspective, closure of a controversy must be seen as dependent on consensus on the boundaries to the relevant 'facts' of the case, as well as the appropriate evaluative criteria for choice. The analysis of technological decision controversies should not (and can not) be premised therefore on any a priori separation between its 'factual' and 'value' dimensions. Indeed, it has been suggested that the 'dual' nature of "fact-value" disputes is essentially what makes trans-scientific controversies in technological decision-making so problematic.<sup>[35]</sup> In short, what is required, is not just to acknowledge that facts are value-laden, but to adopt an analytical approach that can come to terms with the interaction between 'factual' and 'value' dimensions in a single conceptual frame.

In integrating the social and cognitive dimensions of technological decision disputes, the focus of analysis shifts towards examining the different problem configurations and agenda by which policy actors frame their assessments and (political) evaluations of "risks" and "benefits" associated with the various (technological) options.<sup>[36]</sup> Political analyses of technological decision controversies must be premised therefore on the view that disputants inevitably concern themselves with a selective set of options, impact dimensions and choice criteria. The analytic challenge, is to examine and explain the social processes of selection and identification by which policy actors come to set boundaries to the particular 'problem frame' from which they operate.<sup>[37]</sup> It is against this background that we need to review current approaches in the political analysis of public decision controversies over technology.

### 3. Disputes among experts: the traditional political perspective

The failure to acknowledge the interdependence of facts and values is reflected in the dominant conceptualization of policy dissensus in technological decision studies. Most of the political literature has treated conflicting views on the 'factual' impacts of technology as unproblematic. The prevailing assertion is that ambiguity and uncertainty in technical 'facts' (e.g. over impacts) are seen as problematic only in so far they give rise to the emergence of value conflicts over their normative use in political controversies. In this respect, most policy studies have failed to address adequately the various cognitive factors that may underpin 'factual' disagreement among policy actors, and to analyse these as explicit features of technology assessment controversies. By construing technologies as passive resources to be understood solely in relation to the independently formulated ends to which they are put, most decisional controversy research has failed to examine disputes over (relevant) knowledge and over social values from a single conceptual perspective.

This prevailing 'paradigm' in the technological decision literature is underpinned by a 'rational choice' perspective on political decision-making; this perspective considers disputes solely in terms of conflicting evaluative stances of political actors. In this model, the boundaries that are set to the identification and assessment of 'technological impacts' are assumed to flow directly from the 'rational' pursuit of predetermined political ends, that actors seek to achieve. The mainstream of policy research into decision controversies over technology thus reflects a seriously limiting conceptual bias. Here policy conflicts over the assessment of technology are

collapsed into the narrow level of competing political values, with the assumption that the selection of values to be 'maximized' by policy actors reflects a voluntaristic, unproblematic process in decision-making.<sup>[38]</sup>

In order to establish the analytical inadequacy (or otherwise) of this traditional political perspective on technological decision controversies, its key features and underlying assumptions need to be spelled out and examined. In particular, the dominant 'model' in technological decision studies will be challenged in the way it conceptualizes the relationship between disagreements over technical 'facts', and conflicting social and political values. In this respect, significant insights can be gained by assessing the conceptual and analytic deficiencies of the traditional political approach in the context of the established literature on expert disagreement in decision controversies over science and technology.

The traditional political characterization can be identified in the way technological decision studies have treated issues of policy dissensus. In this respect, three main features of controversies stand out: questions of acceptability, the interpretation and use of scientific evidence, and the assessment of risks and benefits associated with a technology. The dominant bias towards political value conflicts in accounting for these problem areas is highlighted by the following summarized conclusions from the literature:<sup>[39]</sup>

- \* disputes over technological decisions mirror political conflict: each controversy has some actors arguing its acceptability and others opposing it, depending on the 'ends' they seek to achieve;
- \* scientific evidence is used as a political resource: technical data are valued, interpreted and utilized differently by opposing policy actors; and
- \* conflicts as to the acceptability of a technology go well beyond disputes over scientific and technical issues: controversies over the assessment of risks and benefits associated with a technology ultimately depend on the degree of political value consensus among policy actors.

My challenge to this particular political perspective on technological decision controversies can be argued with respect to two key conceptual deficiencies. First, the failure to acknowledge in technology assessment controversies the inevitable entwinement of 'factual' disputes and the conflicting political 'values' that govern normative issues of acceptability of 'technological' consequences. And secondly, the narrow conceptualization of policy conflicts with predetermined political values as the single causal determinant for disagreement over the identification, interpretation and use of 'factual' evidence. In both respects, the analytic shortcomings - and indeed contradictions - of the dominant approach are evident in the role it assigns to conflicting scientific and technical evidence in the context of policy controversy.

#### The politicization of 'factual' disputes

Expert disagreements over 'factual' issues and 'scientific' evidence have become accepted features of (many) technological decision controversies.<sup>[40]</sup> Some analysts have argued therefore that what is required is to develop a theory of decision-making that can accommodate for the fact that experts can be expected to disagree.<sup>[41]</sup> In taking up this challenge, the policy literature on expert disagreement, whilst accepting that facts are not value-free, have effectively reduced potential controversy over scientific 'evidence' to the singular level of conflicting value premises.

Central to the prevalent mode of political analysis of technological decision controversies is the assertion that value conflicts among policy actors override any potential dispute over 'scientific' and 'technical' issues. Agreement or not over scientific facts is considered marginal to the



settlement of political controversies.<sup>[42]</sup> In this interpretation, as Nelkin and others have stressed, conflicting political values will so "permeate" experts' discussion as to thwart any consensus on what meaning and significance is to be attached to the 'facts'.<sup>[43]</sup> From this perspective, 'factual' disputes over scientific and technical evidence do not require explicit attention; it is assumed that they can be fully accounted for in terms of conflicting evaluations.

The work of Nelkin exemplifies the mainstream of political research in this area, in concluding that acceptance of certain technical data largely depends on "the extent to which it reinforces existing [political] positions".<sup>[44]</sup> (emphasis added). In the dominant policy analytic model 'scientific' and 'technical' disputes have been examined in terms of the underlying political debates. Nelkin's detailed examination of the scientific issues at stake in a nuclear power siting dispute (at Cayuga Lake)<sup>[45]</sup> and the controversy over the proposed construction of a new airport runway (in Boston)<sup>[46]</sup> reflect the dominant bias in empirical research on technological decision controversies, in attributing the conflicts between technical experts squarely to their pre-existent political stances.

Elaborating on this theme, Nelkin's studies have been foremost in highlighting that technical and scientific data are used as political resources. This emphasis is also strongly evident in the work by Mazur: his analyses of scientific disputes over fluoridation and radiation single out the "political context" of controversies as the crucial issue in affecting the way scientific data are used in decision-making.<sup>[47]</sup> Much of the empirical literature on technological decision controversies emphasises the exploitation of scientific evidence by competing policy actors.

As stated earlier, the established interpretation of

'technological' decision controversies rests on a purely instrumental view of the "politicization" of technical expertise. In this context, it has been pointed out that, 'factual' knowledge and 'expert' evidence are used to challenge as well as promote technological decisions. Furthermore, empirical studies have concluded that a characteristic feature in technological decision disputes is that, rather than facilitating closure of policy controversies, 'scientific' disagreements tend to intensify political conflicts. Nelkin's study on the Cayuga Lake nuclear power siting dispute, (for example) clearly establishes that disagreement among policy actors could not be settled by the 'rational' debate among scientific experts on 'technical' issues of 'fact'.<sup>[48]</sup>

This conceptualization of disputes over scientific and technical evidence asserts that competing policy actors (representing conflicting value premises) will manipulate 'factual' uncertainties and ambiguities for their respective ends. Viewed in this 'rational choice' perspective, the selective use and interpretation of knowledge is considered not fundamentally different from other political disputes: policy actors are seen to make voluntary choices about what factors to take into account and which issues to exclude, depending on their political goals. In this respect, disagreement among technical experts, in the words of Mazur, reflects "simply the normal process of polarization which must be expected in any intense controversy".<sup>[49]</sup>

In similar vein, Nelkin does not consider technical uncertainties and scientific disagreements as analytically problematic, since controversies are typically explained in terms of the 'rational' pursuit of political goals. In her words:

"... in all disputes broad areas of uncertainty are open to conflicting scientific interpretation. Decisions are often made in a context of limited knowledge about potential social or environmental

impacts, and there is seldom conclusive evidence to reach definitive conclusions. Thus power hinges on the ability to manipulate knowledge, to challenge the evidence presented to support particular policies, and technical expertise becomes a resource exploited by all parties to justify their political and economic views." [50]

This account of the political exploitation of limited "knowledge" and inconclusive "evidence" fails to conceive that these issues reflect 'factual' disputes, which involve cognitive as well as value dimensions. Although in some controversy studies, dissensus has been considered as originating in scientific "knowledge disputes" [51], they have largely been excluded from explicit analysis in the policy literature. In this respect, Fallows (for example) has analysed the nuclear waste disposal controversy, and has concluded that

"The disputes among experts stimulated political debate, quickly shifting the locus of decision-making from the technical to the political arena. Value questions began to override questions of technological alternatives." [52]

Ambiguity and conflicting interpretations of scientific evidence have been examined predominantly in the context of the political value disputes by which controversies have been characterized. Two basic explanations for conflicting 'factual' evidence have been advanced in the dominant literature on expert disagreement. One is that scientific and technical data are themselves incomplete and inconclusive, causing experts to disagree. [53] The other emphasizes that disagreement among experts does not concern so much the 'scientific' questions at stake but is attributed to their political views, that determine how technical evidence is interpreted. [54] Either way, the ambiguous and inconclusive nature of scientific evidence is seen as the principal reason for the emergence of political conflict. [55]

Many controversy studies thus attribute an explanatory status to technical ambiguity and inconclusive 'factual' data, which

are seen to act as determinants for the emergence of political value dissensus in technological decisions. This assumption is explicitly expressed by Nelkin, when she contends that

"... technological controversies stem from factual uncertainties that allow diverse and value-laden interpretations, and technical questions become controversial largely because of the difficulty of determining the often fuzzy boundaries between fact and value."[56] (my emphasis)

But this argument is clearly contradictory: if the boundaries between 'facts' and 'values' are ambiguous - or at least integral to the political debate - it is meaningless to speak of "factual uncertainty" as an absolute and empirical determinant for the political value conflicts that are assumed to flow from it. Indeed, by failing to integrate 'factual' and 'value' disputes in a single interpretative perspective, the traditional political science approach to technological decision-making is both incorrect and simplistic. It is wrong in defining technical uncertainty only as a function of incomplete knowledge in 'factual' and objective terms, firstly because it ignores entirely the interdependence of facts and values, and secondly since it fails to account for contending cognitive frames. Moreover, the idea that 'factual uncertainty creates controversy is fundamentally contradictory to the dominant political assertion - which is also made - that conflicting political values determine 'factual' stances in the dispute.

This breakdown of the Nelkin/Mazur 'paradigm' shows that the traditional political perspective on technological decision controversies is fundamentally flawed in the way it conceptualizes disputes over the assessment of technological impacts as a function only of competing value premises. It is not the case that "value disputes" simply "override" questions of technological choices<sup>[57]</sup>, but rather that cognitive and evaluative factors have already been at work in determining

what 'technological' alternatives are included (or excluded) in assessment and choice.

Given the social and cognitive dimensions involved in assessing technological 'risks' and 'benefits' the narrow political conceptualization of policy dissensus is highly inadequate to account for the process and outcome of such disputes. The next section further confronts the conceptual premises and assumptions of the prevailing political science approach in the literature. In particular it exposes the deficiency of the dominant 'rational choice' perspective underpins it, and argues the theoretical and analytical modifications needed to enable adequate understanding of public decision controversy over technology.

#### 4. Technological controversies as political value disputes

Policy studies of technological decision disputes have been heavily biased towards descriptive accounts of political conflicts. Empirical research has been carried out largely in the absence of explicit conceptual models developed from theory.<sup>[58]</sup> Nonetheless, much of the controversy literature, has adopted one particular policy analytical perspective on technological decision disputes. I will question the conceptual assumptions of this prevalent approach, and argue its shortcomings as an explanatory model.

Technological decision controversies have usually been examined with reference to the political demands and claims advanced by conflicting parties to the policy debate. The prevailing analytical 'paradigm' has thereby placed overriding emphasis upon competing interests among policy actors as the key explanatory factor in such disputes. Conflicts of interests in the interpretation and use of (scientific) data has been

identified by some as one of the "central findings" that has emerged from the controversy literature.<sup>[59]</sup> What I am arguing is that this interest model of technological decision-making provides an unsatisfactory basis for analysis of controversies, both in conceptual terms and in its empirical application.

Much of the empirical case literature on scientific and technological controversy reflects a consensus view as to the primary determinants affecting the process and outcome of such policy disputes. In a wide range of empirical controversies - from disputes over the siting of large-scale technological facilities to the regulation of drugs and the risks of scientific research - divergent interest concerns have been singled out as the key determinant for conflict among policy actors.<sup>[60]</sup> As Nelkin has typically concluded:

"The outcome of many disputes depends on the relative power of competing interests. In some cases industrial interests prevail... In other cases, powerful protest groups exercise sufficient leverage to determine outcome".<sup>[61]</sup>

A major weakness in most decisional controversy studies is that the notion of competing "interests" is not explicitly defined. In the most general terms they refer to divergent preferences of policy actors, which in turn are (typically) cast in terms of their respective political "values" that govern the process of assessment and choice. In this respect Nelkin has generalized as to the implications of conflicting value premises in political controversy:

"... in all controversial situations, the value premises of the disputants colour their findings. The boundaries of the issues regarded as appropriate; all tend to determine which data are selected as important, which facts emerge.(...) Whenever judgments (about priorities or acceptable risk) conflict, this is reflected in the selective use of technical knowledge".<sup>[62]</sup>

Stemming from this emphasis upon political value conflicts, the traditional approach to the analysis of technological decision controversies is characterized by a linear, causal model of

dissensus. The prevailing analytical frame treats competing interests as the key explanatory variables to conflicting assessments of technology. It represents (in the words of Rip) a "dope model" of controversies: policy actors are "doped" by their political alignments.<sup>[63]</sup> These political predispositions in turn determine the way they identify impacts, the way they interpret and use scientific evidence, and how they select the criteria for judging the acceptability of a technology.

This interest model in the analysis of technological controversies reflects the basic features - and limitations - of the traditional 'rational choice' perspective on policy-making; it argues from independently formulated political 'ends' of conflicting policy actors, to the voluntary choice of technological 'means' in the 'rational' pursuit of those ends. A central argument developed in this thesis is that the policy analytic literature on technological decision controversies is flawed because this 'rational' politics-of-interest model is fundamentally deficient in the narrow conceptualization of policy dissensus it adopts. The next chapter examines in detail this dominant political model in basic theoretical terms. Here, I will assess some significant analytic limitations of this approach, as manifest in the mainstream of empirical literature on technological decision controversies.

#### Blind spot: The two-party adversarial frame

Apart from the conceptual deficiencies of the interest perspective on technological decision disputes (of which more below), the adoption of the dope model in technological controversy studies has seriously impaired its (potential) analytic value. A particularly limiting feature in empirical analyses of technological decisions has been the dominance of a

two-party adversarial framework for conceptualizing policy dissensus. It represents - as has been argued - one of the current "blind spots" in the prevailing "paradigm" of controversy studies.<sup>[64]</sup> It has led to the simple polarization of political opponents and proponents, by which disagreements over the assessment of 'technological' impacts are collapsed into political value stances, as manifest in conflicting preferences.

The dominant concern with contrasting political preferences is much in evidence in the controversy studies by Nelkin and Mazur. Nelkin's detailed analyses of the substantive issues of controversy in the disputes over nuclear power siting and airport construction (as cited above), strongly reflect an adversarial frame. In these cases, the analysis of different policy views and technology assessment were cast explicitly in terms of polarized statements and claims between proponents (such as the developers and their technical consultants) and opponents of the projects (such as opposing citizen groups and counter experts).<sup>[65]</sup>

In its narrowest form, the two-party model of conflicting preferences can be found in the work of Mazur, who explicitly frames "technical controversies" in terms of "partisans", with "one side favouring a technology and another opposing it". Mazur considers the various claims and arguments brought to the policy debate as "imperative" to the respective political alignments of conflicting policy actors.<sup>[66]</sup> He is unable, however, to account for the differences in political views advanced by the disputants. Mazur's accounts remain framed in terms of conflicting preferences (on which they are premised) as is illustrated by his conclusion (with reference to the nuclear power debate) that:

"... proponents compared to opponents see a greater need for nuclear power, greater benefits flowing from it and smaller risk".<sup>[67]</sup>



In his view, opponents "necessarily" disagree with these assessments.

What is required to move beyond this simplistic level of description of technological decision controversies, is to inquire into the social and cognitive premises that underpin the "value positions" taken up by conflicting policy actors. I am not arguing here for the rejection of a notion of purposive strategizing by policy actors. Rather, I concur with those who have argued that the analysis of technological disputes should be devoted to "unravelling the evaluational basis of competing interests".<sup>[68]</sup> To escape from the narrow confines of a confrontation of opponents and proponents in technological decision studies, we must abandon the position that their proclaimed policy preferences can be accepted at face value without further analysis.

#### Technological controversies: defining the problem

The advance on the standard interpretation of conflicting preferences on the acceptability of 'technological' options must be sought in rejecting the causal link between the evaluative and cognitive dimensions of technology assessment in decision controversy. The dominant political model is mistaken in conceptualizing policy disputes as made up of separately-defined social "ends", which act as evaluative premises for the 'rational' voluntaristic selection of "technological means". In this context, Tribe has referred to "means-ends fluidity" in environmental impact assessment.<sup>[69]</sup> He stresses that the identification of relevant 'factual' dimensions and the evaluative criteria for choice, evolve as an interactive process in the course of policy determination. In similar vein, Wynne has argued that "technological decisions, which we usually suppose to be subject to a coherent and independently-formulated frame of social values, actually influence the shape of dominant social values themselves".<sup>[70]</sup>

From this perspective, it is clearly ill-conceived to consider independently the 'technological' issues at stake and the 'value stances' that are supposed to determine preferences on those issues. Value questions and normative judgments have already penetrated policy actors' conceptions of 'technology' and its perceived impacts. Consequently, it is spurious to maintain - as does the dominant interest model - that in technology assessment controversies political disputants will simply adopt those interpretations of 'risk' and 'benefits' that best serve their political preferences. In the traditional interpretation, policy actors are assumed to arrive at their preferences by ranking the expected impacts of technological options, and at the same time, to use their preferences as criteria for evaluating those impacts. Hence, it becomes obvious that the interest-premised interpretation of technology assessment controversies sets up a circular explanation. The inevitable entwinement of the cognitive and the social - between defining technological impacts and evaluating their acceptability - exposes the basic flaw in the causal-linear account of technological decision disputes (see further my theoretical analysis in Chapter 2).

Recent analyses have begun to address this serious analytic deficiency in the dominant political conception of 'technological' decision disputes, by taking to task its underlying assumption that controversies are about political values that are brought to bear upon "the" problem of technology. What has been ignored for too long in the 'rational' perspective is the potential for disagreement among policy actors about the exact nature of the "technological" issue at stake. This failure has been rightly criticized for conceptualizing "technology" as a neutral 'tool', without due attention to its social character.<sup>[71]</sup> My initial concern, however, here is with the policy analytic shortcomings that result from the prevailing interpretation of technology in the context of public decision disputes.

What is required to overcome the basic deficiencies in the literature on technological decision controversies is firstly to come to terms with the fact that different social actors may define the cognitive situation differently, and, secondly, to analyse these divergences as an integral part of the way disputants set boundaries to the interpretation and evaluation of technology. We need to address explicitly that different perceptions of the situation, i.e. socio-cognitive problem definitions, are generated and negotiated as part of the policy debate. A more appropriate analytic perspective is therefore one that conceptualizes disputes over the assessment of technology and its anticipated consequences as revolving around competing problem perceptions; these affect inevitably both the 'factual' and 'value' dimensions of controversies, as well as their implied inter-relationship.<sup>[72]</sup>

Policy analysis of technological decision controversies needs to address explicitly the structural relationship between the selective conceptions of technological impacts (as used by actors) on the one hand, and the value premises by which they are formulated and judged on the other. The notion of problem definitions conceptualizes this dual nature of technology assessment controversies, by focusing on the boundaries that are set by policy actors to the consequences they decide to take into account, as well as to the evaluative criteria for choice they see as pertinent. Furthermore, this socio-cognitive perspective enables the actor-specific policy positions to be identified and examined by reference to the saliency of policy issues, the distinctions between 'factual' and 'value' dimensions of 'technological disputes, and the context in which they are appraised.

The analytical advance of such a conceptual approach to the study of technological decision controversies needs to be

argued further in terms of both theoretical and empirical research. It has significant implications for analysis, both in the formulation of appropriate theoretical models, and in the choice of empirical methodologies to be applied in individual controversy studies. As to the theoretical dimensions, the concern with boundary setting and closure in analysis and choice, are established features in decision studies and policy research. The theoretical premises and analytic assumptions of these concepts in the political decision literature require detailed examination, before an appropriate conceptual frame for the analysis of technological decision controversies may be formulated and supported. (See Chapter 2).

At the empirical level, the case for a broader policy analytic framework for explaining the nature of technological decision controversies is taken up further in the remainder of this chapter. In particular, I examine existing empirical controversy studies and ask how we can proceed from descriptive "natural histories" of technological controversies, to a more analytical understanding of the conceptual terms of such policy disputes. The discussion below further assesses the analytical limitations of empirical controversy studies based on the narrow political "dope" model, and identifies its failure to account for the presence of competing problem definitions as a central feature of decision disputes over technology. In doing so it formulates the key analytical issues to be addressed in this thesis.

##### 5. Addressing the socio-cognitive dimensions of decision controversy

The observed definitional issues integral to public decision controversies over technology make it imperative that processes

of boundary-setting and closure in assessment and choice are explicitly addressed in the analysis of policy dissensus. The appropriate starting point for the analysis of technological decision disputes is therefore the conceptual assertion that policy conflicts can not be fully understood as political disagreement over preferred solutions to a given - agreed - policy issue. In order to avoid the circularity of the interest model of controversy, conflicting perceptions of the 'technological' problem at stake need to be explicitly identified and explained.

As the above discussion highlights, most of the literature on controversies in technological decision-making has failed to account adequately for divergent policy perceptions among contending actors. This analytical shortcoming is largely due to the dominant preoccupation with describing the policy debate in empirical terms, without sufficient concern for the conceptual analysis of technological disputes. Once a controversy has surfaced, one can find out the terms in which it is debated, observe the formal structure of the policy agenda, and record who was in favour and who was against. At this level of empirical policy disputes, however, it is highly problematic to come to terms with differing problem definitions that may be present. As Lovins has noted in trying to understand the (nuclear) energy debate:

"Underlying much of the energy debate is a tacit, implicit divergence of what the energy problem 'really' is. Public discourse suffers because our society has mechanisms only for resolving conflicting interests, not conflicting views of reality, so we seldom notice that these perceptions differ markedly". [73]

What is at stake in contending assessments of technology are disagreements among policy actors over the boundaries that are set to the identification and interpretation of risks and benefits, and the selective rules of closure in determining preferred policy outcomes. The major deficiency of traditional political analyses of technological disputes has been that they

have insufficiently recognized that such conflicts ultimately concern fundamentally different definitions of reality, involving both cognitive and social dimensions. The established policy literature on technological decision controversies has largely failed to address the socio-cognitive nature of competing problem perceptions. Whilst political scientists have to some extent acknowledged that policy actors may conflict on the way they define issues and restrict the agenda for decision-making<sup>[74]</sup>, they have failed to conceptualize adequately the social and cognitive factors that inform such definitions.

Even in cases where the presence of divergent problem definitions has been recognized empirically, the adherence to a linear, two-party framework based on political alignments has obscured fundamental questions about what factors determine problem formulations. The conceptual and analytical limitations of the dominant political approach to technological decision-making remain, as long as problem perceptions are considered as unproblematic empirical features of controversies which do not require further analysis. This shortcoming is well illustrated by a recent study by Nelkin and Pollak of the anti-nuclear movements in France and West-Germany.<sup>[75]</sup> Their account of the nuclear power controversy acknowledges differing problem frames among contending actors, when they conclude:

"Nuclear critics see the social and political consequences of nuclear power through very different lenses than the promoters of this technology. Their vision diverges on such varied issues as energy dependence, safety, and civil liberties. Conflicting perceptions prevail about the role of government and the appropriate use of scientific expertise in the decision-making process".<sup>[76]</sup> (emphases added)

To an extent Nelkin and Pollak succeed in 'distilling' from the nuclear debate some of the main features that characterize conflicting perceptions, as can be seen from Table 1.1. At the analytical level, however, their account is unable to understand the differing problem definitions in meaningful conceptual terms.

<b>Conflicting perceptions in the nuclear debate</b>	
<b>Antinuclear analysis</b>	<b>Pronuclear analysis</b>
<b>Political consequences</b>	
Government and industry are in collusion with little reference to broader political goals.	Government and industry only serve to implement agreed-upon political objectives.
Nuclear power implies dangerous concentration of political power and an omnipotent bureaucracy.	Government acts in the public interest. Bureaucracy is necessary for efficiency.
Nuclear power encourages proliferation and can lead to war.	Availability of energy reduces international tension.
<b>Economic and social consequences</b>	
Nuclear power reinforces dependence on American technology.	Nuclear power reinforces national independence.
Nuclear power means economic concentration and further inequities.	Nuclear power is necessary for growth and full employment.
Nuclear power implies a police state that threatens civil liberties.	It is the protest and the threat of terrorism that threatens civil liberties.
<b>Role of government</b>	
Government should defend small units against large concentrations.	Government should defend public interest against special interests.
Government should protect future generations against harm from today's generation of energy (nuclear waste).	Government should assure that future generations have adequate resources by conserving fossil fuels.
<b>Role of scientific expertise</b>	
Science can be manipulated for alternate ends.	Science is neutral.
Science can be a source of harm as well as benefit.	Science contributes to progress.
The problem is one of the acceptability of risk. This limits the value of technical evidence.	Technical evidence is the only basis on which to evaluate risk.

Table 1.1:

Conflicting perceptions in the nuclear debate (as identified by Nelkin/Pollak)

Their failure lies in the fact that they remain trapped within the narrow "dope" model of controversy studies. Policy actors are disaggregated by their political preferences - pronuclear or antinuclear - and their differing problem definitions continue to be framed by reference to their respective political alignments. Nelkin and Pollak remain committed to a two-party linear adversarial model that treats different policy perceptions simply as manifestations of conflicting interests and ideologies in technological decision controversies.

As stressed earlier, in order to advance beyond the dominant descriptive model of controversy based on conflicting political preferences, we need to conceptualize the interaction between 'knowledge disputes' and 'value disagreements' by reference to the various contending policy perceptions involved. The case for such a explanatory frame can be argued further on the basis of recent sociological analyses of controversies relating to science and technology. Nowotny, for example, clearly underscores the need to analyse the socio-cognitive dimensions as an integral feature of technological decision disputes, when she concludes:

"One of the characteristics of controversies is that hitherto accepted social definitions lose their validity. Shifts occur in what is considered the problem, as well as in what are defined as solutions. (...) Hence the debate takes place in the context of a number of problem definitions and frameworks for resolution, which only partly intersect; their premises are of a cognitive, social and political nature." [77] (original in German)

Much of the recent literature in the sociology of knowledge highlights the importance of acknowledging that processes of social differentiation are at the same time cognitive differentiations. [78] This notion has important implications for the analysis of 'fact-value' disputes in policy controversies over science and technology. It stresses that the dynamics of controversies can not be separated in distinct social and cognitive determinants. What we need now is to



apply these insights to the policy analysis of technological decision controversies.

### Problem definitions as analytical focus

The focus on socio-cognitive problem definitions allows for an integrative analytical approach that can come to terms with the interdependence of values and facts in the context of controversial decisions over technology. It emphasises that the socio-cognitive premises that characterise competing policy actors will not just "colour" the 'value' disputes in controversies, but will inevitably affect the domain of 'scientific' or 'factual' disputes as well. In this view it is no longer necessary to invoke "expert disagreement" on 'factual' issues as the primary cause for political dissensus in technological decision controversies. Some researchers, such as Wynne have shown that "even if the facts are well-established, it is the interpretive framework, defining the relevance of the facts which may exert more influence on a policy-related judgement than the facts themselves".<sup>[79]</sup> In this respect my explicit concern with policy perceptions is an outright rejection of the positivist assumption in traditional political controversy studies over technology that scientific knowledge is an unproblematic reflection of reality, separated from the socio-cognitive dimensions on which its political use depends.

Recent research has begun to address the issue of 'uncertainties' in scientific and technological decision-making from such a socio-cognitive perspective, suggesting how they are structurally related to the social institutions involved.<sup>[80]</sup> Notwithstanding the importance of this work, I will not at this stage deal further with this issue per se. Nonetheless, in the context of this thesis, the argument that ambiguities and contradictory definitions of 'technical' issues

are embedded in socio-cognitive perspectives, underscores that political conflicts in 'technological decisions' cannot be reduced to disagreement over scientific and technical 'facts'. Moreover, the idea of socially-constructed, structural uncertainty, is entirely consistent with the argument advanced in this thesis: that political conflicts, in relation to technological decision controversies, should be examined for their socio-cognitive determinants.

The case for examining the social and cognitive premises that inform different judgements and problem frames is further enhanced by empirically-based research on 'scientific' controversies by sociologists of science. In this respect, the important work by Robbins and Johnston (on the controversy over the safety of low-level lead exposure), provided significant evidence that disputants did not only evaluate data differently and derive contrary policy implications from the same or similar evidence, but that their cognitive frames produced different 'facts'.<sup>[81]</sup> In similar vein, Campbell's detailed case study of the scientific disputes over the environmental risks of the proposed Mackenzie Valley Pipeline (from Arctic Canada to the USA) concluded that scientists' conflicting views on the uncertainty and scale of the environmental impacts were systematically influenced by their tacit social-behavioural judgements. At the centre of the dispute were different cognitive definitions of the boundaries to the "technological system" under investigation, the scope and nature of its impacts, and the line that was drawn between narrow technical issues and broader 'external' concerns.<sup>[82]</sup>

These case studies highlight once more that the various claims and demands that competing policy actors bring to the policy debate can not be separated from the respective socio-cognitive frames in which issues of assessment and choice are interpreted and handled. Del Sesto has advanced the case for addressing

the socio-cognitive dimensions of policy analysis by attributing the political dissensus to "competing social groups [that] attempt to impose their 'world views' as cognitive non-evaluative definitions of reality", noting also that through the use of influence and power, inevitably some groups are in a better political position to achieve this. [83]

The implications of this sociological perspective for policy analysis of technological decision controversies are three-fold. First, it suggests that we should abandon the narrow categorization of policy conflicts in terms of opponents and proponents of objectively-defined 'technological' issues. Secondly, it means that we should identify divergent policy positions and conflicting strategies with reference to the various problem perceptions involved. And thirdly, it highlights the need for analysing the claims and demands among contending policy actors, taking into account the socio-cognitive premises that inform and give meaning to the divergent assessments of 'technology' and its anticipated impacts.

In the context of empirical case research, such a perspective on the political analysis of technological decision controversies has started to emerge. The detailed analysis by Wynne of the Windscale public inquiry on nuclear power in Britain recognises the presence of divergent problem definitions in socio-cognitive terms. [84] He exposes the conflicts over the basic meaning attached to the "nuclear issue" - the policy issue to be addressed - and over the boundaries that should (and could) be set to the assessments of the various impacts. Wynne's account shows convincingly how in this case the key area of dissensus concerned the divergence between the narrow definition of "objective" risks of a single nuclear reprocessing plant - as institutionalized in the formal agenda of the inquiry - versus the much broader issue of the impact on proliferation of nuclear power, impinging in turn on

wider political and social issues. Conflicting problem perceptions were at the very centre of the controversy:

"Here was a conflicting choice of technology or problem definition, which was not a 'fact' versus 'emotions' division. Nor was it clearly perceived and debated in inquiry as a conflict of founding problem definitions. Yet the conflicting, equally legitimate definitions were a symmetrical pair based upon the different behavioural judgements and objective social experiences of the contending groups.[85]

Further empirical support for such an analytic perspective can be found in Nowotny's account of the Austrian nuclear power debate, which represents one of the few empirical case studies illustrating in detail the feasibility of addressing the issue of social perceptions in public policy disputes.<sup>[86]</sup> Rather than framing conflicting assessments of nuclear technology in terms of "pro" and "anti" policy preferences, her concern with disagreements among scientific experts, leads to a conceptualization with reference to the overall problem perspectives in which the 'scientific issues' were appraised. At the most basic level, Nowotny confronted different policy perceptions (of experts) according to whether nuclear technology was framed as being either inherently "dangerous" or essentially an (economic) "necessity".

The normative dimensions that were thus incorporated into the definitional frames in which "the" nuclear issue was assessed, allowed different arguments and claims in the debate to be aggregated in a way so as to emphasize the cognitive premises underpinning the different policy views. In particular, Nowotny's analysis highlighted how socially-determined divergences in policy perception were manifest in different basic expectations, different levels of confidence in technical solutions, different risk criteria, different impact assessments, as well as in different policy preferences. Her empirical analysis successfully moved away from the simplistic view that proponents will self-evidently cite the "advantages"

of (nuclear power) technology, whilst opponents emphasise the "negative" consequences.<sup>[87]</sup> In line with recent work by social psychologists<sup>[88]</sup>, Nowotny highlights that opponents and proponents both argue in terms of negative and positive attributes, but they differ on their definitions.

Nonwithstanding the importance of these insightful case studies, the accounts by Wynne and Nowotny continue to reflect, however, a serious analytical shortcoming typical of research into public decision controversies over technology. The analyses are not developed sufficiently from a systematic and explicit conceptual model, formulated in relation to general sociological and political theory. This highlights a prevalent deficiency in controversy studies on technological decision-making. Whilst the empirical case for attending to the socio-cognitive dimensions involved in public policy disputes over science and technology is becoming increasingly established, the political controversy literature continues to be characterized by a paucity (if not lack) of theory-based analytical approaches.

#### Summary: challenges for public policy analysis

The absence of a coherent conceptual frame for the analysis of (so-called) technological decision controversies represents perhaps the major fundamental weakness in existing research in this field.<sup>[89]</sup> Additionally, the required focus on divergent problem perceptions among conflicting policy actors is methodologically underdeveloped and has not so far been applied systematically in detailed empirical policy analyses of technological decision disputes. This study aims to make a contribution on both these fronts - theoretical and empirical. First, it attempts to formulate an appropriate analytical model for examining policy dissensus in technological decision controversies. Secondly, it will try and apply this

perspective to a detailed case study, in which the confrontation of the various policy actors is explicitly framed by reference to their respective socio-cognitive problem definitions. By linking the theoretical and empirical arguments, this thesis seeks to advance understanding of the dynamics and determinants of public decision controversies over technology. More specifically, it will argue the extent that the interest-conflicts in which such disputes have traditionally been cast, can only be adequately understood by taking account of competing social definitions of policy issues within which conceptions of 'technology' are also embedded.

In summary then, this chapter has revealed the main deficiency in the existing controversy literature as being the relative lack of attention to the socio-cognitive dimensions within the political analysis of technological decision disputes. First, this chapter has highlighted that the narrow concern with the political exploitation of "technical uncertainty" over the objective impacts of technology is ill-conceived. In order to account for divergences in the assessment of technologies, the political, social and cognitive dimensions need to be analysed from a single integrative perspective. Such a perspective can only be developed from the premise that "technological issues" are shaped by processes of social negotiation, that must themselves been considered integral to political choice processes. The analytic implication is that contending assessments in public decision controversy need to be examined as different social conceptions of the nature of the 'technology', of the appropriate context for its appraisal, and of the relevant choice criteria taken into account.

Secondly, this chapter has questioned the prevailing bias towards 'rational' causal-linear models of policy dissensus that consider political interests and goals as the central (self-evident) determinants of conflict in assessment and choice. Given the importance of socio-cognitive factors in

controversy as identified in more sociological accounts, what is needed in policy analysis is a political framework that can come to terms with the definitional boundaries and rules of closure that different policy actors adopt in framing and resolving problems of 'technology assessment'.

This thesis aims to advance an adequate frame for policy analysis of technological decision controversies, with appropriate and explicit concern for the issue of contending socio-cognitive problem perceptions in political disputes. In this respect, it elaborates on the view, advanced by some policy analysts, that "problems are not self-evident, they have to be perceived, it invokes judgement to establish what a problem is, and identifying a problem in particular terms, limitations are straight away placed on the nature of the decisions taken about it".<sup>[90]</sup> At the theoretical level the concepts underpinning such a perspective will have to be formulated and amplified (Chapters 2 and 3), and these will have to be incorporated into a methodological framework that allows systematic analysis of public decision controversies over technology (Chapter 4).

As far as its empirical application is concerned, this thesis presents a detailed case study (Chapters 5 to 7) that incorporates as a key feature the explicit identification and analysis of competing institutional problem perceptions - as distinct from conflicts of interest. This approach enables me to assess the conceptual relationship between the socio-cognitive dimensions in technological decision controversies on the one hand and the political alignments and claims of the various participants in public decision disputes on the other. In this respect, this study aims to enhance understanding of the dynamics and nature of public policy controversy over (so-called) technological decisions. Whilst my dominant concern lies with policy analysis of such decision disputes, it is clear that the social analysis of political

dissensus and the social analysis of controversial technology should go hand-in-hand. By examining the appropriate conceptual terms for understanding public decision controversies concerned with technological projects, my analysis therefore also strengthens the case for a (re-)appraisal of the notion of technology, as an integral part of social and political processes.



## Chapter 1

NOTES AND REFERENCES

- [1] The notion of impacts of technology may not at first sight seem particularly contentious. However, as will be argued in this and subsequent chapters, 'technology' and the social setting in which it is embedded cannot be separated.
- [2] Cf. D. Nelkin (ed) Controversy - Politics of Technical Decisions (Beverly Hills/London: Sage, 1979); D. Nelkin and M. Pollak "Public participation in technological decision-making", Technology Review, Vol. 81, (1979) 55-64; A. Mazur, The Dynamics of Technical Controversy (Washington, DC: Communications Press, 1981).  
D. Nelkin, Technological Decisions and Democracy (Beverly Hills: Sage, 1977).
- [3] In particular, I reject any a priori assumption that decisions concerned with technology constitute a distinct category of public policy that can be conceptually maintained. This view may be supported by reference to the political science and policy literature that has attempted to develop a typology of public policies. There is no consensus on the classification of policies and the different typologies have shown little potential for theoretical development. Moreover, the most well-developed categorization (that of Lowi and followers) essentially typifies public policies in terms of their impact or expected impact on the political process in particular and on society at large. Since different views as to the impacts of (policies for) technology is a key source of dissensus in controversies over technology (see further section 2) a priori categorisation of impacts cannot be defined conceptually in those terms. Cf. L.A. Froman "The Categorisation of Policy Contents", in A. Ranney (ed) Political Science and Public Policy (Chicago: Markham, 1968).; Theodore J. Lowi "American Business, Public Policy, Case Studies and Political theory", World Politics, 16 (1964), 677-615 R.H. Salisbury and J. Heinz, "A Theory of Policy Analysis: some preliminary applications", in I. Sharkansky (ed) Policy Analysis in Political Science (Chicago: Markham, 1968); R. Rose, "Comparing Public Policy: An Overview", European Journal of Political Research Vol.1, (1973), 67-94.
- [4] It is important to emphasise at the outset, that my primary concern in this study rests with advancing policy analytic approaches for understanding controversy in public decision-making. Whilst it should be acknowledged that this focus is not entirely separate from the conceptual analysis of notions of 'technology' in social and political terms, I am not addressing this issue per se.
- [5] D. Nelkin, Jetport: The Boston Airport Controversy (New Brunswick, NJ: Transaction Books, 1974), p.1. (1974a)

- [6] This is particularly striking in the literature on the assessment of the consequences of technology, and in those studies that have used the notion of "technological risks". Cf. E.W. Lawless, Technology and Social Shock (New Brunswick NJ: Rutgers University Press, 1977); Francois Hetman, Society and the Assessment of Technology (Paris: OECD, 1973); Social Assessment of Technology - A Review of selected case studies (Paris: OECD, 1978); M. Dierkes, S. Edwards, R. Coppock (eds) Technological Risk - Its perception and handling in the European Community (Cambridge MA: Oelgeschlager, Gunn & Hain, 1980); Christoph Hohenemser and Jeann X. Kasperson, Risk in the Technological Society (Boulder, Co: Westview Press, 1982). See also the separate case studies included in Nelkin (ed) 1979 (note 2).
- [7] Nelkin 1979, op.cit. (note 2), p.16
- [8] *ibid.*
- [9] In this respect, the 'specificity' of "technological decisions" can be said to lie not in the technology itself, but in the particular stabilized socio-political arrangement that provides the institutional context in which the various issues are debated.
- [10] Steven L. Del Sesto, "Uses of knowledge and values in technical controversies: the case of nuclear reactor safety in the US" Social Studies of Science Vol.13 (1983), 395-416.
- [11] D. Nelkin, "Some social and political dimensions of nuclear power: examples from Three Mile Island", American Political Science Review Vol.75 (1981), 132-142.
- [12] A. Weinberg, "Science and Trans-science", Minerva, Vol.X (April 1972) pp.209-222. Others have described these questions as "value-scientific" questions; Science Council of Canada, Regulating the Regulators - Science, Values and Decisions Report 35 (Ottawa, Science Council of Canada, 1982).
- [13] The view that scientific and technological developments pose potentially problematic issues in the context of public decision-making is especially evident in the attempts, usually by governments, to develop institutional ways of "technology assessment", in order to examine the various impacts of technologies. See for example OECD, Organisation for Economic Co-Operation and Development Technology on Trial - Public participation in decision-making related to science and technology (Paris: OECD, 1979); also Chapter 1 in Hetman 1973, op.cit. (note 6). Cf. Edward Wenk, "Civic competence to manage technology" Technological Forecasting and Social Change, Vol.26 (1984) 127-133. For a review of Technology Assessment approaches see for example Porter. A.L. et al, A Guidebook for Technology Assessment (Lexington MA: Lexington Books, D.C. Heath & Co., 1982);

For non-U.S. approaches to TA see Vary T. Coates and Thecla Fabian, "Technology Assessment in Europe and Japan", Technological Forecasting and Social Change Vol.22 (1982) 343-361. For the role of Technology Assessment in decision-making, see Umweltbundesamt (hrsg), Technologien auf dem Prüfstand - Die rolle der Technologiefolgenabschätzung im Entscheidungsprozess (Köln: Carl Heymanns Verlag KG, 1983).

- [14] OECD 1979, op.cit (note 13).
- [15] This is especially borne out by the literature on 'risk' and technology. For a recent review on the issue of technological risk and acceptability of 'impacts', see D. Nelkin "On the social and political acceptability of risk". Impact of Science on Society Vol.4 (1983), pp.225-231. See also, Meinolf Dierkes, Sam Edwards, Rob Coppock Technological Risk - Its perception and Handling in the European Community (Cambridge MA: Oelgeschlager, Gunn Hain, 1980); J. Conrad (ed), Society, Technology and Risk Assessment (London: Academic Press, 1980).
- [16] The issue of potential disagreement over the meaning and framing of "technology" raises the question of examining the social relationship between people and technological artifacts, essentially requiring a social theory of technology. Given my concern with public decision controversy, my discussion of approaches to policy analysis will impinge only indirectly on the relevant concepts required for the social analysis of technology. For the limited, and still developing, literature on a social perspective on technology see L. Winner, Autonomous Technology - Technics-out-of-control as a theme in political thought (Cambridge, Mass: MIT Press, 1977); L. Winner, "Do artifacts have politics?", Daedalus, Vol.109, (1980) 121-136; B. Wynne, "Redefining the issues of risk and acceptance: the social viability of technology", Futures, Vol.15, (Feb 1983), 13-32; R. Johnston, "Controlling Technology: an issue for the social studies of science", Social Studies of Science, 14 (1984), 97-113.
- [17] This political perspective is most prominently represented by the work of Nelkin (op.cit., notes 2 and 5) and Mazur (op.cit.note 2). Cf. Gerald E. Markle and James C. Petersen, "Controversies in Science and Technology - a protocol for comparative research", Science, Technology and Human Values, vol.6 (1981), 24-30.
- [18] A. Rip, "Comparative Study of Science-Related Controversies: Avoiding blind Spots", (discussion paper presented at the 4S Annual Meeting, 4-6 November 1983, Blacksburg, Virginia).
- [19] Cf. J. David Roessner and Jeffrey Frey, "Methodology for Technology Assessment", Technological Forecasting and Social Change, Vol.6 (1974), 163-169; W.W. Lowrance, Of Acceptable Risk (Los Altos, CA: William Kaufman, 1976).

- [20] See for example B. Barnes, Scientific Knowledge and Sociological Theory (London: Routledge and Kegan Paul, 1974); Michael Mulkey, Science and the Sociology of Knowledge (London: Allen & Unwin, 1979) John Law and David French, "Normative and Interpretive Sociologies of Science", Sociological Review Vol.31 (1974) 581-595; Karin D. Knorr-Cetina and Michael Mulkey (eds) Science Observed - Perspectives on the Social Study of Science (London: Sage, 1983). For an anthropological perspective see for example Mary Douglas, Implicit Meanings (London: Routledge & Kegan Paul, 1975).
- [21] A succinct review of the literature, with reference to the issue of expert disagreement over 'impacts' of scientific and technological projects, can be found in Brian L. Campbell, "Disputes among experts: a sociological case study of the debate over biology in the MacKenzie pipeline inquiry", PhD thesis, McMaster University, Hamilton, Ontario, Canada, 1982 (Chapter 1).
- [22] Cf. B. Wynne, "The rhetoric of consensus politics: a critical review of technology assessment", Research Policy Vol.5 (1974), 1-56; M. Berg, "The Politics of Technology Assessment", Journal of the International Society for Technology Assessment, (1975), 21-32;
- [23] H. Brooks, "The resolution of technically intensive public policy disputes", Science, Technology and Human Values, 9 (1984) 39-50.
- [24] D. Nelkin, "Technology and Public Policy" in, I. Spiegel Rösing and D. De Solla Price (eds), Science, Technology and Society: A Cross-Disciplinary Perspective (London/Beverly Hills: Sage, 1977) p. 431; cf. Todd R. La Porte (ed) Organized Social Complexity (Princeton, NJ: Princeton University Press, 1975).
- [25] Michael O'Hare, Debra Sanderson and Lawrence Bacow, Facility Siting and Public Opposition (New York: Van Nostrand, 1983); David Morell and Christopher Magorian, Siting Hazardous Waste Facilities: Local Opposition and the Myth of Preemption (Cambridge, MA: Ballinger, 1982).
- [26] O'Hare et al 1983, op.cit. (note 25), p.1
- [27] Bruce A. Ackerman and Susan Rose-Ackerman, James W. Sawyer, Jr., Dale W. Henderson, The Uncertain Search for Environmental Quality (New York: Free Press, 1974). In this particular case, the disparate views on the identification and evaluation of impacts were traced back to institutional conflicts of federal versus regional policy actors.
- [28] Nelkin 1979, op.cit (note 2), p.11
- [29] See the case studies cited in Mazur 1981 and in Nelkin 1979 (note 2); See further James C. Petersen and Gerald E.

- Markle, "Politics and Science in the Laetrile Controversy", Social Studies of Science, Vol.9 (1979), 139-166; B. Gillespie, D. Eva, and R. Johnston, "Carcinogenic risk Assessment in the United States and Great Britain: the case of Aldrin/Dieldrin", Social Studies of Science, vol.9 (1979) 265-301; D. Eva and H. Rothman, "Control of the Environmental Impact of Technology", in P. Gummert and R. Johnston (eds), Directing Technology - Policies for Promotion and Control (London: Croom Helm, 1979), pp. 156-174.
- [30] For a recent literature review see Vincent T. Covello, "The Perception of Technological Risks: a literature review", Technological Forecasting and Social Change 23 (1983), 285-297.
- [31] Technology assessments involve a range of subjective assumptions and judgements that bound the problem definition of the 'technology' at stake. Lee and Bereano, for example, identify nine subjective categories that act as "boundary conditions" for TA studies. See Alfred M. Lee and Philip L. Bereano, "Developing Technology Assessment Methodology: some insights and experiences", Technological Forecasting and Social Change Vol.19 (1981) 15-31. The issue of boundary setting becomes even more problematic if, as Linstone et al have argued, the impacts of technologies can only be adequately assessed by combining three main perspectives, that of technology, organizations, and individual actors. See Harold A. Linstone et al "The multiple perspective concept - With applications to technology assessment and other decision areas", Technological Forecasting and Social Change, Vol. 20 (1981), 275-325.
- [32] See Lawrence S. Bacow, "The technical and judgemental dimensions of impact assessment", Environmental Impact Assessment Review 1 (1980), 109-124; Cf. Organisation for Economic Co-operation and Development, Assessing the impacts of technology on society Paris: OECD, 1983);
- [33] R. Mayntz, "Lessons learned - Problems in the acceptance of TA by political decision-makers", in Umweltbundesamt (hrsg), op.cit (note 13) pp.333-345. See also C. Böhret und P. Franz, Technologiefolgenabschätzung: Institutionelle und verfahrensmässige Lösungsansätze (Frankfurt: Campus Verlag, 1982)
- [34] H. Nowotny, "Scientific Purity and Nuclear Danger" in E. Mendelsohn, P. Weingart and R. Whitely (eds) The Social Production of Scientific Knowledge Sociology of the Sciences Yearbook 1977 (Dordrecht: D. Reidel Publishing Co., 1977), p.243-264.
- [35] Cf. Rip 1983, op.cit (note 18); Petersen and Markle 1979, op.cit (note 29), Chapter 12 in D. Collingridge, The Social Control of Technology; (Milton Keynes: Open University Press, 1980).  
The difficulty of separating facts and values is also

underscored by those risk studies that stress that problems about "acceptable risks" are issues of choosing among alternatives. Cf. Baruch Fischhoff Sarah Lichtenstein, Paul Slovic, Stephen L. Derby, and Ralph Keeney, Acceptable Risk (Cambridge: Cambridge U.P., 1981). Also eg. Irwin has argued that studies on 'technological risk' should focus on the total "package" in which technology is cast without separating from it an (objective) notion of risk levels. See Alan Irwin, Risk and the Control of Technology - Public policies for road traffic safety in Britain and the United States (Manchester: Manchester University Press, 1985), Ch.2.

- [36] Cf. B. Wynne, "Public perceptions of risk - interpreting the 'objective versus perceived risk' dichotomy", IIASA WP-83-117 (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1983) (1983a).
- [37] The specific concern with boundary setting and competing problem definitions has become more pronounced in recent research on disputes over technology and the management of risk. Cf. B. Wynne, "Risk assessment of technological systems" IIASA WP-84-42 (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1984); B. Wynne, "Public perceptions of risk" in John Surrey (ed) The Urban Transportation of Irradiated Fuel (London: MacMillan, 1984) pp 246-259; J. Jelsma, "Changing reality of risks of recombinant DNA research", paper presented at George Sarton Centennial Conference, University of Ghent, (14-17 November 1984); W.A. Smits, R. Geerts, G. Tiemessen, Ahaus, Lingen en Kalkar - Westduitse nucleaire installaties en de gevolgen voor Nederland (S-Gravenhage: Wetenschappelijke Raad voor het Regeringsbeleid, 1983); A. Rip, "Controversies as informal Technology Assessment" (Science and Technology Studies Program, University of Leiden, 1984) mimeo. The case for "multiple-problem" analysis in policy studies on risk and technology is clearly made in Michael Thompson, "Postscript: A cultural basis for comparison", in H.C. Kunreuther, J. Linnerooth et al, Risk Analysis and Decision Processes (Berlin: Springer-Verlag, 1983), pp. 233-262. On the importance of actors' problem definitions in the context of government policy and Technology Assessment, see also R.E.H.M. Smits, A.J.M. Leyten en J.L.A. Geurts, Technology Assessment: Op zoek naar een bruikbare aanpak, Achtergronddocument 1 bij de Beleidsnota Integratie van Wetenschap en Technologie in de Samenleving ('s-Gravenhage: Staatsuitgeverij, 1984). For a more theoretical/conceptual discussion on the issue of problem definitions and boundary setting see Michel Callon, "Struggles and negotiations to define what is problematic and what is not", in K.D. Knorr, R. Krohn and R. Whitley (eds), The Social Process of Scientific Investigation Sociology of the Sciences Yearbook IV 1980 (Dordrecht: Reidel, 1981), pp.197-219. Michael Thompson, "An outline of the cultural theory of risk" IIASA Working Paper WP-80-77 (Laxenburg, Austria, International Institute for Applied Systems Analysis, 1980) Mary Douglas, "Social Factors in the Perception of Risk"

Report to the Russel Sage Foundation, April 1983 (mimeo). M Thompson, "Postscript: A cultural basis for comparison", in H.C. Kunreuther, J. Linnerooth, et al, Risk Analysis and Decision Processes (Berlin: Springer Verlag, 1983), pp.232-262. Mary Douglas and Aaron Wildavsky, Risk and Culture - An Essay on the Selection of Technological and Environmental Dangers (Berkeley: University of California Press, 1982). For further discussion of this literature, see Chapter 3.

- [38] The theoretical and conceptual basis of the rational choice perspective on political analysis is examined in detail in the subsequent Chapter.
- [39] These conclusions are mainly derived from the literature on decision controversies involving disputes among experts, rather than from the more sociological literature on the 'knowledge' disputes. Hence the studies carried out and described by Nelkin (1979) and Mazur (1981) represent the major sources (op.cit, note 2).
- [40] The role of scientific expertise in political decision-making, especially on issues of science and technology, has given rise to a considerable number of studies. Key sources in the literature, on which this section is largely based include:  
 G. Benveniste, The politics of expertise (Berkeley, CA: Glendossary Press, 1972); D. Schooler, Science, Scientists and Public Policy (New York: The Free Press, 1971); D. Nelkin, "The role of experts in a nuclear siting controversy" Bulletin of the Atomic Scientists, Vol. 30 (1974), 29-36; D. Nelkin, "The political impact of Technical Expertise", Social Studies of Science, Vol.5, (1975) pp.35-54 K.G. Nichols, "The De-institutionalization of technical expertise" in H. Skoie (ed) Scientific Expertise and the public (Oslo: Institute for Studies in Research and Higher Education, 1979), pp.35-48; Frederick Frankena, "Facts, values and technical expertise in a renewable energy siting dispute", Journal of Economic Psychology 4, (October 1983), 131-147.
- [41] Collingridge 1980, op.cit. (note 35), p.191
- [42] See especially the work by Nelkin, as cited above. Also compare Bruce Dean, "The peripheral nature of scientific and Technological Controversy in Federal Policy Formation", Background Study 46 (Ottawa: Science Council of Canada, 1981).
- [43] Nelkin 1977, op.cit (note 24)
- [44] Nelkin 1974a (op.cit, note 5),
- [45] D. Nelkin, Nuclear Power and its Critics: The Cayuga Lake Controversy (Ithaca/London: Cornell University Press, 1971)
- [46] Nelkin 1974a op.cit (note 5)

- [47] Mazur 1981, op.cit. (note 2) Chapter 2
- [48] Nelkin 1971, op.cit (note 45)
- [49] Mazur 1981, op.cit (note 2) p.29
- [50] Nelkin 1979, op.cit (note 2) p.16-17
- [51] Petersen and Markle op.cit., (note 29) p.160
- [52] Susan Fallows, "The Nuclear Waste Disposal Controversy" in Nelkin 1979, op.cit., pp.87-124. quote is from p. 105
- [53] Cf. Robert Gilpin, American Scientists and Nuclear Weapons Policy (Princeton, Princeton University Press, 1962)
- [54] This is the main thrust of the work by Nelkin and Mazur already quoted. See also A. Mazur, "Disputes between experts", Minerva XI (1973) 243-262; A. Mazur, A.A. Marino and R.O. Becker, "Separating Factual disputes from Value disputes in controversies over technology", Technology in Society, 1 (1979) 229-237. As Nowotny shows in the Austrian nuclear power debate, even the (majority of) technical experts concluded that they were not primarily engaged in a "scientific" controversy. They considered "real scientific issues" to be either absent or subordinate to the political debate. See Helga Nowotny, "The Role of Experts in Developing Public Policy: The Austrian Debate on Nuclear Power", Science, Technology and Human Values 5, (1980), 10-18.
- [55] Campbell 1982, op.cit (note 21)
- [56] Nelkin as quoted in Campbell 1982, ibid
- [57] Fallows 1979, op.cit (note 52). Some of the recent literature concerned with the socio-cognitive nature of scientific and technological disputes is discussed below.
- [58] Cf. Rip 1983; Petersen and Markle 1981, op.cit (note 17) John M. Wilkes, "Case Studies: A promising way to assess technological impacts?", 4S Review, 1 (1983),8-12.
- [59] Del Sesto 1983, op.cit (note 10)p.396
- [60] See especially the twelve case studies on controversial decisions featured in the collection edited by Nelkin (1979) (See note 2)
- [61] Nelkin 1979, op.cit (note 2) p.19
- [62] ibid. p.16
- [63] Rip 1984, op.cit (note 37)
- [64] Rip 1983, op.cit (note 18)



- [65] Nelkin 1975, op.cit
- [66] Mazur 1981, op.cit (note 2) p.62
- [67] *ibid.*
- [68] Del Sesto 1983, op.cit (note 10) p.413
- [69] L.H. Tribe, "Ways not to think about plastic trees", in L.H. Tribe, C.S. Schelling and J. Voss, When Values Conflict - Essays on Environmental Analysis, Discourse and Decision (Cambridge, Mass: Ballinger, 1976), pp.61-91. Cf. B. May, Social Theory and Political Practice (London: George Allen & Unwin, 1975).
- [70] B. Wynne, "Technology, risk and participation: on the social treatment of uncertainty", in Conrad (ed) 1980, op.cit (note 15), pp.173-208; For the argument that 'technology' affects value positions see also Wynne 1983, Winner 1977; 1980, op.cit (note 16); and L. Tribe, "Technology Assessment and the Fourth discontinuity: the limits of instrumental rationality", Southern California Law Review, 46, (1973), 617-660.
- [71] Wynne 1983, *ibid.*
- [72] In this respect, what has been lacking in most political analysis of technological decision controversies is appreciation of the understanding by sociologists of science that the interactions between knowledge disputes and value disputes need to be examined. Cf. Petersen and Markle 1979, op.cit (note 29)
- [73] Amory Lovins, Soft Energy Paths (Harmondsworth: Penguin, 1977)
- [74] The literature on agenda-setting and the notion of "non-decision-making" is relevant here. For the policy analytic literature relevant to the notion of 'problem definitions see for example E.E. Schattschneider, The Semisovereign People (New York: Holt, Rinehart and Winston, 1960); Peter Bachrach and Morton S. Baratz, Power and Poverty: Theory and Practice (New York: Oxford University press, 1970); Gabriel A. Almond and S. Verba, The Civic Culture: Political Attitudes and Democracy in Five Nations (Princeton NJ: Princeton University Press, 1965); R. Mayntz, "The conditions of effective public policy" Policy and Politics 11, (1983) 123-143; Roger Cobb and Charles Elder, Participation in American Politics: The dynamics of Agenda-Building (Baltimore: John Hopkins University Press, 1972); Eugene Bardach, "Problems of problem definition in policy analysis", in John P. Crecine (ed), Research in Public Policy and Management Vol.1. (Greenwich, Conn: JAI Press, 1981), pp.161-171. In relation to decision studies on risk and technology see also Wynne's discussion on "hidden agendas" in Wynne 1983, op.cit (note 16)

- [75] D. Nelkin and M. Pollak, The Atom Besieged: Antinuclear movements in France and Germany (Cambridge, Mass, MIT Press, 1982), p.196
- [76] *ibid.* p.194
- [77] Helga Nowotny, Kernenergie: Gefahr oder Notwendigkeit (Frankfurt am Main: Suhrkamp, 1979), p.200. (My translation)
- [78] See, in addition to the sociology of science literature already cited in note 20, the collection of readings: Barry Barnes and David Edge (eds), Science in Context - Readings in the Sociology of Science (Milton Keynes: The Open University Press, 1982)
- [79] B. Wynne, Rationality and Ritual - The Windscale Inquiry and Nuclear Decisions in Britain (Chalfont St. Giles, Bucks.: Society for the History of Science, 1982), p.127.
- [80] Cf. B. Wynne "Risk Assessment of Technological Systems - Dimensions of Uncertainty", WP-84-42 International Institute for Applied Systems Analysis, Laxenburg, Austria, 1984 (mimeo).
- [81] D. Robbins and R. Johnston, "The Role of Cognitive and Occupational Differentiation in Scientific Controversies", Social Studies of Science, 6 (1976) 349-368.
- [81] Campbell 1982, *op.cit* (note 40)
- [82] Del Sesto 1983, *op.cit* (note 7) p.409
- [83] Wynne 1982, *op.cit.* (note 79); For a brief summary of the argument (in Dutch) see the book review by M. Schwarz, Wetenschap & Samenleving 1983/6 pp.50-52; See also B. Wynne, "The rationality and ritual of nuclear decision-making" in Skoie 1979, *op.cit.* (note 40), pp.115-138.
- [84] Wynne 1984a, *op.cit* (note 37), p.20
- [85] Nowotny 1979, *op.cit* (note 77)
- [86] *ibid.*, p. 168-182.
- [87] Cf. Joop van der Pligt, J. Richard Elster and Russel Spears, "Public attitudes to nuclear energy", Energy Policy, 12 (1984), pp.302-304. Cf. S. Cotgrove, Catastrophe or Cornucopia - The Environment, Politics and the Future (Chichester: John Wiley & Sons, 1982)
- [88] The absence of a coherent conceptual frame for examining technological controversies may be underscored by recent calls for developing "research protocols" on the grounds that different empirical researchers have tended to use different approaches. See Markle and Petersen 1981, *op.cit*

(note 14). In similar vein, the atheoretical status of current research has been stressed by those who have argued for research methods based on consistent theoretical social and political concepts. cf Rip 1983, op.cit. (note 18).

- [89] F.G. Castles, D.J. Murray and D.C. Potter (eds), Decisions, Organizations and Society (Harmondsworth: Penguin, 1971), p.15.

## CHAPTER 2

DECISION THEORY AND THE POLITICS-OF-INTEREST1. Introduction

The literature on (so-called) "technological decision" controversies has highlighted that public policy disputes over technology may be analysed as reflecting political conflicts. Far from being limited to disagreements among 'experts' over scientific 'facts', the controversial nature of technological decision-making has to be viewed in the wider context of achieving political consensus over the assessment of the (perceived) impacts of technologies. What is required therefore, is a theoretical framework for the political analysis of (technological) decision disputes; a conceptual perspective on politics, which can account for the conflicting rules of closure among institutional actors engaged in assessing and selecting policy alternatives. This chapter examines the theoretical literature on political decision-making, and assesses the conceptual terms in which policy dissensus has traditionally been framed.

The analysis of (technological) decision controversies requires addressing the issue of political disagreement among institutional policy actors (which are defined conceptually as social organisations). How can the process of public

decision-making be conceptualized so as to explain contending perspectives and policy actions? Public policy has been defined as the set of inter-related decisions taken by political actors concerning the selection of goals and the means of achieving them.<sup>[1]</sup> In line with this usage, this thesis adopts a broadly pluralist perspective of political processes, in that it conforms to the view that power is dispersed between many groups in society.<sup>[2]</sup> It views public decisions as the resultant of inter-institutional conflict and negotiation among policy actors.

The focus on dissensus in decision processes underscores the political dimension pertinent to public decision analysis. Politics is widely accepted as being concerned with conflict between individuals and organisations in society.<sup>[3]</sup> Robert Dahl has put it particularly strongly:

"If everyone was perfectly agreed on ends and means no-one would ever need to change the way anyone else behaved. Hence no relations of influence or power would arise, hence no political system would exist."<sup>[4]</sup>

The conceptual bias of my approach therefore is its concern with the analysis of public policy decisions - processes and outcomes - in terms of the determinants of policy dissensus. As stated earlier, the key issue is how to account for the different perspectives, policy positions and actions of political actors, and to formulate satisfactory explanations for dissensus as manifest in the process of public decision controversies.<sup>[5]</sup>

This chapter examines the conceptual underpinnings of existing theoretical frames for policy analysis and decision-making. It argues that most political theorists share a basic assumption, that the pursuit of interest lies at the heart of political behaviour. In consequence, the dominant theoretical approaches in policy analysis, diverse though they may be, can all be assembled under one rubric: the politics-of-interest. This chapter assesses this prevailing interest perspective with reference to the theoretical literature on political analysis

and decision rationality. I will argue that it is inadequate as a conceptual premise for understanding public policy controversies, and I will examine how its analytic limitations may be overcome.

## 2. The Politics-of-Interest

The idea of politics as the conflict of interests has been widely reflected in the work of political theorists. It is not my intention to reduce at a stroke all of the political science literature to this underlying premise. Yet, the characterization of political behaviour in terms of competing preferences for actions, demands, or wants - in short, interests - is sufficiently prevalent in modern political science to identify it as the dominant conceptual assumption in the analysis of political events. It serves as my starting point for examining theoretical approaches to policy conflicts in public decision-making.

The politics-of-interest frame considers the political realm as an arena into which individual or group interests enter in some fashion, to be dealt with by certain processes and to be transformed into outcomes, policies or outputs.<sup>[6]</sup> This notion of political processes treats political society, not as a single entity - a community - but sees it fragmented into groups that are distinguished by their respective interests. In this view, groups and their interests constitute the essence of politics, providing the conceptual terms in which political behaviour is to be explained.

Policy analysts and decision theorists alike have largely concerned themselves with examining the 'logic' of political decision-making in terms of competing interests. Analyses of the determinants for political behaviour have reflected this conceptual focus.<sup>[7]</sup> The dominance of the politics-of-interest in the study of political processes is exposed by much of the

(more formal) political science literature. Various kinds of interest definitions can be found among political theorists, and their number and prevalence supports the claim that they share a basic common premise about the nature of political events.

Van Dyke, for example, defines politics as a struggle among actors pursuing conflicting desires on public issues, public issues being defined as concerned with groups in some ways.<sup>[8]</sup> Lasswell in his classic book on Politics sees the political arena as being occupied by political actors who, having certain "base values", "demands" and "political strategies", attempt to achieve specified outcomes which are seen to maximize their "value indulgences".<sup>[9]</sup> For Lasswell, individuals and groups are moved by fundamental goals and objectives that they seek to achieve. Their desired value patterns provide the motivating force for action and choice. Similarly, value preferences are considered central to the formation of coalitions, arising out of the aggregation of interests, whenever there is a substantial degree of overlap.<sup>[10]</sup> The interest premise in political theory is reflected further in Easton's highly influential definition of political events as those concerned with "the authoritative allocations of values for a society".<sup>[11]</sup> It is fundamentally dependent on an understanding of values as preferences or demands held by those involved in political society.

The politics of interest readily includes the "interest group" theories of Bentley, Truman, Latham and others who have made group interests the main characteristic and 'raison d'être' of organisations. In the words of Bentley, the 'founder' of "group theory" in political science, "there is no group without its interests".<sup>[12]</sup> The notions of interests and goal-attainment are likewise fundamental to the group approach to society. Group actors involved in political processes are seen as being impelled by their respective interests and claims upon the other actors in the system to participate in the 'group struggle' that constitutes society. In this perspective

the drive for goal-attainment or goal-seeking is accepted as the single most important motivating force of the political process.

Common to all theoretical statements involving interest politics is the idea that each political actor has a set of preferences and associated goals that determine his behaviour. The interest bias in political science is particularly striking in the analysis of policy-making and political choice.

Within the politics-of-interest, policy analysis is reduced to explaining actors' behaviour in relation to the interests displayed by each policy actor. Interests theories of political behaviour are purposive, with the policy goals taken as given. They assume that attention to particular aspects of issues and the selection of policy options follow preferences (as identified by each policy actor). Actors' respective interests are somehow accepted as being self-evident; they are the starting point for most policy analysis.<sup>[13]</sup>

The limits to analytical models based on the politics-of-interest have not received much attention in political theory and policy analysis.<sup>[14]</sup> The concept of interest itself has not been properly scrutinized for the theoretical assumptions that underpin its use in politics and decision-making models. There has been little attempt, for example, to clarify the relationships between economic and non-economic interests, between egoistic and non-egoistic interests, as between individual and group interests on the one hand and the more general social interests that transcend them on the other.

Despite its prevalence, cracks in the politics-of-interest model have clearly started to appear. As a conceptual frame it is more and more under stress, as questions have been raised about its assumptions in relation to the empirical reality of political phenomena. It is becoming increasingly obvious that the conception of political events premised on the pursuit of interest is far too narrowly defined. Politics-of-interest



models consider 'interests' as psychological facts; simply as behaviour without any references to the social contexts impinging upon the state of mind of the actors. Cochran, for example, has said of this reductionist approach:

"The politics of interest, following the lead of modern natural science, ignores the reality of purpose and thus is incapable of understanding the total experience of political life. Indeed, one of the manifestations of the politics of interest is its definition of politics without reference to purpose." [15]

In the broader context of policy analysis, but in similar vein, Majone has criticized "causal" theories of policy-making, of which the politics of interest may be seen as a prime example. He has argued that causal accounts of political behaviour seriously restrict the range of questions that can and should be asked about the policy process.<sup>[16]</sup> Majone has specifically identified the shortcomings of traditional policy analysis by pointing at the processes of legitimation and consensus building which are considered so essential for "policy viability". He argues that policy analysis should move beyond the limited utilitarian perspective where success and failure in policy choice is considered to be dependent solely on whether it correctly determines the actions required to achieve a given goal.

The failure of the politics-of-interest to deal with the issue of policy viability must be sought in the fact that it considers the determinants of goal maximization in a social and cultural vacuum. The major limitation of this theoretical conceptualization is the assumption of the pre-existence of the preferences held by policy actors. The pursuit of interest as premise for policy choice assigns to the "decision-maker" a position devoid of social relations: each policy actor is seen to act singularly on the basis of the merits of alternatives in relation to his self-proclaimed objectives. Majone rightly points out that the practice of public policy-making is seriously at odds with this theoretical perspective:

"In public life to decide, even to decide rationally, is not enough: decisions must always be justified.

However whimsically policy actors come to their conclusions, good reasons have to be given for their preferences if they are to be taken seriously in the forums of public deliberations." [17]

Policy analysis within the confines of the politics-of-interest has over-stated its singular concern with policy action as being the selection of the best means to achieve a given end. According to this limited perspective, rationality in decision situations means maximizing something: it means selecting the best alternative, subject to a pre-existing set of constraints. [18]

To understand the limitations of such a goal-seeking model of social choice, we will have to examine the notion of rationality that sustains it. Can rationality exist in a social and cultural vacuum? Can a model of social choice that is predicated on isolated decision-makers - automata that arrive miraculously upon the political scene completely equipped with pre-programmed 'goals' - tell us anything about political life in society? Are not 'rational' models of decision-making coming to the end of their explanatory life, if they prove unable to handle the inescapable social environment on which politics depends? To examine these critical issues we have first to establish the degree of centrality of the interest-premise in theoretical models of decision rationality.

### 3. Decision rationality and the pursuit of interest

Theoretical models of decision-making and rationality have been numerous. Rather than re-iterating the well-established decision-making literature - which would, in any case go beyond the scope of this chapter - discussion below will be cast in terms of the two headings under which much of the decision theoretical literature has conventionally been organized. The conceptual models concerned with 'rational' decision-making and those dealing with 'incrementalism' are conventionally presented as contrasting theoretical formulations. A third group of "mixed" theoretical approaches have been 'positioned'

in between, as partial criticisms as well as refinements of the two 'extreme' models. This range of three (clusters of) theoretical models of policy-making will serve as the framework for reviewing the theoretical literature on decision-making and rationality with the specific aim of exposing the extent to which the various models are dependent on some notion of the pursuit of goal attainment as premise for policy actions.

### Rational decision-making

Rational decision-making models consider policy as effective goal achievement or goal maximization: a "rational" decision is one that most effectively achieves a given (formally defined) end. Simon has phrased the classic notion of synoptic rationality in public decision-making as follows:

"The task of rational decision-making is to select that one of the strategies which is followed by the preferred set of consequences." [19]

More precisely, as to the steps or activities involved in making a decision according to the rational-synoptic model, March and Simon have provided the following description:

"[The decision-maker] has laid out before him the whole set of alternatives from which he will choose action ... to each alternative is attached a set of consequences ... At the outset the decision-maker has a "utility function" or a preference ordering that ranks all sets of alternatives from the most preferred to the least preferred ... The decision-maker selects the alternative leading to the preferred set of consequences." [20]

In their most extreme form, models of synoptic rational decision-making are based on comprehensive knowledge of all possible policy options and their consequences, as well as the desired goals and values which make up the "utility function". It is the choice of the best means to desirable ends.

The criticism levelled at the rational synoptic model has been most pronounced in relation to public policy-making, and centres around the assumptions that have to be prerequisite for the process of rational choice in policy-making, namely:

- (i) carrying out a comprehensive comparison of all alternative policy options and all their consequences; and
- (ii) finding agreement on a single set of collective ends or values which are to be maximized.

Lindblom has been the most prominent policy theorist among critics of the ideal of synoptic rationality, arguing that

"Too many interacting values are at stake, too many possible alternatives, too many consequences to be traced through an uncertain future - the best we can do is partial analysis." [21]

The practical objections to the synoptic rational model as a description of policy-making behaviour, have not remained unanswered in the rationality literature. The 'modifications' which have been made to the classic notion rationality in decision-making have exposed the behavioural assumptions underlying the rationalist models. Simon has introduced the notion of bounded rationality conceding that "it is obviously impossible for the individual to know all his alternatives and all his consequences". [22] What is suggested here are ways of limiting the number of policy options which are being compared and evaluated.

At the heart of the process of decision-making is thus some form of "closure": restricting the number of variables and options which are included in policy-making. The essential issue in relation to the analysis of policy behaviour thereby shifts towards finding explanations for the imposition of boundaries on the scope of decisions under consideration. The choice of "rules of closure" will inevitably have a direct impact upon the outcome of any policy-making exercise. [23]

Indeed proponents of the rational school of policy-making have come to accept that they are using a model of "limited" or "partial" rationality that takes into account only some alternatives, and some consequences, related to some objectives. [24] Simon has advanced three procedures for "closure": (i) decision-makers ignoring those consequences which are not of interest, (ii) "satisficing" by choosing a

satisfactory rather than a single optimum policy, and (iii) adjusting scopes of concern in the light of experience from earlier decisions.<sup>[25]</sup>

Whatever strategy is followed to limit the scope of analysis, the crux of the matter is that it is assumed that agreement can be reached on the set of goals and objectives (of an organisation or community) which are being pursued. Given that attempts at a comprehensive comparison of alternatives is meaningless unless there is prior agreement on the criteria for evaluation, leads us to the second objection of the rationalist model of policy-making: the need for consensus on ends. This objection stems from Arrow's demonstration of the impossibility of a "social welfare function" in public decision-making, that is, a preference ranking by society on some set of alternative options.<sup>[26]</sup> Lindblom, again, can be cited as representing the major policy theoretical attack on the rationalist contention that agreement on a social welfare is possible. In his words,

"In synoptic analysis the common requirement that values be clarified and systemised in advance of analysis is impossible to meet in many circumstances ... disagreement on values guarantees that no stated principles or welfare function can command agreement ..."<sup>[27]</sup>

The theoretical objection to rational decisions, on the grounds that it is impossible to find agreement within society over the set of values to be embodied in policy-making, has shifted the whole emphasis of policy analysis away from a single welfare function for society. It has been argued, for example, that a form of rationality can still be aimed for in the absence of a social welfare function, as long as the decisions are 'vindicated', so that consensus is reached on the process by which decisions are arrived at, when disagreements persist on the desired outcome of policies.<sup>[28]</sup> In this perspective, the notion of rational decision-making is modified in such a way as to remove the requirements for a social welfare function, and to substitute for it the policy-maker's own preferences.

Reluctant to concede outright that a social welfare function

should not be aimed for, proponents of rational decision-making have asserted that only a "working social welfare function" is required to provide a set of objectives. In this view the optimization of such a function is the aim of rational decision-making. When it is asserted, however, that "alternative functions are the stuff of political opposition"<sup>[29]</sup> it becomes obvious that here too prior agreement on a set of values to be pursued is no longer guaranteed, nor expected.

Following such 'modifications' of the rational model of decision-making to their logical conclusion has important implications for a policy analysis: the set of goals which are being pursued become, in principle, open for negotiation. Competition between alternative goals is allowed to become a central feature of political decision-making and, in the process, the notion of rationality is reduced to its narrowest form. Simon has emphasised that the "substantive rationality" by which policy actors make choices can only relate to the adoption of the appropriate means to achieve preferred ends. In his words, this definition implies that,

"...the rationality of behaviour depends on the actor in only one respect - his goals".<sup>[30]</sup>

With every policy actor in the decision-making process attempting to behave 'rationally' with respect to his own goals, the outcome of political decision-making comes to be viewed as a struggle over which of the competing objectives are to be pursued. The central question from such a pluralist view of rationality in public decision-making becomes: "Whose welfare function?"

With the rationalist model of political decision-making no longer dependent on the adoption of a single agreed utility function for society, the 'arena' of public policy-making is seen to be made up of different actors attempting to pursue their respective goals. Consequently, it is only one step removed from Lindblom's incrementalist conception of "partisan mutual adjustment" in policy making. The "rules of closure" in

the context of Simon's "bounded rationality" are thus made dependent on the particular set of preferences which is being adopted in decision-making. The comparison of policy alternatives (in whatever form) and their evaluation will be based on the rankings of objectives by policy actors. The process of public decision-making thus becomes the product of interacting policy actors pursuing different interests - in short the "politics-of-interest".

### Incrementalism

The incrementalist model of policy-making whilst rejecting the rationalist idea that decisions are based on a sequential means-ends distinction (of first isolating ends, followed by a selection of means), is similarly committed to a notion of the pursuit of self-interest by each policy actor. Incrementalist theorists are in fundamental agreement with the idea of bounded rationality in so far that they acknowledge that, in choosing which policy option to adopt, it is necessary to make reference to a limited set of alternatives, namely those which are seen to be in the actor's interest.

Lindblom has introduced the idea of "partisan mutual adjustment" to emphasize that decisions are the product of 'give and take' among numerous participants in the policy process.<sup>[31]</sup> Competing interests and policy preferences are at the heart of his model. A major idea underpinning the incrementalist model of "successive limited comparison" of policy options, is that decision-making is concerned with finding agreement between groups. Lindblom's recipes for "incremental" policy changes, and "muddling through" are explicitly designed to minimise the expected disagreement among policy actors, each behaving in their own self-interest.<sup>[32]</sup>

In relation to my concern with policy analysis, the degree of convergence of the underlying assumptions of the two 'contrasting' stances on the theoretical continuum is considerable. Whilst the rationalist school stresses the

possibility of reaching agreement among policy actors on ends (which can subsequently be pursued through the selection of appropriate means), the incrementalist model of decision-making depends on achieving mutual consensus (through bargaining and incremental adjustments) between groups of policy actors on outcomes. Both models, however, are squarely based on political decision-making as consisting of some sort of balancing of interests (or goals) represented by policy actors.

The difference between the two theoretical models is to be sought more in terms of differing conceptions of the feasibility of different policy-making strategies for limiting the choice of options (to make decision manageable) and to achieve acceptable decisions.<sup>[33]</sup> But this is not relevant for my concern in uncovering the determinants of dissensual policy actions. Analysing policy conflicts means identifying the underlying behavioural assumptions of policy actors' motivations. In this respect, both the rationalist and incrementalist models embody assumptions that policy actors will simply behave in their respective interests. Their arguments are dependent on a conception of goal-seeking in decision-making.

- The common ground between the motivational underpinnings of the rationalist and incrementalist models of decision-making is also reflected in a 'third' cluster of conceptualizations of policy-making, that seeks to combine the two. Whilst this part of the theoretical literature has a more normative rather than empirical bias, the central concern with preferences and goal-seeking by policy actors remains significant. The models advanced by Etzioni ("mixed scanning")<sup>[34]</sup> and Dror ("optimal rational decision-making"),<sup>[35]</sup> as well as the elaborations advanced by Gershuny ("iterative mixed scanning")<sup>[36]</sup> share a common focus. They are all concerned essentially with avoiding the exclusion of desirable policy options from considerations as a result of restrictive closure in decision-making (such as those inherent in incrementalist adjustment), whilst acknowledging that some notion of "bounded rationality" (i.e.



the adoption of certain "rules of closure") is inevitable in policy-making.

The key to these approaches is to combine rationalist and incrementalist techniques in order to select "rules of closure" so as to include those policy options which are in the interest of policy-makers.<sup>[37]</sup> The interests which are pursued in decision-making are at the heart of the conceptualizations of Etzioni and Dror. Disagreement on values, i.e. conflicting interests, are thereby seen to lead to alternative choices of the "rules of closure" in the inevitable process of limiting the scope and nature of analysing policy alternatives.

In summary, it must be concluded that the pursuit of interest as the key to understanding political behaviour constitutes the central underlying assumption common to the main body of theoretical models of rationality and the process of public decision-making. This is also reflected in the way policy analysis has (empirically) focused on explaining policy outcomes in terms of the interactions between policy actors pursuing their respective interests. Central to these approaches has been the idea that actors' interests provide a self-evident starting point from which purposive behaviour can be studied scientifically. The analysis of public decision-making is thereby reduced to a single level: the politics-of-interest, with the pre-existence of goals as its essential premise. The next section examines the deficiency of this conceptualization for understanding social choice in political decision-making. It suggests the direction in which more adequate and satisfying analytical approaches may be sought, in an attempt to overcome some of the theoretical limitations of the politics-of-interest perspective.

#### 4. Beyond interest models of social choice

The theories of decision-making reviewed in the previous section assume the pre-existence of preferences as providing a motivation for policy actors to select particular choices of

action. A major deficiency of this causal model lies in the fact that it fails to concern itself with the origins of interests. It treats the interests adopted by policy actors as self-evident, ignoring the question as to how the alignment of particular interests and actors is actually determined. Politics-of-interest models of decision-making cannot handle the question "How do policy actors who behave in their own best interest come to know where that interest lies?".

Decision models based on pre-determined interest thus set up a circular explanation of distressingly small diameter. Policy actors trying to determine what their interests are can only do so with reference to certain "rules of closure". They are inevitably restricted by limited knowledge, and can only proceed on the basis of partial analysis. They clearly operate under what Dahl and Lindblom have called the "paradox of specialization" - that in order to address issues, organizations must disaggregate them, thereby ignoring some of the variables and focusing on a limited set of others.<sup>[38]</sup> But the setting of these boundaries on analysis and choice has itself been considered - within the politics-of-interest model - an action requiring reference to policy actors' goals. Hence, any attempt at determining one's own best interest, is itself dependent on prior knowledge of the set of objectives which are being pursued. In short, to know one's own interest, one must know one's interest.<sup>[39]</sup> It is at this point that the traditional models premised on pre-determined interests break down as an analytical basis for understanding political events and as a credible explanation of policy behaviour in the context of decision-making.

The politics-of-interest model fails at a number of crucial points. First, it has concentrated on goal-seeking and has disregarded the issue of goal-setting by policy actors. Secondly, it has ignored the social nature of institutional policy actors, treating them as aggregates of individuals (See below). Thirdly - as a consequence - much of political analysis has ignored the need for decisions to be (morally)

justified. Interest-premised theories of decision-making fail to address the social and cultural constraints that make for the dynamics and ambiguity involved in policy processes. They do not acknowledge that the rules of closure and criteria for social choice will be adjusted according to what kinds of decisions are seen to ensure and maintain effective support and credibility from social institutions (and the individuals belonging to these institutions). In any social situation, the acceptance of particular goals can never be completely divorced from social processes and (public) reasoning. The rational choice models of decision-making are therefore far too tidy as a conceptual basis of for policy analysis. Goals can change over time, and can not be considered as immutable givens in social choice.<sup>[40]</sup> Hence, conceptual models for public policy analysis will have to move beyond theories of goal-seeking in order to be able to account for the processes of goal-setting.

#### Anarchy in the "garbage can"

To overcome the limitations of the politics-of-interest model, it is necessary to place the process of goal-optimization in a broader context which examines determinants of policy objectives outside the utilitarian means-end scheme of traditional decision theories. In other words, if we want to avoid the pitfalls of a circular goal-seeking notion of rational decision-making, we will have to acknowledge the social and cultural context as a determining factor in setting boundaries to the rules of closure which are adopted by policy actors. In escaping the narrow limits of the politics-of-interest premise, two main approaches are open to us. One is to circumvent the problem altogether by relaxing completely the assumption of intentionality of policy behaviour and adopt a relativist approach. The other is to formulate an alternative conceptualization of social decision-making which remains within the tradition of purposive political behaviour and which takes into account the institutional contexts of policy choice.

Of course, the easy way of overcoming the problem of pre-determined goals in political decision models - which presuppose that outcomes reflect purely the pursuit of interest - is to take a totally relativistic stance. One could simply move away from the assumption that decision outcomes are necessarily intentional. In this view, policy actions are no longer dominated by the intentions of goal-seeking actors. Such an approach leads to a conceptualization of decision-making in a context of anarchy, based on a fluidity and an ambiguity of goals. March and Olson have formulated such a "garbage can model" of decision-making, built on the belief that the "processes and outcomes are likely to appear to have no close relation with the explicit intention of actors". [41]

The "garbage can" model views the process of decision-making as an anarchistic mixture of problems, solutions, policy actors and choice opportunities. It provides a view of how organisations may operate in decision processes but cannot be convincingly translated to an inter-organisational context of public policy-making. This would require a view of society where coalitions between policy actors are constantly in arbitrary flux. Indeed, the whole question of which "interest" is linked to what particular group of policy actors becomes not only irrelevant - in the sense that objectives are fluid and ambiguous anyway and actions unintentional - but it comes to fall outside the frame of reference. The definition of a policy actor becomes itself ambiguous once the arena of decision-making is seen to be made up of a complicated intermeshing of changing organisational policy choices, problems and solutions.

In the "garbage can" concept all configurations are in principle possible. It is based on a high degree of unconstrained relativism of policy actors and the way they view and evaluate policy problems. The infinite number of possible juxtapositions of policy actors with their respective goals and policy perceptions (however fluid and ambiguous) would make any

attempt at analysing public policy choices in terms of goal dissensus among policy actors impractical, if not meaningless. The question of inquiring into the origins of interest would not only be empirically unmanageable but, above all, theoretically irrelevant. What such an approach ignores, is that policy actors are social organizations that have to account for their actions. Their particular selection of policy problems and solutions need to be credible in order to muster and maintain the social support on which their institutional viability depends. In this, policy actors need to be explicitly distinguished from individual decision-makers.

### Constrained relativism

The breakdown of the politics of interest frame is partly due to the fact that much of the literature on decision-making and rationality is based on the individualist fallacy. It has implicitly developed in the mistaken belief that its inquiry as applied to individuals can simply be extended to the level of social organisations. Individual choice processes as the basic unit of analysis, may draw us initially to the belief that the pattern of 'rules of closure' in decision-making is unlimited in variation. Given that different individuals may have markedly different definitions of the situation they encounter, there could be as many goal-setting directions in their behaviour. At the level of policy actors as social institutions, however, rules of closure and boundaries in decision-making have to be justified. It involves mustering social consent and support for the way policy actors 'home in' on particular issues and objectives.

Similarly, in relation to the study of political power, many theorists have been prone to locate power and influence in policy-making (implicitly) in the resources of individuals rather than in the social organizations they uphold. The case against this basic misconception has been made convincingly in the important study on power by Dennis Wrong, in which he argues that social groups, not individuals are the central

political actors in contemporary pluralist societies. In this perspective, the policy arena is made up of "power-seeking groups", whose viability depends on successfully mobilizing collective resources and formulating collective goals.<sup>[42]</sup> The maintenance of collective resources is seen as particularly significant in political processes, and as Wrong concludes: "also more enduring when possessed by relatively stable groups and organizations in society".<sup>[43]</sup> In this respect, many decisional studies have come to adopt some kind of 'institutional' approach. Nonetheless, much of the policy literature has not sufficiently acknowledged that this implies making social actors and thereby the conditions for their social viability the appropriate focus of analysis.<sup>[44]</sup>

The notion that the political arena is made up of social institutions that need to be maintained, lends support for the assertion that the number of policy actors engaged in policy making is not unlimited. Indeed, in observing actual cases of public decision-making it is obvious that there is a certain degree of social 'stability' in the system. A limited number of policy actors can be seen to be operating for significant periods of time. Social organizations involved in decision-making do align themselves with particular policy objectives (or claim to do so), and justify their actions in those terms. It is this viability criterion of justifiability that gives rise to a certain measure of recurrent regularity in the observed phenomena. In rejecting the "garbage can" model in its extreme form - of random streams of policy actors, problems, solutions and choice opportunities - we can restate our conceptual stance for a purposive analytical model of goal-setting in social choice. In attempting to formulate a framework which accounts for the conflicting boundaries and preferences in public decision-making, a certain notion of plurality has to be retained. Given the dynamic nature of political processes, a static, uniform conceptualization of decision-making is clearly inappropriate. In rejecting this as well as the other extreme of the "garbage can", we take up a position of constrained relativism.

The very nature of public policy making has meant shifting our concern from individual choice processes to organizational decision-making in the social and cultural context pertinent to politics. What is required, then, is an analytical scheme by which the "anarchy" in the policy arena can be organized so as to acknowledge the social nature of the policy actors; a frame which conceptualizes the constraints they impose on their selection of problem frames and choice criteria. The conceptual deficiency of the politics-of-interest model has led us to call for a "social accountancy" model of interest, that acknowledges that social viability of institutional actors is an essential determinant of the process by which they come to pursue certain goals and strategies and neglect others. [45]

From this perspective, we can return to the question of the origins of interests, with the important distinction that we can address explicitly the significant issues of credibility and policy justification as crucial factors in political decision-making and social choice. In effect we are once more examining the boundaries to analysis and the rules of closure, but now in their proper social and cultural context. In terms of the language of decision theory, we are re-introducing the question of what kinds of boundaries can occur in relation to rationality of policy actors in a social environment.

Although social constraints on choice situations have received only limited attention in the literature, the idea of bounded rationality does allow scope for social factors to be systematically included in the decision-making analysis. It is clear that the social environment imposes constraints upon choice and sets boundaries on the range of feasible alternatives. It has been suggested that the constraints of social institutions are in some ways incorporated in the perspectives of rational decision-makers. [46] In this context Simon has stated that:

"The givens in the situation of choice (that is the environment) and the behaviour variables (that is the organism itself) are usually kept strictly apart, but

we should be prepared to accept the possibility that we call "the environment" may lie, in part, within the skin of the biological organism." [47]

As to the implications for public policy analysis, this means abandoning the traditional view that rationality in decision-making can be treated as extensional - as having an existence wholly independent of organisational context. We need to analyse institutional policy actors as different cultural entities, which provide both the social constraints and selective incentives for policy choices.

### 5. Conclusion: the case for a cultural perspective

The conclusion that the selection of goals by policy actors is - at least partly - determined by social and cultural processes, makes it possible to escape from the confines of the interest-premise in policy analysis. Without abandoning the notion that disagreements on goals may lead to different courses of action among policy actors, such an advance enables boundaries to institutional goal-setting to be included in analysis. It no longer depends on conflicts of interest as the fundamental singular 'cause' of policy dissensus.

This thesis is developed from the view that political dissensus (in "technological controversies") is not limited to disagreements on policy goals, but (may) involve conflicts among policy actors as to the appropriate definitional boundaries to policy issues. Hence, it is imperative to come to terms with the fact that public issues can be perceived and appraised through multiple frameworks of evaluation. The main conclusion emerging from this chapter is that the selection of policy goals which are integral to those frameworks can not be understood in terms of the narrow interest-premised notion of rational decision-making. In order to advance on the politics-of-interest, the selection and justification of



institutional policy objectives must be analysed with reference to the social and cultural determinants of political behaviour.

The argument advanced in this chapter is essentially a call for a cultural framework for policy analysis: a conceptual basis that incorporates the social and cognitive premises of institutional processes of assessment and choice. From this perspective, the socio-cognitive constraints that policy actors generate for the way policy issues and 'legitimate' solutions are perceived (for example, in the assessment of technology), provide the central conceptual focus for understanding how they come to select and justify their policy objectives and actions. The next chapter formulates such a cultural frame for the analysis of public policy disputes, by placing the pursuit of interest in its proper sociological context.

## Chapter 2

NOTES AND REFERENCES

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3. Cf. E.E. Schattschneider, The Semisovereign People (New York: Holt, Rinehart & Winston, 1960) Esp.Ch.1.
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39. It is exactly because of this circularity that some normative models of public decision-making, such as the strategy advanced by Gershuny, (1978 op.cit.) have insisted on the need for an (never-ending) iterative component in attempts at rational decision-making.
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43. Wrong 1979, op.cit. (note 42), p.144.
44. In order to emphasise the concern with social groups as collective entities, some have made a distinction between "interest groups" and "institutions", the latter having

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45. The notions of "social viability" and "social accountancy" (as used here) are largely drawn from the work of Michael Thompson, which is discussed in more detail in the next chapter. See e.g. M. Thompson, "The cultural construction of nature and the natural destruction of culture", IIASA Working paper WP-84-92 (Laxenburg, Austria: International Institute for Applied Systems Analysis, November 1984). The notion of "social accounting" is used by M. Douglas in her Cultural Bias, Occasional paper no. 35 (London: Royal Anthropological Institute of Great Britain and Ireland, 1978), p.15-16. See also our paper, based on the present chapter: M. Schwarz and M. Thompson, "Beyond the politics of interest", in M. Grauer, M. Thompson and A.P. Wierzbicki(eds), Plural rationality and interactive decision processes (Berlin: Springer-Verlag, forthcoming).
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The notion of culture is only one way of incorporating the social environment of institutional policy actors in political analysis. Neo-marxists, for example, would stress the importance of ideological influences in the capitalist mode of production, which they consider as the dominant feature of the social environment of Western economies. See V. Ronge, "Theoretical concepts of political decision-making processes", in J. Conrad (ed), Society, Technology and Risk Assessment (London: Academic Press), pp.209-238.

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## CHAPTER 3

CULTURAL BIAS AND PUBLIC POLICY ANALYSISIntroduction

The case for a cultural perspective on public decision analysis arises out of the failure of the politics-of-interest model to come to terms with the social and cognitive dimensions of policy controversy. To adequately understand political conflicts over the selection and justification of policy choices (e.g. those concerned with controversial technology) we will have to account for the boundaries to rationality in social decision situations. This chapter broadens the analytical scope for examining public policy disputes in systematic theoretical terms by embracing the notion of cultural pluralism among institutional actors. The conceptual advance developed here is sought, therefore, not in the rejection of the idea of competing interests, but by making it contingent on the culturally-induced biases in perception of policy actors, operating within a social arena that they themselves collectively shape and maintain.

The aim of this chapter is three-fold. First, it introduces the notion of cultural bias in institutional choice, advancing a conceptual approach that overcomes the analytical deficiencies of politics-of-interest models of decision-making.

Secondly, it argues how the notion of competing culturally-induced institutional biases can provide a methodological scheme for explaining contending policy perspectives and choice criteria. And thirdly, it shows how this cultural bias frame can be applied to analyse specific public decision controversies over the assessment of technology.

The cultural framework advanced in this chapter provides a conceptual model of political dissensus, taking account of institutionally-induced perceptual differences impinging on the way policy actors select and vindicate what is in their 'best interest'. The central idea is that policy actors may be classified by reference to a limited number of socially viable cultural orientations in perception and strategic choice. This analytical perspective moves away from a static, unitary approach which assumes that there is agreement on the givens of a situation, whilst avoiding the totally relativistic position that gives equal plausibility to every imaginable configuration of policy actors and problem definitions.

This chapter argues then how cultural analysis can account for competing policy strategies by reference to basic differences in cultural orientation. The cultural analysis of policy disputes is developed from "grid/group" theory in anthropology and in the sociology of perception (as first formulated by Mary Douglas).<sup>[1]</sup> This line of analysis uses the social context dimensions of "group" and "grid" to classify variations in social constraints that people experience, and amplifies the distinctive cultural biases which emerge from, and help sustain, these different social arrangements. Based on this conceptual typology of institutional biases in perception, this chapter introduces the notion of contending political cultures, showing how they can be employed in public decision analysis.

The policy analytic approach formulated in this chapter is premised on the idea of competing culturally-dependent selection biases. Each distinct cultural orientation is seen

to involve an appropriate way of selecting and vindicating how a (technological) policy issue is defined, what options and consequences are taken into account, and which evaluative criteria are seen as credible. This chapter thus argues how the notion of contending political cultures in the public policy arena can be applied to examine the socio-cognitive premises that underpin conflicting policy stances and assessments in technological decision controversies.

### Political cultures

The application of the concept of culture to political science is not new.<sup>[2]</sup> The distinction of the cultural bias frame is that it is committed to a plurality of political cultures within the policy arena. Cultural theory is not in disagreement with those political theorists who have focussed on the culturally-generated premises and prescriptions in political behaviour.<sup>[3]</sup> In discussing the role of symbols as a characteristic element of of a "political culture", Elder and Cobb, for example, have explicitly acknowledged the link with cognitive processes in boundary setting:

"In defining the range of symbols that are available to give social definition to a situation, a political culture acts to limit the range of problems and problem solving alternatives that are likely to be considered, or for that matter, even entertained or recognized. ... Culture colours perceptions and constrains problem definition...".<sup>[4]</sup>

However, much of political science still embraces the idea that it makes sense to talk in the singular about the national or local political culture. The reality of political conflicts shows how different policy actors may have competing perceptions of the situation, and indicates that this simple assumption can not be upheld. The debate over whose socio-cognitive problem definition should prevail is often a basic issue in political conflict; one which is likely to be a critical determinant of the outcome of policy controversies.



Hence, my concern with political cultures in the plural.

Moreover, in insisting on a plurality of institutional cultures, we avoid the notion of culture as a residual category in analysis. It enables the development of an explanatory theory based on the variation of cultural settings within societies or organisations. This perspective highlights that social institutions construct their organisational culture in the process of behaviour (e.g. decision-making). Hence a plurality of (political) cultures provides a conceptual basis for understanding differences in behaviour within the same mode of analysis as the symbols and perceptions that accompany and justify that behaviour.

The cultural model sees public policy-making as the 'product' of distinct political cultures at the level of social institutions interacting in the policy arena. It enhances the traditional approach to policy analysis, incorporating the view (advanced by symbolic organization theorists) that the symbols and social perceptions of reality can become a basis on which decisions are made and actions taken.<sup>[5]</sup> The notion of cultural pluralism in political conflicts makes explicit that social actors may differ on the kinds of symbols and issues that are seen as politically salient and on what meanings are to be attached to them. The significant advance of the cultural bias model is that it suggests a systematic and coherent basis for classifying and analysing these cultural differences in policy-making.

The classification of political cultures is based here on the grid/group typology of social environments, that uses the notion of social context to analyse the relationship between the social and symbolic orders. Each type of social environment generates, and is sustained by, a distinctive perceptual orientation. By asserting that not all combinations of institutional perceptions and social contexts are viable, cultural theory advances a four-fold classification of cultural bias. The dimensions of 'group' and 'grid' are used to

classify two dimensions of action limited by social order, namely (1) whom one interacts with and (2) how one interacts with them.<sup>[6]</sup> (for further discussion see below).

The grid/group classification of institutionally-induced biases thus provides a methodological grip on the process by which policy actors set boundaries to decision situations. The confrontation of distinctive political cultures in the policy arena can be used to analyse not only the outcome of the public policy process, but also the kinds of selection criteria and justifications that policy actors adopt. The notion of a plurality of political cultures in policy conflicts thereby provides the missing link between political theories concerned with cultural aspects such as symbolic action, and a classification of socially viable strategies that tells you what kinds of (symbolic) action are possible within a particular political culture. Since cultural theory is essentially concerned with comparing different social constraints on behaviour, the political cultures framework can help us see how goal-setting and legitimation in public decision-making relate to the social environment of policy actors.

By placing the process of public policy-making in its proper social context, the cultural approach explicitly acknowledges that decision-making institutions become effective or become paralyzed according to whether they enjoy the credibility of their members and constituents. In democratic policy-making, governmental authorities (for example) are only able to govern effectively as long as their authority is seen as legitimate.<sup>[7]</sup> Cultural theory provides an analytical approach for investigating the dynamic basis for that legitimacy. Conflicting political cultures, as manifest in the policy arena, define basic differences in consent and social support from which policy actors derive the credibility for their choices, as well as for their authority. The political cultures model aims to conceptualize the contention of distinctive cultural orientations by which policy actors seek

to preserve an adequate measure of social consent.

The conceptual strength of the cultural approach is that it allows institutional choice and policy justification to be analysed in a single frame. Cultural theory considers both as part of the social process by which policy actors generate and uphold shared meanings and moral commitments necessary for the legitimation of their actions.[8] Grid/group theory provides a conceptual scheme for analysing what forms this process may take.

## 2. Social institutions and cultural environments

The notion of "cultures" as abstract meanings internalized socially in terms of consistent sets of beliefs, values and symbols,<sup>[9]</sup> can be used to analyse both the variation in perceptual biases apparent in institutional behaviour and the types of social environments that institutions can sustain. In this respect, the advance of the cultural approach to public policy analysis, is a response to the challenge set by those organization theorists, who (with March and Simon) have (at least) acknowledged that

"The organizational and social environment in which the decision-maker finds himself determines what consequences he will anticipate, what ones he will not; what alternatives he will consider, what ones he will ignore. In a theory of organization, these variables cannot be treated as unexplained, independent factors, but must themselves be determined and explained by the theory".[10]

Underpinning the case for a cultural framework is the view (as emphasised above by March and Simon) that processes of assessment and choice inevitably are influenced by the institutional and social context in which actors operate. The cultural approach is an attempt to formulate a conceptual scheme to examine basic differences in the cognitive premises by which institutional policy actors set boundaries to the assessment of decision situations and to their own choice

behaviour. By conceptualizing the relationship between social organizations and their environment in cultural terms, variations in perceptual biases can be analyzed in relation to the various social contexts from which institutions derive their social support.

Social institutions depend on the credibility that people grant to them. Individuals - as social entities - make basic choices in terms of giving support and legitimacy to institutions of different kinds.<sup>[11]</sup> Most significantly, social institutions will differ according to the kind of social arrangements - the kinds of social environment - in which its supporters are bound up. The key to differentiating between institutional bias in choice behaviour is thus to be sought in terms of comparing different social settings.

The cultural theory advanced here goes beyond the traditional position that social organizations are "culture-bound", with culture standing for society. It takes on a more refined view of cultural differences: in terms of patterns of beliefs, morals and cognitive frames. The implication is that cultural differentiation refers to variations between institutional and social settings because of differences in beliefs, moral commitments and shared cognitive premises. In other words, the comparative study of institutional behaviour needs to consider bases for differentiation in cultural terms.<sup>[12]</sup> It needs a cultural typology; in this I concur with the view expressed by Ostrander that

"One requirement for a classificatory approach to the analysis of symbolic behaviour is the elimination of 'societies' as the units of comparison in favour of the social environments of individuals".<sup>[13]</sup> (my emphasis)

Cultural theorists assert that individuals often do not make independent choices, but that decision processes are generally shaped by the social institutions in which individuals organize themselves. In creating the essential conditions for their (continued) existence, institutions are considered the central "decision processors", which (in the words of Douglas) "shut

some options and put others in favourable light".<sup>[14]</sup> From this perspective, a classification of social and organizational environments furnishes a conceptual basis for variations in institutional perception and behaviour. Developing a theoretical frame for institutional policy analysis therefore requires a typology of organizational cultures, against which cultural orientations in policy perception and behaviour may be examined.

### 3. Cultural typology: grid/group theory

The cultural approach to policy analysis postulates that different social and cultural environments in which policy actors operate, will lead them to respond differently to decision-making situations. What is required therefore is a comparative classification of social environments as different "patterns of culture",<sup>[15]</sup> against which cognitive biases in institutional behaviour may be characterized. My approach to "culture" sees it as conforming to neither of the contradictory extremes of rigid concreteness or total fluidity. Consequently, I concur with the view advanced by Thompson, that

"Culture is plastic. Though it can be pushed this way and it can be pushed that way, it can not be pushed just anywhere".<sup>[16]</sup>

Cultural categories, whilst they are in many ways socially negotiable, also exhibit a certain stability in that only some are persistent through social experience.<sup>[17]</sup> The central issue for a cultural typology is thus: into what distinct patterns can culture be 'pushed' or 'negotiated'? Since the stability of institutions depends on social support, such a typology must come to terms with how the connection between individuals and institutional forms is mediated. Hence the issue of cultural categories is viewed in terms of variation in the social constraints that people experience - their social context - together with the culturally-induced cognitive perspectives that give credence to particular social arrangements.<sup>[18]</sup>

The central argument is that each distinct social context involves a characteristic pattern of culture-dependent rewards and punishments that limit the kinds of behaviour which can be morally justified (by those committed to that particular social arrangement). My approach follows the anthropological line (of Douglas and others) that reduces social variation to only a few 'grand types', each of which embodies a commitment to self-sustaining premises and cognitive biases. As mentioned above, this cultural classification is developed from the argument that the two most general spheres of action limited by social order can be adequately described by just two basic dimensions of social context: "grid" and "group". This social classification explicitly links social structure to symbolic order, advancing what have been called two "dimensions of sociality".<sup>[19]</sup>

Grid and group are control dimensions in relation to basic choices facing individuals as social beings. The grid dimension is concerned with the degree of prescriptive hierarchy to which interacting individuals are subjected. It relates to the extent of interpersonal role differentiation and structural stratification impinging upon social actors. This dimension can be visualized to run from "egalitarian" to "hierarchical" social environments. The group dimension refers to those social constraints that relate to the degree of social incorporation.<sup>[20]</sup> It classifies the social environment according to the extent that individual behaviour is subject to or free from social pressures of bounded social groups. This dimension can be seen to run from "individualized" to "collectivized" social environments.

The variation in social contexts conceptualized by this cultural approach can be represented in matrix form as in Figure 3.1. The two-dimensional diagram presents a set of limits against which social behaviour can be mapped. The cultural classification is based on distinct social types whose respective identity is obtained from the social context to which they belong, and that they strive to maintain. Cultural

theory based on group-grid analysis conceptualizes the social arena into four distinct tendencies of social orientation, in each of the corner-quadrants of the social context map.

The cultural hypothesis asserts that these four ideal-types represent an exhaustive classification of socially-viable orientations.<sup>[21]</sup> It is based on the view that the perceptual bias inherent in each distinct social context incorporates a particular moral basis for justification and legitimation. The crucial claim in grid/group theory is that only a limited number of cultural orientations can be stabilized by a shared moral commitment of those belonging to a particular social context. The only way people can shift their cultural premises is by changing the kinds of social constraints that give credence to a particular set of moral principles. Conversely, any change in social context postulates commitment to a different package of culturally-induced cognitive premises.

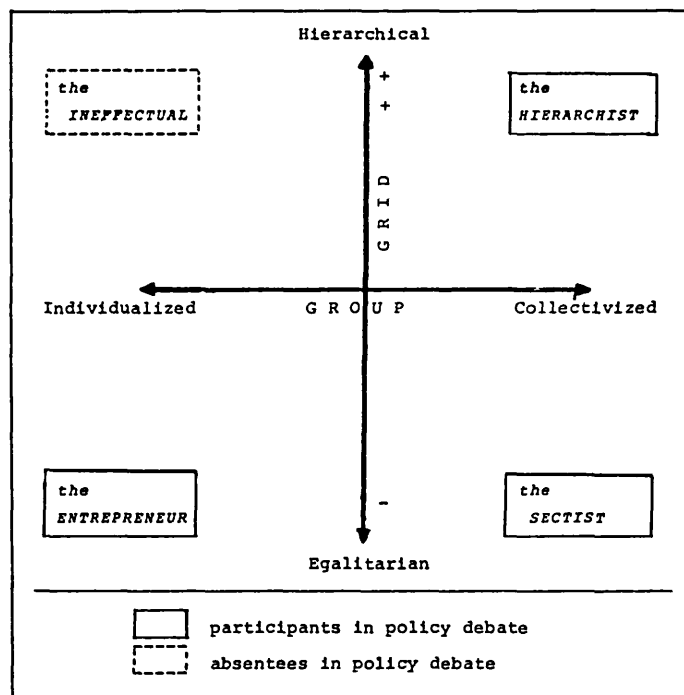


Figure 3.1:

Social types and social contexts based on grid-group

My analytical frame is developed from these cognitive premises, or cultural biases. Following Douglas, the concept of cultural bias refers to a relational pattern of cultural orientation

that selects out of the total cultural field those beliefs, values and moral principles which are derivable as justifications for behaviour.<sup>[22]</sup> The four-fold typology of cultural biases (derived from the grid/group classification) therefore conceptualizes distinctive culturally-induced incentives and prescriptions by which social actors select and justify particular courses of action.

The stabilising factor that cultural theory establishes, by linking social context to cultural bias, is essential in understanding social behaviour in terms of shared moral commitments. As Douglas has concluded:

"... given the premises involved in defining the social environment, certain distinctive values and belief systems will follow as necessary for the legitimation for the actions within it".<sup>[23]</sup>

The significant implication for institutional policy analysis is that it enables the conflicting preferences and justifications of policy actors to be analysed against a limited set of ideal-type socio-cognitive orientations - those that are socially viable and justifiable. The four-fold classification of cultural bias can thus be applied to analyse competing (dominant) perspectives of organizational policy actors, taking account of the distinctive moral principles by which they sustain their position and credibility in the social world.

The cultural approach sides with those organization theorists who have acknowledged that the setting of goals is essentially a problem of defining desired relationships between an organization and its environment.<sup>[24]</sup> The notion of distinctive cultural biases in perception, and the shared moral principles on which they are based, provide the framework for analysing what forms this relationship can take. The distinctive cultural biases postulated by grid/group theory conceptualize the way social institutions view the "givens" and premises of the situation. Hence any cultural bias will also act as a goal-setting bias in institutional choice, and this makes cultural theory applicable to social decision-making analysis.



### Institutional types

My concern with the macro-level of institutional policy actors interacting in the political arena, requires to move beyond the micro-level of the individual. The strength of the cultural theory is that it treats individuals not as isolated, psycho-physiological entities, but as social beings. Consequently, it can conceptualise social organisations in terms of aggregates of institutionalised individuals. This enables institutional policy actors to be classified by reference to the culturally-induced personal strategies conceptualised by grid/group theory.

At the intermediate level of cultural analysis, the four stabilizable conjunctions of social context and cultural bias thus lead to three distinctive forms of social organization. They have been referred to respectively as the ego-focused network, the hierarchically-nested group, and the bounded egalitarian group.<sup>[25]</sup> These types of social institutions generate, and are sustained, by the cognitive biases of respectively the entrepreneur, the hierarchist and the sectarian. The first two types are in many ways compatible with the two-fold classification in terms of "markets" and (bureaucratic) "hierarchies", to which many social theorists have habitually referred.

The right-upper quadrant of the cultural scheme (positive group/positive grid; see Figure 3.1) is the natural environment of highly prescribed institutional action where group loyalty is rewarded and formal status distinction is respected. It belongs to the hierarchy where every member knows his place, securely bounded and unambiguously stratified. At the other (diametric) corner of the social context 'space' (negative grid/negative group) - in the lower-left quadrant - individuals have ample freedom for negotiating relationships on the basis of contractual exchanges. This social environment allows for

maximum individual mobility up and down whatever the scale of authority or influence. Here one finds the ideal-type free market organization, characterized by entrepreneurial activity, aimed at private profit-seeking of all kinds. The entrepreneur has no interest in the maintenance of permanent transactional boundaries per se. The market institution is stabilized by the view that anything is negotiable in the pragmatic pursuit of personal rewards in a competitive environment.

The third institutional type postulated by cultural theory,<sup>[26]</sup> organized as a bounded egalitarian group (or sect), scores high on the group dimension. Its members are collectively protective against the outside world. It is bound together by a common set of ideals to which members subscribe (on voluntary basis). It rejects, however, the hierarchy and all the prescriptions which characterize highly stratified contexts (i.e. it scores negatively on the grid dimension). Authority resides not in the individual, nor on the basis of status, but in the collectivity as a whole.

In moving from individual behaviour to the level of institutional behaviour pertinent to public policy-making, cultural theory argues how one of the four individual cultural strategies will not be actively present in the policy arena.<sup>[27]</sup> Given the continual pressures upon the "ineffectual" by those subscribing to hierarchical authority or by successful entrepreneurial competitors, this social type is excluded at the level of institutional (inter)action. The "ineffectuals" will find it impossible to involve themselves with lasting socially-viable group relations, and will be incapable of participating in public policy debates.

The individual caught up in the high-grid/low-group social context (in the upper-left quadrant) has no scope for autonomous personal transactions. His individual behaviour is entirely restricted by the social prescriptions which others have thrust upon him.<sup>[28]</sup> In the words of Douglas:

"In any complex society, some categories of people are going to

find themselves relegated, to do as they are told, without the protection and privileges of group membership".<sup>[29]</sup>

Unable to influence social transactions through group membership and incapable of successfully building the entrepreneurial networks required to escape from their prescribed fate, ineffectuals remain peripheral to a stable pattern of organizational interaction.<sup>[30]</sup> Hence, they will have to rely on the other social types to speak on their behalf. (Alternatively, they can, of course, try and migrate to other social contexts).

These three distinctive cultural biases in perception associated with the ideal-type social institutions that emerge from the grid/group classification, provide an analytical scheme for conceptualizing different cognitive premises in institutional behaviour. By examining the different kinds of moral commitments and shared meanings that give credibility to each of the distinctive institutional perceptions, the cultural frame may now be applied to analyse the processes of goal-setting and justification that are at the heart of political decision-making processes.

#### 4. Political cultures and policy strategies

The three contending institutional types postulated by grid/group theory can be developed into a theoretical framework for policy analysis that conceptualizes competing selection biases among policy actors. Since the perceptual bias is essentially cultural, and its significance for decision-making behaviour political, I am following those who have referred to distinctive political cultures in policy analysis.<sup>[31]</sup> The three distinctive political cultures are those associated with competitive individualism (the entrepreneurial culture), hierarchical collectivism (the hierarchical culture) and egalitarian sectarianism (the sectist culture). Hence the

dominant behavioural orientation of institutional policy actors may be differentiated according to whether it reflects an entrepreneurial bias, a hierarchical bias or a sectist bias.

It must be stressed that in the cultural analysis of policy behaviour the operative work is bias not cause. It provides a scheme that models the variation in cultural selection and institutional choice, which can be applied to political analysis, rather than being itself explanatory. Cultural theory is particularly useful for the analysis of policy conflicts, since it allows the social and political arena to be conceptualized by a process of continual contention between the basic socio-cognitive orientations of its constituents. The cultural typology derived from distinctive social contexts may be applied at various levels of aggregation.<sup>[32]</sup> My focus upon political cultures reflects the concern for institutional actors operating in the arena of public policy-making; here dissensus can be mapped in terms of patterns of conflicting political cultures.

The institutional distinctions conceptualized by grid/group theory are reflected in basic strategic orientations in political choice behaviour, that can be recognized by their culturally-induced features. Each distinct political culture can be shown to represent a specific set of cognitive, authoritative and justificatory premises. Each cultural bias furnishes particular moral commitments and socially-induced constraints and incentives favouring one particular political strategy over another. The cultural orientation of political actors will thus guide the selection process by which certain aspects of an issue gain saliency, and others are ignored. Similarly, distinctive culturally-dependent problem definitions will elicit different criteria for pursuing what are perceived as 'appropriate' policy solutions. The key to examining conflicting concerns and perspectives among policy actors is therefore to assess their manifest strategies against the distinctive biases associated with each of the three political cultures that make up the policy arena.

The biases that distinguish the different political cultures can be defined by a set of inter-related criteria which provide a polythetic classification: each category reinforces the other criteria and underscores the separation between the cultural biases. It identifies differences in cultural orientation by a combination of characteristics; with each defining feature deriving its significance from the cultural 'package' of which it forms a part.<sup>[33]</sup> Institutional biases in perception and behaviour are "clustered", in that the various commitments, choice mechanisms, and moral principles they generate and sustain are mutually reinforcing.

Thus, cultural analysis depends on the essential connections between social constraints, cognitive biases and institutional behaviour, all of which derive their social viability from the degree of commitment to consistent principles. A policy actor whose social constraints and internal structures reflect - for example - an entrepreneurial incentives. He will be most concerned with issues associated with an entrepreneurial political culture - e.g. profits, competitiveness, freedom of transaction - and he will select his actions in line with these culturally-induced concerns. The polythetic indicators of distinct political cultures can be applied to typify different cultural biases in policy perspectives. Some major distinguishing features of the three political cultures are summarized in Table 3.1 - providing a set of typical concerns, perceived incentives, risks, and goal orientations.<sup>[34]</sup> In terms of "bounded rationality", each cultural package can be associated with a distinctive form: an entrepreneurial culture operates with a "market rationality", a hierarchical culture embodies a "bureaucratic rationality", and a sectarian culture adopts (what has been called) a "rationality of truculence".<sup>[35]</sup> The concept of political cultures thus relates to the notion of plural rationality.

In contrast with traditional interest-models of rational choice, cultural analysis places the process by which

boundaries to rationality are set, and the selection of goals and behavioural strategies into a single framework. From this perspective, a policy choice is rational, if it supports and justifies one's political culture.<sup>[36]</sup> The plurality of rationality that sustains the decision-making bias of different political cultures, underlines the connection between cognitive frames through which policy issues are perceived, and a set of moral principles and shared commitments that guide the selection of policy actions and justifications in response to those issues.

Political culture	<u>ENTREPRENEURIAL</u>	<u>HIERARCHICAL</u>	<u>SECTIST</u>
Policy orientation			
<i>latent strategy</i>	preserve individual freedom to contract	secure internal structure of authority	survival of group
<i>commitment</i>	pragmatic materialism geared at (individual) profit-making	adherence to correct procedures and standard channels	collective moral fervour and affirmation of shared opposition to external world
<i>survival condition</i>	financial solvency and (long-term) competitive market position	competence in adherence to set procedures in stratified structure	protective of collective boundaries against external pressures
<i>focus of risk threats</i>	economic risks	control risks (as threat to stable social order)	involuntary and irreversible risks
<i>risk perspective bias</i>	risk as opportunity	risk-averse; need to spread risk	risk averse except in order to defend group boundaries
<i>equality consideration</i>	equality of opportunity	equality before the law	equality of result (equity concern; other justifications rejected)
<i>time concern</i>	short-term dominates the long-term	balanced distinction between short and long-term	long-term dominates short-term
<i>decision rationality</i>	market rationality	bureaucratic rationality	rationality of truculence
<i>idea of nature [resource perception]</i>	skill-controlled cornucopia (resource abundance)	isomorphic (resource scarcity)	accountable (resource depletion)

Table 3.1

Political cultures: some major distinctions

### Cultural selection of risk

Cultural theory anticipates each distinctive political culture will furnish constraints and incentives that determine both the definition and saliency of an issue and the criteria that are adopted for its evaluation. As the cultural analysis of policy choice brings the interpretation of facts and the values that determine preferences into a single conceptual frame, it is therefore likely to prove particularly useful in the study of technological decision disputes (as discussed in Chapter 1) where the distinction between factual and evaluative issues is central to the controversy. The idea that competing policy perspectives can be examined against the three-fold typology of political cultures may be briefly illustrated here with reference to the issue of risk perception. The socio-cognitive selection bias of policy actors within one or another political culture is expected to be reflected in different styles of risk-handling.<sup>[37]</sup>

Cultural theory stresses that risks (like other evaluative criteria) are selected. Such a cultural conceptualization is based on the contention that risk is never just risk but always "risk for".<sup>[38]</sup> The "risks for" are the perceived incentives and costs which a political culture associates with particular actions and choices. The selection of risks is thus ultimately a matter of social organization.<sup>[39]</sup> The distinct political cultures identified earlier reflect different ways of formulating and evaluating risks. The following table (2) (based on that of Thompson), presents the socially-induced patterns of risk perception.<sup>[40]</sup> It identifies the institutional bias towards risks (1) their acceptability (2), the overlaying social, physically non-existent risk (3), and the rewards and penalties for different kinds of risk (4) considered by the distinct political cultures.



Table 3.2  
Risk perception patterns of political cultures

ENTREPRENEURIAL CULTURE	HIERARCHICAL CULTURE	SECTIST CULTURE
1) Long and short terms perceived. Dominance of short term over long term maintains expansive optimism.	Short and long term risks perceived. Long term seen as different from short term but controllable.	Short and long term perceived. Concern for survival causes long term to dominate over short term,
2) Risk as opportunity	Risk averse. If risks can not be avoided completely they are spread.	Strong aversion to all risks except those involved in the defence of wall of virtue.
3) Little concern for pollution (entrepreneurs profit from removal of social boundaries)	Many boundaries and distinctions to be maintained: elaborate pollution concepts and high incidence of non-existent risk.	Pollution concerns all clustered around a single social boundary, and give rise to many non-existent risks.
4) Personal risk for personal reward approved (even if it causes coercion). Personal risk for benefit of totality less popular.	Personal risk for personal gain penalised, Personal risk for totality rewarded.	Zero sum mentality penalises the personal risk for personal gain. Only risk taken for the totality are rewarded.
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Risk perception attributes: 1) institutional risk bias 2) acceptability criteria 3) overlaying social, physically non-existent risks 4) rewards and penalties for different kinds of risk.		

In the context of political analysis, the different ideal patterns of risk perception reflect the different socio-cognitive premises that separate conflicting policy perspectives. The cultural approach asserts that the distinctive (dominant) political culture that gives credence to a policy actor's risk definition - and renders it meaningful - will bias its actions and justifications in other respects too. The essential nature of the polythetic classification of cognitive bias dictates that within a particular political culture its various socially-induced manifestations are mutually reinforcing. The risk perspective adopted by a policy actors must therefore be viewed and analysed as part of a consistent set of concerns and perceptions - namely those associated with the (dominant) political cultural on which its credibility and social support depends.

The cultural consistency of institutional behaviour and perceptions enables political disagreements to be conceptualized in terms of the contending political cultures and provides a framework for accounting for conflicting policy perspectives among policy actors. The analysis of policy dissensus - for example on the issue of technological risks - can now proceed by amplifying the asymmetry in socio-cognitive problem definitions and strategies that go with the distinctive cultural biases manifest in the policy arena. The various selection biases characteristic of different political cultures thus enables competing policy perceptions of disputants in public decision controversies to be conceptually recognized and separated.

#### 5. Cultural analysis of policy dissensus

Analysing public decision controversies requires applying the cultural frame at the level of the policy arena, where political actors interact. The crucial issue in the cultural segregation of policy conflict is to examine the pattern of

contending political cultures represented in public decision disputes. The idea is that the presence or absence of particular voices in the debate may be analysed by reference to the ideal-type sets of policy concerns and justificatory arguments that are classified within cultural theory. The notion of policy-making as a pluralistic process where competing demands interact in the political arena (of democratic societies) lies at the heart of much political analysis. Cultural analysis provides an organizing principle for conceptualizing the variation in policy claims and justifications. It focuses on the distinctive moral bases that the contending political cultures must invoke in order to muster and maintain social support.

The relative influence of competing policy demands, arguments, and justifications can be examined against the three-fold classification of political cultures, which theoretically spans the entire range of viable positions in the policy arena. The cultural analysis of public policy disputes is premised on the assertion that the different ideal-type institutional cultures postulated by the grid/group classification of social contexts are competing, yet complementary. Political pluralism in cultural terms means that whilst each distinctive political culture denies alternative socially-induced perceptions of social reality, it is in fact dependent on the divergent cultural contexts for its own survival and social viability.

This idea of essential cultural pluralism enables us to inquire into the possible coalitions between different cultures in the decision-making arena, and thus examine the relative influence or power that provides the link between policy demands and policy outcomes. The concept of power (as conventionally treated) has been absent in much of the literature on cultural theory. Thompson, however, has introduced a third dimension of "manipulation" into the social context 'map', thus providing a conceptual basis for examining the links between the basic political cultures.<sup>[41]</sup> Whilst this aspect of cultural theory remains underdeveloped especially at the institutional level -

the notion of manipulation opens up the possibility of investigating whether and when contending culturally-induced policy demands and their moral justifications may be reconciled.

The cultural theory asserts that at the level of personal strategies the distinctive social types may be classified according to whether they score 'positively' or 'negatively' on a (ordinal) scale of "manipulation" - whether individuals are either subject to manipulation, or whether their actions result in the manipulation of others. Manipulation is considered here as power made manifest.<sup>[42]</sup> Entrepreneurs are classified as individual manipulators - their strategy depends on the exploitation of inequality for personal gain, at the expense of others, to some extent. The hierarchists also require manipulating others, but only collectively. They need a controlled lowerarchy to sustain the authority on which their viability depends. Entrepreneurs and hierarchists make up the manipulative political cultures; they maintain what has been called an "axis of power" - the "positive diagonal" on the social context matrix.<sup>[43]</sup>

The strategy of the sectists, on the other hand, is stabilized by the rejection of any form of authority and coercion. Whilst they need the inegalitarian market and the inequitable hierarchy to criticize, any move towards manipulating others runs counter to their moral justification for behaviour. They are, instead, themselves being manipulated - in so far they are incapable of completely escaping the coercive pressures (of the market) and the authoritarian order imposed on them (by the hierarchists). The sectists take up the "negative diagonal" of relative powerlessness, which they share with the absentees of policy debates, the ineffectuals.<sup>[44]</sup> The ineffectuals are - by definition - unable to influence or manipulate others, whilst it is part of their fate to be subject to a considerable degree of manipulation by hierarchists and entrepreneurs.

The basic asymmetry between the manipulative strategies and the

relatively powerless behavioural styles can serve to conceptualize a number of structural conflicts among contending political cultures in the policy arena. The juxtaposition of opposing coalitions of institutional cultures can be visualized as shown in Figure 3.2, by contrasting the 'negative' and 'positive' diagonals in the grid/group social context frame. This conceptualization is a useful one in that it highlights a considerable degree of compatibility and accommodation between the manipulative political cultures in the policy arena, as contrasted with the sectist institutional culture.

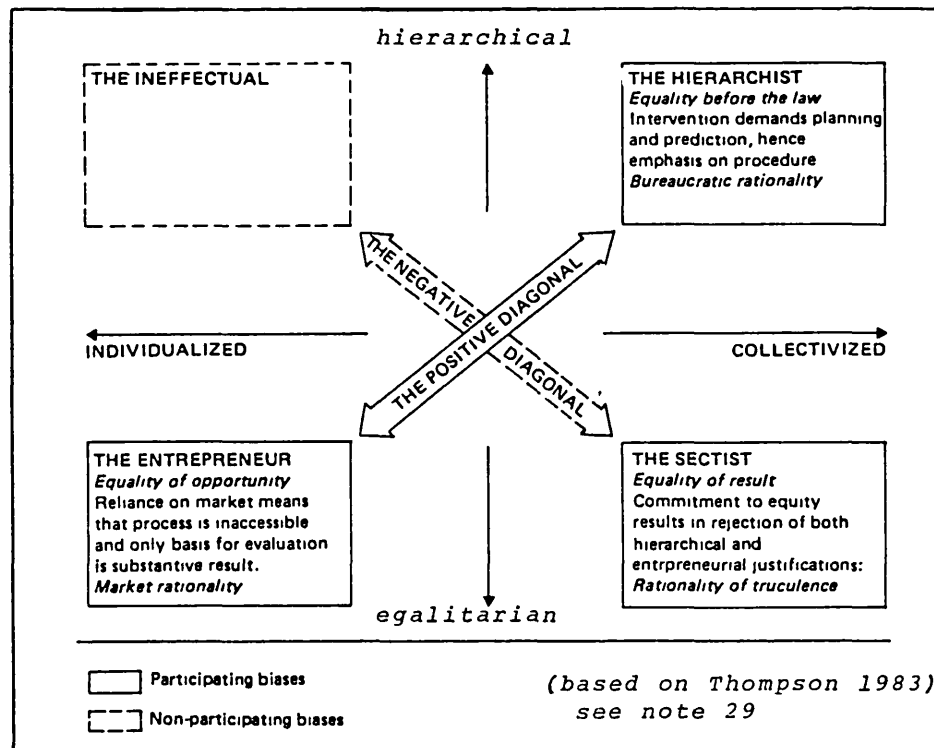


Fig. 3.2

Social contexts, cultural biases, moral justifications and contending political cultures

The dominant coalition of hierarchical and entrepreneurial strategies is sustained by their respective culturally-dependent moral principles and justifications on which their policy behaviour depends. In this view, the stability of the positive diagonal in political society derives its strength from the adoption of a common principle. What brings the (partially) contradictory biases of the hierarchical

and entrepreneurial political cultures together is a shared commitment to efficiency as the basis for consent in determining preferred policies and actions. Their efficiency-concern provides a basis for negotiation and compromise, and makes it possible to reconcile - at least partly - their various culturally-induced demands.

By contrast to the dialogue over efficiency trade-offs, the demands reflected in the sectist institutional bias are diametrically opposed to those of the hierarchists and entrepreneurs. The sectist political culture advances its arguments and claims by a moral commitment to equity considerations, and turn away from negotiation and compromise. The sectist perspective (at least in theoretical terms) rejects the bargaining language of the dominant coalition of hierarchists and entrepreneurs, unwilling to compromise their demands for equity results in any political trade-off.

The equity justification is based on the view that it is unfair and undesirable to make distinctions between individuals (or groups of individuals). This position demands policies to be applied impartially, and leads to a high degree of moral solidarity with the fate of the "ineffectuals". The sectists single out the perceived 'impotent' individualist social type for special attention, claiming to speak on behalf of those who are unable to gain entry to political debates.

The confrontation of contending cultural biases in the policy arena may be further exemplified by the distinctive attitudes to social equality held by the various political cultures. The efficiency trade-off along the positive diagonal can be related to two partly contradictory views on equality, taken up by the entrepreneurial and hierarchical cultures. The entrepreneurial concern for competition is normally justified by the notion of equality of opportunity. The hierarchical concern for order and stability is justified by the notion of equality before the law. By contrast, the sectist concern for equity and the rejection of any form of inequality leads them to advocate

equality of results as the moral basis for action and justification.

The issue of inequality thus provides a significant touchstone whereby the culturally-bound demands of policy actors may be segregated along the two opposing diagonals in the policy arena.<sup>[45]</sup> Hierarchists and entrepreneurs both need inequality - be it that their respective moral justifications differ. The competitive individualist strategy justifies inequality by arguing that for success to be rewarded there must be winners and losers. The hierarchists' justification for inequality is based on a different assertion: that the orderly differentiation of status for different groups is desirable, for the sake of the positive-sum that they (eventually) claim to bring to the total system. The compatibility of the hierarchical and entrepreneurial justifications for inequality enable a certain convergence of their two policy strategies, on the basis of some kind of settlement over efficiency trade-offs. What distinguishes them are different criteria and justifications for determining what is negotiable and under what circumstances. In this respect the "manipulative" political cultures are in fundamental disagreement with the sectist culture which rejects of inequality and refuses to make their equity concern part of any negotiated policy solution.

#### Cultural bases for social consent

The tension between considerations of efficiency and equity may be used at the conceptual level to amplify the fundamental differences in policy perceptions and in the associated moral justifications for behaviour. It provides us with an explanation of why public decision controversies are more likely to be resolved if the debate is limited to reconciling the efficiency demands, advanced by policy actors who are disposed to one of the political cultures along the 'positive' diagonal. Political consent becomes much more complex in cases where the institutional processes designed to arrive at

decisions have to respond to the equity demands stemming from 'sectist' policy participants.

The cultural disaggregation of policy dissensus is based on the idea that actors who participate in policy debates will bring to the policy arena the set of concerns and demands that are perceived as salient from their particular cultural vantage point. My application of the cultural approach to policy analysis examines the social processes by which certain policy goals are advanced in decision disputes, whilst others are neglected. To analyse the relative influence of certain policy demands in the process of public policy-making requires taking into account the social legitimacy of authoritative decision-making institutions. In the cultural analysis of public policy-making (expressed) objectives are credible reasons for action only when they are supported by an argument derived from consent.<sup>[46]</sup> What constitutes consent is ultimately culture-dependent. The juxtaposition of competing political cultures in the policy arena therefore provides a frame for examining the distinctive social bases for that consent.

The traditional reference point for national decision-making authorities (certainly in W-Europe) has been the efficiency-based alliance between the demands stemming from the hierarchical and entrepreneurial political cultures. Public consent for this style of political decision-making can only be maintained, however, in a "social and cultural soil" where sectist demands for equity are absent or relatively weak.<sup>[47]</sup> Only when popular support for sectist concerns is limited, can decision-making authorities legitimize decisions that are based on a straight trade-off along the 'positive' diagonal of the political arena.

When there is a strong sectist bias present in the policy arena, one that is sustained by sufficient social support, decision-making authorities may be 'forced' to turn away from the congenial settlement between entrepreneurial and



hierarchical political demands. In this kind of regime, governmental authorities will have to take account of the equity-biased demands advanced by sectist groups, in order to muster social acceptance for their decisions. They will have to assess how much they are likely to gain or lose in overall consent by responding to "pressure groups" and moving some distance from the considerations of the efficiency-biased political actors.

My application of cultural theory to the analysis of policy dissensus starts with the manifest selection of policy goals and justificatory arguments, and classifies them according to the distinctive concerns and socio-cognitive orientations pertinent to the different political cultures. By examining the balance that is struck between the demands of two or three distinctive political cultures - as manifest in the debate - the cultural frame enables the policy process to be analysed in the same basic theoretical terms. The juxtaposition of culture-bound arguments and justifications allows assessment of the extent to which the specific problem definitions and policy 'solutions' adopted by governmental authorities reflect the relative claims of (culturally-distinct) political actors.

Whilst in conventional terms the 'positive' diagonal has been considered the powerful axis at the "centre" of the political arena,<sup>[48]</sup> cultural theory asserts that the absence or presence of (socially-sustained) sectist demands can be a significant and effective influence in the process and outcome of public decision disputes. (The empirical evidence of the growth and influence of single-issue pressure groups in recent decades certainly vindicates this view). In particular, a switch from a complacent two-cornered policy debate centred around efficiency trade-offs, to a critical three-cornered regime incorporating sectist equity demands must be considered a potentially significant determinant to the social emergence of public decision controversies.

The cultural dependency of social consent in authoritative

public decision-making can be illustrated by the potential shift in policy considerations and justifications that may arise as a policy issue moves from the national to the local policy arena. (What is the appropriate arena for taking particular decisions is of course frequently integral to the political debate). Without effective pressure for local demands, national governments may be inclined to define their role as mediating between the orderly, hierarchical procedures for maintaining national stability, and the requirements for the successful working of market institutions. National authorities operating in such a regime are likely to be able to legitimize policy decisions by invoking the efficiency arguments associated with hierarchical and entrepreneurial biases.<sup>[40]</sup>

Local authorities, on the other hand, are much more likely to see their 'natural' tendency towards orderly hierarchical procedures of governance off-set not just by entrepreneurial considerations (e.g. from local industry), but also by the more truculent sectist pressures at the local level. The sectist bias is often more explicitly concerned with local issues, and sectist representatives are therefore more likely to press the local rather than national authorities for their demands. Especially when local government is accountable to a local electorate, it is likely to be much more prone than national authorities to respond to the sectist demands for greater local involvement in decision-making, and greater emphasis upon 'bottom-up' approaches in policy determination. In a strong sectist 'locale' authorities may see the need for greater participatory decision procedures, to ensure an adequate level of consent. In bowing to this (sectist) demand, the (local) government could be enhancing the effective influence by sectist groups - such as environmentalist organizations - in respect of other sectist demand concerns too.

The notion of contending political cultures and the requirement of consent for centralized decisions allows us to come to terms with the inclusion or exclusion of particular

policy concerns in the process of public policy-making. By focusing on political cultures and their commensurability in the policy arena, the cultural frame has amplified the conflicting moral bases that underpin policy dissensus. It allows separation of the different culturally-induced selection patterns that go with each ideal-type set of justificatory principles. The strength of the cultural model is that it accounts for the culture-dependent bounds that are set to the process of governmental decision-making, and for the cognitive boundaries to social choice in a single frame. Hence, the various manifestations of public decision controversy - the definition of the problem, the saliency of issues, preferred policy strategies, and justifications - can all be analysed with reference to the conflicting political cultures interacting in the policy arena.

#### Technological risk and political cultures

The relevance of the political cultures frame for the analysis of public policy controversies concerned with 'technological' decisions, can be highlighted with reference to the issue of risk and the assessment of technological impacts. The degree of compatibility of the socio-cognitive perspectives inherent to the hierarchical and entrepreneurial cultures is clearly evident in their mutual perceptions of risk and appropriate style of risk handling. The premises associated with the positive diagonal in the policy arena - contrast to a sectist political culture - are reflected in a common "technocratic" approach to the assessment of technological impacts. The hierarchical and entrepreneurial biases stem from different social constraints, but in regard to issues such as environmental consequences they can trust and mutually support each other. In the words of Douglas and Wildavsky, both institutional cultures are essentially concerned with "uphold[ing] the present social system and neither is able to envisage any different future".<sup>[50]</sup>

This common ground in anticipating the future leads the hierarchical and entrepreneurial political cultures to tolerate a considerable degree of long-term, low-probability risk (albeit with different justifications). The individualized entrepreneurial perspective is traditionally geared towards risk-taking, intentionally so, since its survival depends on it. The hierarchical - bureaucratic - strategy is never deliberately risk-seeking, yet it allows for a fair degree of longer-term risk-taking, especially if it can be 'controlled' through orderly rules and procedures. Both hierarchists and entrepreneurs tend to play down long-range risks because (in the words of Douglas and Wildavsky) "their sights are on immediate dangers and because they expect their expertise and their adaptiveness to grow to counter dangers".<sup>[51]</sup>

The distinctive risk portfolios typical of the political centre contrast starkly with the risk perspective typical of the sectist institutional culture. The social organization along voluntaristic, egalitarian principles will lead to a sectist selection of risk, and a recognizable sectist perspective by which its view of danger is justified. The sectist concern with survival and its limited control over the short-term make long-term considerations dominant in this political culture. A sectist culture typically perceives high-consequence involuntary risk as the major source of danger.

The cultural distinction between the coalition of hierarchical and entrepreneurial actors and the sectist policy participants is also evident in their conflicting perspectives on the assessment and control of technological impacts. Different political cultures will tend to adopt different approaches to the assessment and evaluation of the consequences of technology, and to the role of scientific expertise in the management of technology.<sup>[52]</sup>

Cultural theory asserts that a hierarchical institution will typically emphasize highly structured forms in framing the 'technical' problem (characteristic for a high-grid

perspective), and focus on strongly defined areas of technical control and 'factual' consequences. As Caneva has argued, the high-grid/high-group social context is "favourable to the view of knowledge as an all embracing scheme, well differentiated and relatively stable".<sup>[53]</sup> The hierarchical political culture thus tends to encourage a technocratic approach to technology assessment. It aims to control the consequences of technology in a procedural manner, treating the technological impacts in principle as clear-cut. The hierarchical outlook embodies considerable trust in highly-specialised forms of scientific expertise, by which the risks and benefits can be defined and managed in an orderly fashion.

Whilst the entrepreneurial institutional culture rejects the view that technology is formally structured and can be fully anticipated in its ramifications, it nevertheless sees it as manageable, in the sense of being exploitable through the right kind of skills and expertise. In the words of Caneva

"The epistemology of low-group/low-grid is subject to continual negotiation, for knowledge is what people take it to be. There is a pragmatic notion that truth can only be gauged according to some kind of success criterion..."<sup>[54]</sup>

In this pragmatic outlook of the entrepreneurial culture, the application of scientific expertise is considered as part of its attempt to reap the (personal) benefits that may result from it. Technical uncertainty is not (a priori) considered undesirable - something to be removed at all cost - since it may in fact bring with it the opportunities that enable profitable arrangements.

By contrast to the belief in technical skills and scientific expertise by the political cultures along the positive diagonal in the policy arena, the sectist culture emphasizes that the "clear-cut" boundaries of technological consequences need not be treated as factual, objective entities. They believe that the impacts of technology require a normative, rather than a scientific kind of management. The sectist bias sees a high moral responsibility for directing technology in a collectivist

and more equitable way. The sectist culture is suspicious of hierarchical and specialized forms of technology-handling, and emphasizes more collectivist and participatory styles of technological planning, such as "appropriate technology".

These cultural orientations highlight that the issues of acceptability of technological impacts can be analysed conceptually with reference to the distinctive orientations of contending political cultures. The hierarchical view of technology assessment is likely to accept higher levels of risks, as long as they occur with very low scientifically-calculated (statistical) probabilities. The sectist outlook, on the other hand, is likely to attach less significance to exact 'objectively' defined probabilities. The sectist political culture will tend to judge the acceptability of technology predominantly according to the level of anticipated (catastrophic) consequences - even when these consequences are defined in terms of social psychology (but nevertheless "real"), rather than by reference to scientific experimentation. [55]

The contrasting views of technology assessment suggest that the notion of "technology" is itself subject to a process of social negotiation. Indeed the cultural analysis of "technological" decision controversies implies that both political decision-making and the 'technological' disputes that may emerge should be treated as social and cultural phenomena. [56]

As set out in Chapter 1, a first requirement for the adequate understanding of public decision controversy over technology is to formulate an appropriate policy analytic approach. This chapter has turned to cultural theory to advance a conceptual frame that can come to terms with different basic differences in socio-cognitive bias, with culturally-induced premises that inform the selection of policy goals and justifications among conflicting policy actors. In this respect, it has been concerned with advancing the notion of contending political cultures, thereby seeking to enhance the cultural perspective on political analysis. In applying and integrating the idea of

distinctive cultural biases into the conceptual analysis of both political choice behaviour and the assessment of technology, this chapter has developed a cultural framework that can be applied to the study of public decision controversies over technology.

#### The advance of cultural analysis: a summary

In considering the selection biases in policy behaviour in cultural terms, the political cultures frame has moved the analysis of policy controversy away from conflicts of interest *per se*, and towards the very process by which interest-biases are established. The juxtaposition of political cultures in the policy arena has made it possible to discern different socially-induced premises and incentives underlying policy disputes. Cultural analysis highlights how these contending biases are manifest both in terms of the expressed objectives of policy participants, and in the symbolic and justificatory actions integral to their policy behaviour.

The notion of contending political cultures in the policy arena is an advance on the politics of interest in that it relates the process of goal-setting to distinctive cultural orientations of policy actors: in other words, it is able to deal with the social origins of interests. Furthermore, by taking account of the cognitive aspects of social decision-making, the cultural approach avoids the perennial problem in political analysis of determining the 'real', 'objective' interests of actors in relation to policy behaviour (on which the 'explanatory' power of interest-models depends). The cultural model analyses the proclaimed interests and revealed preferences of policy actors in the same conceptual frame that accounts for the differences in symbolic action and legitimation that accompanies their behaviour. In this respect, the cultural analysis of policy controversy concurs with the conclusion of Edelman that

"the formal categories that name political goals are to be understood as expressions of culturally created values, not as causes of them. They accordingly tell us about prevailing values in the subcultures we observe".[57]

In applying the grid/group typology, the notion of political cultures has enabled me to advance a conceptual scheme that makes it possible to analyse the culturally-induced goals and strategies in the context of controversial processes of public decision-making.

Cultural analysis is able to come to terms with basic differences in institutional perceptions of policy 'problems' and with the conflicting justifications and arguments in support of certain policy 'solutions'. They are treated as manifestations of cultural bias, and can be examined in policy analysis by reference to the distinctive political cultures conceptualized by cultural theory. The principle claims of the cultural bias frame as a theoretical and analytical advance on the politics-of-interest model are three-fold:

- (i) it accounts for the kinds of interests that gain saliency among different culturally-biased policy actors;
- (ii) it makes sense out of the selection of criteria and justification that policy actors advance as social support for their actions within the same conceptual frame; and
- (iii) it makes the boundaries to policy-making and to the 'rational' pursuit of interest contingent on the socio-cognitive and perceptual bias of institutional policy actors.

This chapter has been concerned with developing the cultural bias model in theoretical and conceptual terms, and to argue its potential for public policy analysis. In order to establish the significant advance of the cultural frame over the politics-of-interest perspective in the analysis of policy controversy, its analytical superiority should be assessed in an empirical setting. The next chapter addresses the essential conceptual distinctions between the interest model and the political cultures framework in the analysis of public policy disputes. In doing so, it sets the scene for examining what can be gained from a detailed application of cultural theory to the empirical analysis of public decision controversies over technology.



## Chapter 3

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7. Cf. Douglas MacLean, "Risk and Consent: Philosophical issues for centralized decisions", Risk Analysis, Vol.2, no.2 (June 1982) 59-67.
8. Cf. Pfeffer 1981, op.cit.
9. E.W. Lehman, Political Society - A Macrosociology of Politics (New York: Columbia University Press, 1977), p.22. The significant feature in the notion of "culture" as used in cultural analysis of policy behaviour, is that it is conceptualized not as mere ideas about behaviour, but as the symbolic-expressive dimension of behaviour. Having defined culture in these broad terms, the task of cultural analysis is to identify and examine recurring features, distinctions and underlying patterns which give form and substance to different types of cultures. Cf. R. Wuthnow, J. Davison Hunter, A. Bergesen and E. Kurzweil, Cultural Analysis - The work of Peter L. Berger, Mary Douglas, Michel Foucault and Jürgen Habermas (Boston: Routledge & Kegan Paul, 1984).

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18. Douglas 1978, op.cit, p.6.
19. Ostrander 1982, op.cit (note 6); see also M. Douglas, "Introduction to Grid/Group Analysis" in M. Douglas (ed) 1982, op.cit. (note 1), pp.1-8.
20. Douglas 1978, op.cit.,p.7.
21. Thompson 1982. op.cit. (note 6). A fifth social type, the "autonomist" is also viable under certain conditions, situated at the centre - the 'origin' - of the grid/group social context map (Figure 1). The strategy of the autonomist - or hermit - is based explicitly on steering clear from the coercive pressures emanating from the other four social contexts. His stability is derived from the principles of non-involvement and self-sufficiency. As individual, he is removed from much of social life, and is therefore not of direct concern at the level of the public arena where institutional policy actors operate. For a description of the autonomist's social context and cultural bias - which will be ignored in the further analysis presented in this chapter - see Michael Thompson (1982a), "The problem at the centre: the autonomous cosmology", in Douglas (ed) 1982, op.cit (note 1), p.302-327.

22. Douglas 1978, op.cit, p.6.
23. *ibid.*, p.53.
24. James D. Thompson and W.J. McEwan, "Organizational goals and environment: goal-setting as an interaction process" American Sociological Review 23 (1958), 23-31.
25. M. Thompson, "A cultural basis for comparison", in H. Kunreuther, and J. Linnerooth, et al., Risk Analysis and Decision Processes (Berlin:Springer-Verlag, 1983) p.232-262. (1983b). The three-fold cultural typology of institutional forms (and their associated perceptual biases) goes beyond the traditional approach to culture in organization theory. Cultural grid/group theory can be seen to 'subsume' the two main perspectives in organizational culture research to date - the approach that considers culture as an organizational variable, something the organization has, and the view that culture is something the organization is. Cf. Smircich 1983, op.cit.: P. Riley, "A structurationist account of political culture", Administrative Science Quarterly, 28 (1983), 414-437.
26. The claim that in addition to the well established two-fold typology of "markets" and "hierarchies", a third distinctive type of social organization is also viable, has to some extent been vindicated by recent work in sociological and organization theory concerned with "institutions" E.g. a third organizational form has been argued both in contrast to the Weberian rational-bureaucratic model and as an advance on the transactional model of "market & hierarchies". See the following references:  
 Joyce Rothschild-Whitt, "The Collectivist Organization: An Alternative to Rational-Bureaucratic Models", American Sociological Review, Vol. 44, no.4 (August 1979), 509-527. For an appraisal of the "Markets and Hierarchies" paradigm see Arthur Francis, Jeremy Turk, and Paul Willman (eds), Power, Efficiency & Institutions (London: Heinemann Educational, 1983).  
 William G. Ouchi, "Markets, Bureaucracies and Clans", Administrative Science Quarterly, Vol.25 (March 1980), 129-141.  
 O.E. Williamson, "Markets and Hierarchies: Some Elementary Considerations", American Economic Review, Vol. 63 316-325 (1973); O.E Williamson and W.G. Ouchi, "The Markets and Hierarchies Programme of Research: Origins, Implications, Prospects", in A. Francis, J. Turk & P. Willman (eds) 1983, op.cit., pp.13-34.
27. The "autonomist", at the centre of the grid/group social context map, is of course also excluded from serious participation in institutional interaction, since this is a deliberate part of his individualist strategy. The autonomous individual - by definition - isolates himself from both the processes of group dynamics and the imposition of prescriptions on himself or others. See Thompson 1982a, in Douglas (ed) 1982; op.cit. Cf. Douglas 1978, op.cit. p.41-45.

28. The social context of the "ineffectual" is clearly described in Thompson 1982, in Douglas 1982 (ed) (Chapter 2) op.cit (note 21). Thompson employs a third dimension of "manipulation", which clearly shows the degree of that the ineffectual is being manipulated, and is unable to wield influence over others.
29. Douglas 1982 (ed) op.cit, p.4.
30. Douglas 1978, op.cit. p.20.
31. This formulation is attributed primarily to the work of Thompson and that of Wildavsky.  
Cf. Aaron Wildavsky "Models of Political Regimes or pluralism means more than one political culture in one country at one time" (University of California, Berkeley, mimeo, June 1983).
32. Most grid/group studies have concentrated on individuals within organization and on professional groups. See the essays in Douglas 1982 (ed), op.cit. Other applications of grid/group analysis include G.Mars, Cheats at Work (George Allen & Unwin, 1981); K. Caneva, "What should we do with the monster? Electromagnetism and the psychosociology of knowledge" in E. Mendelsohn and Y. Elkana, Sciences and Cultures - Anthropological and Historical Studies of the Sciences, Sociology of the Sciences Yearbook 1981 (Dordrecht: Reidel Publishing Co. 1981); L. Boon, De List der Wetenschap Variatie en selectie: vooruitgang zonder rationaliteit (Baarn, Ambo, 1983). For a more institutional perspective on policy-making see Michael Thompson, "Among the Energy Tribes: The Anthropology of the Current Policy Debate" IIASA WP-82-59 (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1982) (1982b) and M. Thompson 1983b, op.cit.
33. Cf. Douglas 1978, op.cit, p.15.
34. This table is derived from literature on cultural bias, especially the work cited above by Douglas and Thompson. Also Mary Douglas and Aaron Wildavsky, Risk and Culture (Berkeley: University of California Press, 1982).
35. Michael Thompson, "Institutionalized Styles and Political Regimes" in J. Douglas, M. Douglas, M. Thompson 1983, op.cit., pp.71-102. (1983a).
36. Cf. M. Grauer M. Thompson and A.P. Wierzbicki (eds) Plural Rationality and Interactive Decision Processes (Berlin: Springer Verlag, forthcoming); Wildavsky 1983, op.cit.
37. Cf. Douglas and Wildavsky 1982, op.cit.; M. Douglas and A. Wildavsky "How can we know the risks we face? Why risks selection is a social process", Risk Analysis Vol.2, no.2 (June 1982), 49-51. Although without references to the notion of political cultures, the context-dependency of rationality and risk-handling styles (in dealing with potential accidents) is also evident in C. Perrow, Normal accidents - living with high-risk technologies (New York: Basic Books, 1984) esp. Ch.9.

38. Thompson 1982b, op.cit.
39. Douglas and Wildavsky 1982, op.cit. p.198.
40. This table is derived from Michael Thompson, "An Outline of the Cultural Theory of Risk", IIASA WP-80-177 (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1980).
41. See especially Thompson 1982 in Douglas (ed) 1982, op.cit (note 21).
42. *ibid*, p.41.
43. See Thompson 1983a op.cit (note 35) and Thompson 1983b, op.cit (note 29).
44. *ibid*.
45. Douglas and Wildavsky 1982, op.cit, Chapter 9; Thompson 1983b, op.cit.
46. Cf. MacLean 1982, op.cit. (note 6).
47. Thompson 1983a, op.cit, p.84.
48. The notion of the "centre" of political society, constituting the alliance between hierarchists and entrepreneurs is attributed to Douglas and Wildavsky 1982, op.cit, They contrast this with the sectist "border".
49. This is well illustrated by Thompson 1983b, op.cit. See also Thompson 1983a, op.cit.
50. Douglas and Wildavsky 1982, op.cit, p.100.
51. Wildavsky 1983, op.cit. p.40.
52. The following discussion is partly derived from B. Wynne, "Technology as a cultural process", paper to the International Conference on "Nature, Culture, Technology", Stockholm, Sweden, September 1983. International Institute for Applied Systems Analysis, WP-83-118 (Laxenburg Austria: IIASA, 1983).
53. Caneva 1981, op.cit. (note 32), p.110.
54. *ibid*.
55. Cf. B.Wynne, "Public perceptions of risk - interpreting the 'objective versus perceived risk' dichotomy", International Institute for Applied systems Analysis, WP-83-117 (Laxenburg, Austria: IIASA, 1983).
56. The argument that technology is a social and cultural process is explicitly featured in much of the work by Wynne. In addition to the papers already cited, see B.

Wynne, "Redefining the issues of risk and social acceptance: the social viability of technology", Futures, 15 (1983) 13-32; see also Thompson 1983b, op.cit. My initial focus is on incorporating social and cultural factors in the analysis of public decision-making in general terms, without immediate concern for 'technology' per se as the substantive subject of policy controversies.

57. Edelman 1964, op.cit, p.161.

## CHAPTER 4

COMPETING PERSPECTIVES ON POLICY ANALYSIS: TOWARDS EMPIRICAL  
CONFRONTATION1. Introduction

The previous chapters have argued in theoretical terms the case for a cultural perspective on public policy analysis. They have asserted the conceptual advance of the cultural bias frame over the politics of interest model, in accounting for competing boundaries to assessment and choice in political decision disputes. In order to examine this proposition in the context of a detailed case of 'technological decision' controversy, the analytical distinctions between the two contending conceptual frames need to be assessed in empirical terms. This chapter develops the research strategy and methodology which allows empirical analysis of public decision disputes against the different theoretical perspectives on political controversy as discussed in the preceding chapters.

The empirical research strategy advanced for the analysis of technological decision-making utilizes an extended case study of a controversial public decision process; it sets out to examine how empirical public policy conflicts can be accounted for conceptually. In this respect, my research method is akin

to that of "analytic induction".<sup>[1]</sup> Rather than deriving general principles from a body of theory, to be tested by a large number of empirical observations this approach seeks to generalize by abstracting essential features from a specific detailed case.<sup>[2]</sup> Adopting this inductive strategy to produce and examine explanatory propositions, enables the key concepts to be defined by direct reference to empirical categories.<sup>[3]</sup> This chapter develops the link between the theoretical issues raised in the preceding chapters, and the subsequent empirical analysis of controversial public decision-making (to be presented in Chapters 5 through 7).

My approach to the qualitative analysis of decision disputes employs concepts that have emerged from an initial account of case study data. In this respect it draws on elements of "grounded theory",<sup>[4]</sup> in identifying how the theoretical models for policy analysis can be applied in the empirical research of controversial decision-making. In developing the operational basis for the use and analysis of empirical data, my research methodology emphasizes that these concepts can only be meaningfully applied by reference to their specific empirical context.

The need to cover both policy actions and the context in which they emerge, makes a case study approach an appropriate research strategy for confronting in detail the explanatory bases of the two theoretical frames. This chapter formulates the key concepts and empirical issues for assessing the potential shortcomings of the politics of interest model - as compared to the cultural bias model - in explaining the process and outcome of public decision disputes. It thus defines the basic empirical research strategy that will be applied in an extended case study of controversial decision-making over technology.



### Evolution of the empirical research design

In order to understand the connection between the theoretical and empirical components of this thesis, it is necessary to place in its proper context, the evolution of my empirical research design. The use of a major empirical decision-making case study and the inductive approach underlying my research strategy reflect an iterative process between descriptive and analytical considerations. The historical background to my selection of the case study was a significant factor in its subsequent analysis; it enabled me to identify the key conceptual issues in relation to empirical phenomena.

The main empirical case study of this thesis - the public decision controversy over LNG technology in the Netherlands - originated from (my involvement in) an international research project on risk and decision-making, carried out at the International Institute for Applied Systems Analysis, IIASA (at Laxenburg, Austria). The IIASA project concerned the study of policy-making and national decision procedures regarding the siting of large-scale liquefied gas facilities, with particular emphasis on issues of risk analysis. As such, it presented an example of research into institutional processes of decision-making on large-scale technology and its impact. The IIASA focus was formulated largely on the basis of general and implicit notions as to decision issues over potentially hazardous facilities, "involving technological risk".<sup>[5]</sup>

A major component in the IIASA project was a series of detailed national case studies. Like most decision-case research, the IIASA approach placed emphasis on description of (historical) events and was weak on conceptual analysis. Despite its analytical deficiencies, the scope and modus operandum of the original IIASA project allowed me to use my empirical data from the Dutch country case study (on Liquefied Natural Gas, LNG), in the context of this thesis, and to develop it into an appropriate empirical focus for examining the nature of public decision controversies over technology.<sup>[6]</sup>

On the basis of the IIASA case research I was able to amplify the interplay between empirical data and the identification of key concepts in the analysis of policy dissensus. More specifically, the problematic questions that emerged from the Dutch LNG decision case at the level of description enabled the formulation of theoretical and conceptual issues pertinent to empirical analysis of public decision controversies to be addressed in this thesis. Hence my qualitative research strategy could proceed inductively, abstracting a number of critical issues from an initial account of the empirical phenomena.

Taking the descriptive element of the Dutch LNG decision case (as presented largely in Chapter 5) as a starting point, makes it possible methodologically to structure my empirical analysis in a way similar to grounded theory. The idea is that emerging "grounded" concepts derived from initial study of empirical data are used to formulate basic issues and concepts pertinent to further theoretical analysis.<sup>[7]</sup> This mode of investigation allowed an analytical advance on the original (IIASA) research plan, in those areas where it seemed deficient; and to identify problematic conceptual issues arising from the empirical policy events themselves.

The major analytical deficiency of the descriptive IIASA model of decision processes, is that it considered political events in a 'single problem' frame. The IIASA approach thus reflected the significant weakness of most technological decision studies (as discussed in Chapter 1) in that it was restricted by the implicit assumption that there was broad agreement on "the" policy question at issue. It assumed that the "decision problem" could be defined unequivocally, which then acted as a frame of reference against which policy actors and events were solely described.<sup>[8]</sup>

This narrow approach limits policy disputes to the level of

competing policy 'solutions' in response to agreed policy 'problems'. I have already argued the inadequacy of this perspective in relation to the dominant controversy literature on technological decisions (Chapter 1). As I have pointed out (in my contribution of the IIASA study and elsewhere), the outcome of the Dutch LNG decision case can not be accounted for solely in terms of a confrontation of preferred policy solutions advanced by the various participants.<sup>[9]</sup> The analytic shortcomings in the original IIASA approach re-emphasized that policy debates may involve fundamentally different problem definitions by which policy 'issues' reach the attention of political actors. My empirical account of the Dutch LNG controversy lends support for the view that conflicting problem frames need to be incorporated in empirical analysis of public decision disputes - as explicit phenomena to be explained.

## 2. Conceptual and definitional issues in empirical analysis

In the light of the preceding discussion, the challenge posed by this thesis to the adequacy of the traditional politics of interest model, must now be extended to empirical analysis. The initial question at stake is whether competing problem definitions in empirical decision-making can or cannot be accounted for in terms of conflicting interests among policy actors.

The empirical confrontation of the two analytical perspectives - the politics-of-interest and cultural bias models - is premised on the view that policy dissensus may manifest itself empirically in terms of two types of conflict. First, in the goals or interests that policy actors pursue; and secondly, in the problem formulations which specify how they frame and interpret the policy issue at stake.<sup>[10]</sup> The explanatory power of the politics-of-interest model as compared to the cultural bias model, is therefore to be examined with reference to actor-specific interests and problem definitions as the two key empirical concepts in the analysis of policy conflict.

The concept of problem definition refers to the way in which policy actors address a policy issue and how they define its boundaries. It can be considered central to the analysis of social process of decision-making, in that it marks the way institutional policy actors impose closure on the policy alternatives to be evaluated and represents a shared perception of the 'nature' of a policy issue. Conflicting problem definitions as used here thus represent different ways of framing an issue - establishing the 'givens' of a choice situation. Differences in problem definitions may be identified empirically in terms of the following three elements:

- (i) the kind of policy options that are included or excluded for policy considerations;
- (ii) the way policy impacts (ie consequences of implementing the various options) are perceived and formulated; and
- (ii) the actor-specific expressions of what "the decision problem" is.

From these proxy indicators it is abundantly clear that the adoption of a particular problem definition can significantly affect the preferred policy outcomes that are advanced by different policy actors. The central analytical issue in the context of this thesis is how competing problem definitions may be related to conflicting interests in the policy arena.

The conceptual definition of interests is considerably more problematic in empirical analysis. The dominance of the politics-of-interest model has led many to define interests in terms of the "objective goals" that actors pursue. Here goals are equivalent with interests, corresponding to the "ends" in choice behaviour as an explanatory variable for policy action; i.e. each policy action is simply seen as the "means" selected to achieve a given objective. This separation between means and ends - apart from its theoretical questionability - has not escaped the criticism that in empirical terms the "real" objective interests of actors may never be unequivocally determined. From this perspective, interests either remain "hidden", or are only manifest in the actual observable behaviour that interest-models seek to explain.

Even within the politics of interest model the notion of "objective interests" can not be upheld empirically, without leading either to a tautology or to highly unrealistic assumptions. Interest models based on objective criteria are either too all-embracing - and thus meaningless - by insisting

that all policy action is (by definition) motivated by implicit or explicit interests pursued by policy actors; or, alternatively they depend on the unrealistic premise that the self-expressed goals that actors claim they are pursuing can simply be taken as equivalent to their "objective interest".

The only way out of this dilemma is to abandon the position of "objectivity", that considers interests simply as wants or aspirations which act as 'causes' for policy behaviour. Interests are to be defined in relation to observable manifestations of policy actions and in the terms that policy actors assign to them. In other words, they are found empirically at the level where policy actors make explicit and justify their own proclaimed interests or goals in relation to their policy choices. Hence we need to concern ourselves with the self-expressed subjective (yet collective) interests adopted by policy actors, as manifest in the criteria they themselves advance in support of their policy strategies and actions.

This definition of interests is particularly relevant in public policy analysis, since it assumes that within the public arena the credibility of policy actors depends, in part, on being seen to argue their positions with substantive rationality, i.e. in relation to their publicly-stated goals. It highlights the assertion that justification for policy behaviour is an essential element in public decision processes. My conception of interests endorses the view (convincingly argued by Ball) that especially in a political context, they can not be causes for action without recourse to justifications. Interests provide reasons for undertaking a course of action and grounds for justifying it.<sup>[11]</sup> Hence my empirical definition of interest refers to the set of evaluative criteria by which policy actors argue and justify their particular policy preferences. To distinguish this operational concept from the broader theoretical discussion on the meaning and boundaries of the term "interests", my empirical analysis makes frequent reference to "interest-criteria".<sup>[12]</sup>

My empirical analysis is based on the "action context", where understanding begins with directly observable data.<sup>[13]</sup> It focuses on the way policy actors can be observed to select and justify their choices and policy actions (see further section 4). From this perspective, the central question in empirical analysis is no longer to determine the "real" interests of policy actors, but to examine the pattern of interest-criteria that policy actors advance empirically. The analytical point is to inquire as to why the pattern of justificatory criteria that actors adopt takes on a particular form. Similarly, in the empirical analysis of problem definitions, my research focusses on the manifest claims and formulations expressed by policy actors, and tries to account for them. It is at this level of observable policy behaviour that the analytical distinctions between the politics-of-interest model and the cultural bias model are to be examined in empirical contexts.

### 3. Empirical confrontation of the conceptual models

Having identified interests and problem definitions as the key conceptual categories in examining conflicting policy actors, these need now to be applied in an empirical assessment of the different theoretical frames for policy analysis. Can the goals and problem definitions that are observed in the policy arena be fully explained in the politics-of-interest frame? Alternatively, if the cultural bias model is to be considered an advance on the interest model, in what respect does the notion of a plurality of political cultures go further in accounting for the empirical manifestation of these two concepts in the analysis of political conflicts? Addressing these questions - central to this thesis - requires the distinction between the interest model and the cultural model to be amplified, and to be translated into empirical research questions.

The two theoretical frames discussed in previous chapters postulate different ways of conceptualizing the relationship between interests and problem definitions, in addressing the issue of boundary-setting in decision-making. The politics-of-interest model derives its explanatory power from the assertion that all policy behaviour can ultimately be accounted for by reference to the pursuit of certain goals or interest (leaving aside for the moment how these may be determined empirically). Hence it postulates a causal relationship between the goals pursued by a policy actor and the particular boundaries and problem definitions that are adopted. It assumes that a 'rational' policy actor will impose closure on analysis and on policy alternatives according to whether it is conducive to achieving his (predetermined) interests. Goals or interests are considered the independent variables; problem definitions are the dependent variables.

The cultural model rejects this causal frame on the grounds that the imposition of closure is a culturally-dependent process that affects both problem definition and goal selection. The processes by which policy actors formulate issues and select policy options are seen as being interdependent with (rather than implied by) the selection of policy goals. The political cultures model asserts that both problem definitions and interests of a policy actors can be - and should be - accounted for within a single frame.

In conceptualizing the proclaimed interests of policy actors and their manifest problem definitions, it must be acknowledged that neither can be considered static attributes in the context of decision disputes. In this respect my concern with controversy in public policy leads to examining the divergences in actors' policy positions, which make for political conflict. The distinctive policy position of an actor (at a given time in the decision process) is defined here in terms of the problem bounds and interest-criteria it adopts. Divergent policy



positions refer either to distinct policy actors (in which case I will speak of "conflicts") or - given the dynamics of decision-making - to the same actor at different stages of the policy process ("shifts"). The crucial analytical issue is the different explanations that the two conceptual frames furnish for understanding divergent policy positions in empirical decision controversies.

The politics-of-interest model postulates that a divergence of problem definitions must have conflicting (or shifting) interests as its major underlying determinant. The cultural bias model on the other hand focusses on the interdependence of problem definitions and interests. It postulates therefore that whether or not divergent problem definitions are concomitant with divergent interests, will depend on the particular political culture of the policy actors concerned. Moreover, rather than analysing empirical policy positions in terms of the one-way causal relationship between conflicting interests and problem definitions, the cultural model is concerned with the pair-wise 'configuration' between these two key concepts. Figure 4.1 provides a pictorial presentation of the analytical distinction made here between the two conceptual models.

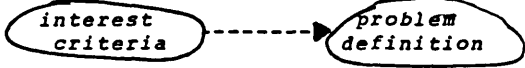
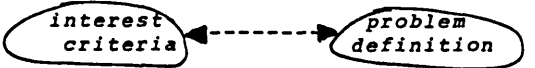
<u>Model</u>	<u>Conceptual relationship</u>	<u>key determinant</u>
Politics of interest		Actor's interest
Cultural bias		Actor's political culture

Fig. 4.1:

Analytical distinctions on key concepts

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Given these conceptual distinctions, establishing the (potential) shortcomings of the politics of interest model in

empirical research may be recognized by certain distinct manifestations of policy positions in the decisional arena. First, the inadequacy of the politics-of-interest model can be established in those cases where divergent problem definitions are identified in the policy process, in the absence of (apparent) conflicts of interest. If such empirical cases do occur, they may be addressed subsequently in terms of the political cultures model in an attempt to account for the empirical configuration between problem definitions and interest-criteria.

Secondly, even if a shift or conflict in problem definition can be seen to be concomitant with divergent interests, the politics-of-interest model may be deficient. Although it seems that in such cases the empirical problem definitions can be accounted for in terms of conflicting interests, it still leaves us with the analytically weak position of being unable to explain where the respective interest positions come from. Hence it is impossible to say (within the politics-of-interest model) to what extent our conclusions are dependent on the idiosyncracies of the particular decision process; or whether they stem from systematic (or structural) characteristics of policy actors and their specific operational context.

The potential advance of the cultural bias model is sought in accounting for the adoption of problem definitions and the selection of interest-criteria in a single frame. It sees the problem definitions and the interest-criteria as being variable only in so far they can be made credible within a single political culture. Translated to the operational level, the cultural bias model postulates the types of constraints and incentives that are expected in the selection of evaluative criteria (interests) in decision situations. It relates these criteria to the culturally-induced policy frames and the boundaries to assessment, that inform actors' respective problem definitions.

Whereas the politics-of-interest model is unable to explain why certain attributes will be taken as justifications for actors' preferences and problem bounds, the cultural model postulates that the choice of justificatory criteria will be restricted by the cultural boundaries to policy actors' problem perceptions. A crucial 'test case' for the cultural bias model is therefore to account for the kinds of justifications policy actors advance in defence of their policy preferences.

Accounting for the inclusion or exclusion of particular interest-criteria in support of an actor's policy preference impinges on the issue of rationality. Within the politics-of-interest perspective, rational choice implies embracing every conceivable criterion that can be presented in defence of a preferred policy outcome. Assuming that every policy actor will behave with substantive rationality, means defining any act that fails to include such supportive criteria as "irrational". In contrast, the cultural bias model sees rationality as being culture-bound. It attempts to account for the choice of interest-criteria with reference to the type of rationality associated with the political culture in which a policy actor is bound up.

The confrontation of the conceptual models in the context of empirical decision-making cases seeks to move beyond the level of mere description of actors' policy positions to the analysis of policy dissensus. Before the pattern of (conflicting) policy positions can be analysed, however, the empirical manifestations of interest-criteria and problem definitions will have to be identified. The next section discusses the empirical evidence to be used, and the operational issues involved in extracting from the data the empirical referents for the concepts of interests and problem definitions.

#### 4. Empirical evidence and operational research procedure

##### The action context and the use of political accounts

The starting point for my empirical analysis of policy disputes are the manifest policy positions of the various participants, as defined by (i) problem definitions that actors adopt, (ii) their policy preferences, and (iii) the interest-criteria by which preferences are formulated and justified in the public arena. These empirical referents can only be employed in the specific context in which they occur; problem formulations, choice-criteria and preferences are only meaningful attributes of policy actors with reference to the specific situations they encounter. This makes it imperative to focus on the action context of policy behaviour. Here actors' policy positions can be deduced by watching what a policy actor does and what he says; observing the options he considers, and the way he arrives at his publicly-expressed preferences over policy outcomes.

Accounting for the context of conflictual policy positions is an essential part of my empirical approach. In the case of disputes over the assessment of technological impacts (see chapter 1), I have already indicated that where the line is drawn between the 'technical' issues and the context in which they are placed (e.g. the physical or social impacts) is frequently an integral part of policy controversy. From a broader perspective, my focus on the action context - the level where policy actors can be observed communicating and interacting with each other - allows the empirical statements that accompany public policy actors' behaviour to be interpreted in their appropriate setting. In using policy statements to infer motivations and rationalizations for policy behaviour, the relevant consideration is whether or not a claimed criteria for choice fits plausibly within the surrounding structure of action. [14]

Given this, my empirical research strategy takes published policy documents and statements by policy actors themselves as the key data sources for deducing (their) policy positions. This approach acknowledges that public policy processes involve elements of social accountability. Policy positions are to be justified, defended and legitimized in the public arena, to ensure credibility and support from the members of policy institutions and the (political) society in which they operate. Policy documents and public statements are considered here as "political accounts"; these have been defined as explanations that justify behaviour by proposing a normative status to policy actions.<sup>[15]</sup> Political accounts are used by policy actors for influencing the process and outcome of policy-making, and their analysis therefore is expected to reveal essential facts about the nature of empirical decision-making phenomena.

Political accounts have to be distinguished from other types of language constructs and ought not be treated as "mere rhetoric". They offer a normative basis on which the legitimacy and credibility of actions and choice preferences are judged.<sup>[16]</sup> My research methodology depends on examining the pattern of political accounts that accompany - and often define - decision-making behaviour. It concurs with the view of Graber that "rather than using a deductive approach, deriving specific political actions from general political beliefs, one can take the inductive route, inferring general policy outlooks from a study of particularized statements about a specific political situation".<sup>[17]</sup> Incorporating the action context in empirical analysis ensures that political accounts are not treated as self-contained symbolic forms, but are interpreted in their relationship to the developing political situations.<sup>[18]</sup>

The dynamics of the public decision process and the context in which the policy debate is conducted is of particular

significance in examining the conceptual link between actors' expressed interests and the problem definitions they adopt. The interactive and processual nature of public policy making, makes the participants especially attentive to the developing themes and actions that sets the context for subsequent policy events. As Bennett has emphasized with respect to the use of political accounts, "each new act marks a potential shift in the definition of a situation and sets the terms to which actors must respond if their own preferences about the course of the situation are to be taken seriously."<sup>[19]</sup>

### Policy positions: operationalization

As far as the policy positions and preferences of actors are concerned, the manifest content of their policy documents and published accounts represent the main empirical data base. My empirical research approach therefore borrows heavily from techniques derived from content analysis: identifying substantive themes as characterizing actors' policy positions. It is particularly relevant to the empirical analysis of controversies in decision-making. As Cartwright has underlined,

"social and political conflicts...can not be fully understood without studying the words employed in the interaction of conflicting groups, and the process of mediation consists largely of talking things out"<sup>[20]</sup>

In the context of this thesis, content analytical techniques will be modified and applied to identify the presence or absence of particular problem definitions adopted by policy actors, and the various interest-criteria they advance in support of their policy preferences.<sup>[21]</sup> In this sub-section I will briefly outline how this will be done, so as to move from empirical documentary evidence to the key operational concepts employed in this thesis.

As indicated earlier, the concept of problem definition may be operationalized in terms of three empirical elements (i) policy options, that are included or excluded; (ii) the perception and formulation of policy impacts; and (iii) expressions as to the

nature of "the" policy problem. The concept of interest refers to the partial objectives that policy actors say they are pursuing when selecting and justifying a particular preferred policy outcome. Empirically, the interest-criteria advanced in support of policy choices therefore may be operationalized in terms of the expressed ranking of relevant attributes. This ranking of different aspects of a decision problem is a measure of the saliency of evaluative criteria perceived as relevant for determining policy preferences.

Although the words that policy actors employ to express their positions may not be identical across statements, empirical analysis of policy positions is concerned with common underlying themes. A set of substantive categories, indicating broad aspects pertinent to the policy agenda under study, can be used systematically for determining differences in problem definitions and interests. As stated earlier, policy positions of actors, can be reconstructed by examining the political accounts they produce. The process of analysing the action context through the thematic analysis of political account is represented pictorially in Figure 4.2. [22]

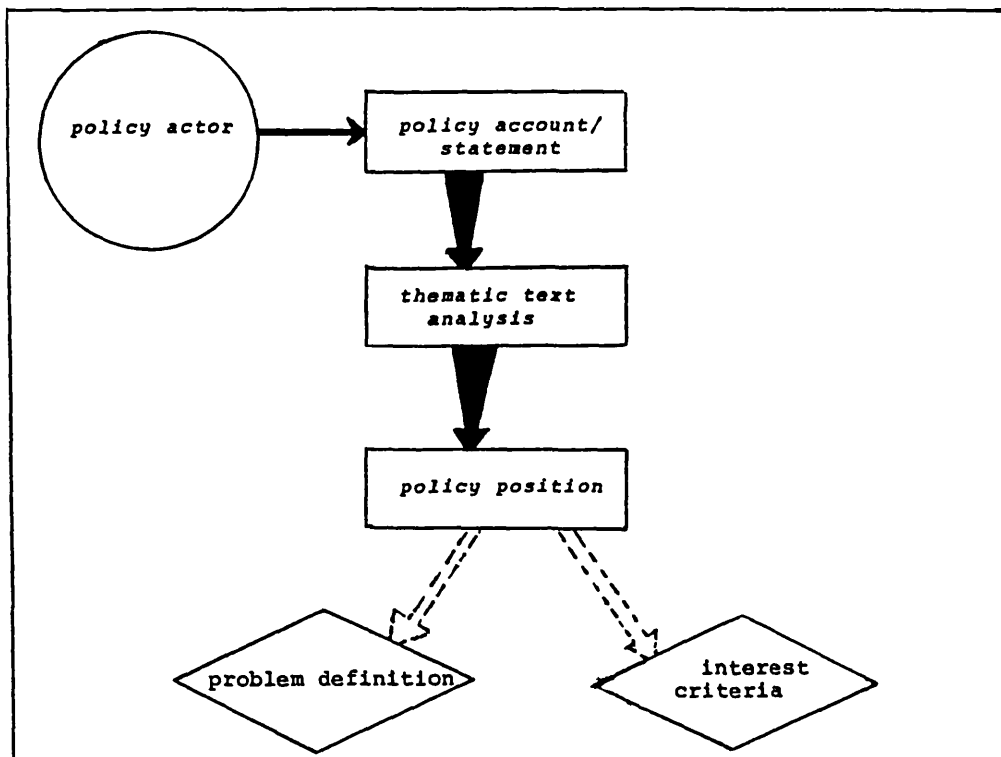


Figure 4.2:  
Empirical research approach - thematic content analysis

The operationalization of empirical problem definitions and interest-criteria concerns four main referents to be extracted from political accounts: the policy options that are included for consideration; the perceived consequences of each policy option expressed with reference to different impact areas; the expressed choice criteria; the preferred policy outcomes, supported by justifications and rationalizations.

These empirical referents will be employed to 'typify' the various policy positions encountered in decision-making processes from the empirical data.<sup>[23]</sup>

#### Identifying policy positions from empirical accounts

The manifest policy positions identified from political accounts can be represented in empirical analysis by 'typical' verbatim statements - capturing the respective problem definitions and interest-criteria. Additionally, my extended case study (presented in the next part of this thesis) will summarize the result of the policy analytic procedure in terms of two key empirical elements by which policy positions may be described: (i) the options under consideration (pertaining to the problem definitions), and (ii) the ranking of impact dimensions (pertaining to the saliency of interest-criteria leading to policy preferences). These two elements enable policy actors respective policy positions to be presented schematically with reference to the significance of particular interest-criteria in evaluating different policy options and their (perceived) consequences.

Given the central importance in this study of deriving the empirical patterns of (conflicting) policy positions from political accounts, this research technique warrants some further discussion. Below I will illustrate by means of an example, the basic process by which empirical policy statements



can be analysed qualitatively, and how policy positions can be represented in the terms discussed above. This approach to the empirical analysis of policy positions in controversial decision processes will be applied in detail in Chapter 6. (The reader may decide to leave the elaboration below until Chapter 6 and proceed now directly to section 5 of the present Chapter.)

### Analysing policy statements

The central idea is that problem definitions and interest-criteria may be operationalized in terms of the various policy options and the evaluation of perceived impacts, leading to particular policy preferences. The way different policy actors evaluate the various options can be described on the basis of a substantive set of impact dimensions. These dimensions refer to different aspects of a policy issue that (may) have an impact on perceived policy outcomes. These impact dimensions thus serve as the substantive "themes" - as the units of analysis - in reviewing the textual accounts of the various policy actors. They provide a way of categorizing the empirical statements on a policy issue, deducing how the evaluation of different impact dimensions and their relative saliency determines policy preferences. It represents a qualitative application of content analysis, largely based on the presence or absence of categorized material, rather than upon its frequency. [24]

By examining empirical policy accounts for evaluative statements 'along' different impact dimensions, a characteristic picture may be built up of the policy position of each policy actor. This basic approach leads to a matrix that summarizes each policy perspective. It can be illustrated here by way of example, utilizing the impact dimensions and policy options pertinent to a facility siting controversy (e.g. the LNG terminal decision dispute in the Netherlands). The relevant impact dimensions are the following:

- I.1: energy policy
- I.2: economics/cost
- I.3: environmental impact
- I.4: safety risk/health
- I.5: employment generation.

In the example below, the policy actor limited the decision process to consideration and evaluation of three alternative siting options for the facility:

- S.1: off-shore  
 S.2: land-based, within the country  
 S.3: abroad.

Using these impact categories and policy options the policy positions of an actor can be derived by analysing policy statements in empirical accounts. Figure 4.3 presents typical (fictional) examples of such statements, each pertaining to a different impact dimension.

I.1:	<i>"From the energy policy viewpoint, security of supply can only be assured by having a Dutch import facility".</i>
I.2:	<i>"The investment cost of an off-shore terminal are at least three times higher than of a land-based facility".</i>
I.3:	<i>"The environmental disruption is minimal at all the possible terminal sites".</i>
I.4:	<i>"The major advantage of an off-shore terminal is the expected lower safety risk to the local population at the harbour".</i>
I.5:	<i>"The lasting effect on regional employment must be considered minimal, and the variation between the different sites is likely to be non-existent".</i>

Fig. 4.3

Typical policy statements by impact dimension

On the basis of such empirical statements the policy actor's problem formulations and ranking of interest criteria may be represented in tabular form - as indicated in Table 4.1. It identifies the positive or negative implications attached to each policy position, from the perspective of a particular political actor.

impact dimensions	policy options considered		
	S.1:land-based	S.2:off-shore	S.3:abroad
Energy policy (I.1)	+	+	-
Economics/cost (I.2)	++	+	o
Environmental impact (I.3)	o/+	o/+	o
Health/safety risk (I.4)	++	+	o
Employment generation(I.5)	o/+	o/+	o/-
-----			
key: + = positive or present    - = negative or absent    o = neutral/nil			

Table 4.1.

Illustrative policy perspective summary

In this example, the overall preferred policy option (as manifest in empirical statements) was that of a land-based terminal (S.1), thus indicating that the energy policy (I.1) and economic/cost (I.2) dimensions were the dominant evaluative criteria leading to this policy preference. It may be concluded with reference to above summary, that the higher levels of safety risks (I.4) associated with this option (relative to S.2 and S.3) were apparently not perceived as sufficiently significant to offset the advantages (in terms of the two dominant impact dimensions I.1 and I.2) expected in respect of the land-based option (S.1). In this case the dimensions of energy policy and economics/cost can be considered the main evaluative criteria (interests) by which the preference for a land-based terminal was argued and justified.

## 5. The explanatory case study as empirical research strategy

Drawing together now, the strands of previous discussion in this chapter, my empirical research approach is based on the assertion that the (prevailing) problem definitions and the interests of policy actors are not independent from the policy arena in which they emerge, but interacting with it. As stressed earlier, the way policy actors formulate the decision problem, and evaluate the different options can only be successfully analysed for their role and meaning with reference to the context in which they are bound up. The research strategy that takes explicit account of the dynamics and complex pattern of interactions among policy actors, that is implied by this concern for the action context, is that of the decision-making case study.

My empirical research design sets out to identify and analyse the pattern of conflicting policy positions among actors, taking into account the context they collectively sustain. The use of a case study of decision-making for the analysis of policy conflicts allows the inductive approach of this thesis to be applied in a truly explanatory mode. The distinction between description and analysis is important here. At the level of description, an initial case study of public policy-making confirmed the view that conflicts on the preferred outcomes of a policy issue (or "issue dissensus") are closely related to disagreement on the appropriate procedures by which decisions of the issue should be reached ("process dissensus").<sup>[25]</sup> The relevant empirical concepts and theoretical issues that emerged from an initial account of the decision controversy can now be systematically examined in the context of case study analysis.

From a methodological point of view, case research is especially suitable for developing and refining the 'grounded' theoretical concepts, since an explanatory case study emphasizes the iterative process involved in analytic

induction. Developing grounded theory from data (as formulated by Glaser and Strauss) means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research.<sup>[26]</sup> This approach enables me to move from a descriptive account of a public decision-making controversy to its empirical analysis, employing the theoretical concepts relevant to the policy conflicts under investigation. The significance of the action context in the empirical analysis of these concepts provides a further important justification for the explanatory case study as research strategy.

The case study approach to policy analysis allows examination of policy determinants in a dynamic environment. It allows systematic analysis of decision-making phenomena in terms of inter-institutional actions, policy positions and outcomes.<sup>[27]</sup> In adopting the case study as a research strategy, the conceptual models of policy-making can be assessed empirically to explain not just single variables or factors in controversial decision-making, but the whole pattern of situated events that comprise the processes and observable policy outcomes of political disputes. By contrast with the conventions of experimental design to focus on single variables, the case study approach is able to examine accounts that involve empirical phenomena as well as the context in which they occur.

The starting point for my empirical analysis is that policy dissensus may involve conflicting problem definitions of the policy issue at stake. Given my premise that the boundaries between context and phenomena are not unequivocally established, this rules out a research strategy that focuses on a few variables separated from their context.<sup>[29]</sup> The distinction between the policy issue and the context in which it should be resolved is itself frequently part of the political debate (especially so in the case of 'technological decision' controversies). Hence, a case study appears

appropriate to capture the nature of such decision-making disputes.<sup>[30]</sup>

To summarise, the empirical research strategy of this thesis is based on the explanatory case study which has been described as consisting of three main elements: (i) an accurate rendition of the facts of the case; (ii) consideration of different explanations of these facts, and (iii) a conclusion based on the single explanation that appears most congruent with the facts.<sup>[31]</sup> The search for an explanation is here seen as a kind of pattern-matching exercise, in relation to the conceptual frames discussed in the previous chapters. It can be meaningfully applied even if there is just one case, since the pattern must fit multiple implications from the analytic models.<sup>[32]</sup>

#### Presenting public decision processes in case research

The first stage of my empirical research is concerned with making visible the pattern of decision events, in a detailed description of the policy process. Given the problematic distinction between decision-making phenomena and their context, the presentation of empirical data poses particular difficulties in controversial cases of public policy-making. If competing definitions of the situation are seen as integral to political conflicts, (as is often the case in 'technological' controversies), describing such conflicts is likely to be especially critical.

What is required therefore is a descriptive approach that enables reference to the conceptual issues raised in the previous chapters without imposing a rigid framework. My approach for describing the action context of inter-institutional choice processes is based on the view that they are fundamentally 'ambiguous'. By this is meant that

participation, decision procedures and the selection criteria that govern the outcome, are all dynamic variables; they are all part of the political process (and as such open to debate). A useful starting point for describing (rather than analysing) the action context is therefore some kind of unconstrained "garbage can" model of policy choice (e.g. that advanced by March and Olsen). As an initial descriptive premise, decision processes are viewed here in terms of anarchistic streams of policy problems, solutions, participants and choice opportunities.<sup>[33]</sup>

From this perspective, the conceptual models discussed in the previous chapters can be seen as alternative attempts to make sense out of the garbage can; to try and organize the anarchy. They postulate relatively stable patterns of policy problems and solutions adopted by different actors involved in the decision-making process. My empirical case approach acknowledges however that the emergence of such patterns eludes analysis if we presume a priori that they are of one kind or another.<sup>[34]</sup>

The underlying notion that sustains "decisional analysis" of case studies as a research strategy, is the idea that the process and outcome of policy decisions can be analysed in terms of the various participants and their manifest interactions. In line with this conception, my empirical decision-making case will be presented by describing four main elements: (i) policy actors, (ii) the sequence of events (iii) the inter-institutional policy network, and (iv) the policy positions representative of the various actors.<sup>[35]</sup>

The first element of empirical description is the policy actors which enter and exit the decision-making process. They are defined at the institutional (rather than individual) level, and may be recognized by the political accounts that they produce in order to influence the process and outcome of policy-making. My reliance on observable actions and manifest



statements that accompany policy behaviour, implies that the identification of distinct political accounts postulates the existence of a policy actor. (Conversely, the participation of policy actors in the decision-making process can only be analysed empirically by reference to their political accounts). The dynamics of the inter-institutional policy-making process requires systematic examination in decisional analysis. The extended case study featured in subsequent chapters will present a detailed review of the various stages of policy events,<sup>[36]</sup> culminating in "authoritative" decisions on the outcome of the policy process.<sup>[37]</sup> Given the importance of the (dynamic) context in which policy actors operate, the pattern of interactions, or policy network, is an important focus in the analysis of the process and outcome of public decision controversies.<sup>[38]</sup>

The notion of the policy arena will be employed to assess the institutional and conceptual boundaries that are placed upon participation in decision-making and the terms of the policy debate. Considering political decision-making as a process of bargaining and negotiation, requires the assessment of the changing nature of the policy context in which actors operate.<sup>[39]</sup> The 'shape' of the policy arena impinges upon the frames and problems bounds in the institutional decision process through which the 'issues' are debated.<sup>[40]</sup> The structural shifts in the ('official') policy arena will be analysed in the extended case study, placing the respective interest-criteria and problem definitions of policy actors in their appropriate empirical settings.<sup>[41]</sup> From an analytical perspective, the notion of policy arena highlights the potential constraints that are placed on the selection of problem definitions and evaluative criteria as conditions to participation in (governmental) decision processes.<sup>[42]</sup>

Against this background my empirical approach focuses explicitly upon the conflicting policy positions among actors. Having identified that policy dissensus involves conflicts over

preferences as well as over the boundaries to policy issues, the next - intermediate - stage of empirical research examines in detail the interest-criteria and problem definitions manifest in empirical statements and actions (Chapter 6). It prepares the ground for the empirical analysis proper: confronting the conceptual explanations furnished by the politics-of-interest and cultural bias models.

In assessing the empirical pattern of interests and problem definitions in its appropriate context, additional case study data has been collected. Selective semi-structured interviews with (representatives of) key policy actors provide an additional research method, allowing a certain degree of corroboration of the evidence used for the empirical analysis of actors' policy positions. The use of interviews is particularly important for examining the dynamics and processual nature of political events. Interview data provide further empirical evidence about the context in which policy actors operate, and the nature of the policy arena they collectively help sustain. It sets the scene for analyzing the changing and interactive pattern of policy conflicts against the conceptual distinction between the two explanatory models.

Summary: towards empirical analysis of public decision controversy

By way of conclusion let me summarize the main implications of this chapter for the empirical case research to be presented in the next part of this thesis. The empirical research strategy outlined in this chapter has been developed from the assertion that policy disputes among political actors involve both conflicting policy preferences, and competing problem definitions. The analysis of controversial public decision-making cases thus begins with describing the contending policy positions in terms of the various policy solutions that are advocated, and the underlying perceptions over what the relevant decision problem actually is. Divergent interest-criteria and problem definitions, and their inter-relationship have been identified as the key conceptual issues by which the theoretical models are to be assessed empirically. What is at stake is the analytic distinction between the politics-of-interest and cultural bias perspectives on political choice. This chapter has outlined how the relative explanatory power of the two conceptual frames for analysing public policy controversies may be assessed in an empirical setting.

In summary, the potential shortcomings of the politics of interest model is to be examined empirically by reference to two central issues. Firstly, the policy process will be analysed for instances where divergent problem definitions can be observed in the apparent absence of conflicting interest. Secondly, the particular selection of interest-criteria that policy actors advance as justifications for their preferred outcomes will be analysed with reference to rational choice theory pertinent to the politics-of-interest. These two empirical 'test cases' correspond to the two major theoretical criticisms levelled against the politics-of-interest model in the foregoing chapters. The first issue stems from the circularity of the interest model, as a causal explanation for

behaviour, whilst the second relates to the failure to account adequately for the socio-cultural context in which criteria for policy choice are formulated and vindicated. The relationship between the key concepts of interest and problem definitions, and the selection of justificatory criteria may thus serve to examine the analytical advantages of the cultural bias model (over interest models) in empirical cases of 'technological decision' controversies. [43]

Given the approach outlined in this chapter, the next part of this thesis applies the concepts and methodology developed here, and assesses the policy analytic models in the light of an extended case study of controversial public decision-making (viz the siting of LNG technology in the Netherlands). It is organized in three chapters. Chapter 5 presents a systematic empirical description of the decision-making process, the policy actors involved and the dynamic nature of the policy arena. It identifies the policy controversy in terms of the major substantive issues of policy dissensus. Chapter 6 assesses the details of the decision-making case in terms of conflicting policy positions. It identifies the presence of competing problem definitions and interests among policy actors, applying the empirical concepts that have been developed in this chapter. Finally, Chapter 7, turns to the analysis of the determinants of policy dissensus, and confronts the two conceptual models in accounting for the empirical process and outcome of the LNG decision case.

NOTES AND REFERENCES

- [1] F Znaniecki, The Method of Sociology (Farrar and Rinehart, 1934) quoted in M. Bulmer, "Concepts in the analysis of qualitative data", The Sociological Review, Vol.27, (November 1979), 651-677.
- [2] Bulmer (1979), op.cit., p.661-664.
- [3] The definition of concepts by direct reference to empirical categories has been identified as one of the "axioms" of inductive analysis. E.R. House, Evaluating with validity (Beverly Hills: Sage, 1980), p.69.
- [4] Cf. B. Glaser and A. Strauss, Discovery of Grounded Theory: Strategies for Qualitative Research (Chicago: Aldine, 1967).
- [5] A note summarizing the IIASA research project was originally written in 1980, under the title "IIASA LNG Siting Study". It was subsequently reproduced as Appendix A in H. Kunreuther, J. Linnerooth and R. Starnes (eds), Liquefied Energy Gases Facility Siting: International Comparisons. IIASA Collaborative Proceedings Series CP-82-S6 (Laxenburg, Austria: International Institute for Applied Systems Analysis, 1982).  
The IIASA research project, when originally conceived, was cast in particularly general terms. It saw the background to the study in relation to the view that "the siting of any large-scale energy, chemical handling or production facility poses decision problems which involve economic, environmental and safety considerations, as well as technological choice" (p.457). The study was seen as an example of decision problems "involving technological risk" (ibid), thus making the LNG case study in principle compatible with the aims of this thesis - concerned as it is with examining the nature of political controversies in 'technological decision-making'. The selection and subsequent examination of case studies in the IIASA project was not based on a distinct set of conceptual or theoretical issues.
- [6] The results of the IIASA project are reported in H.C. Kunreuther, J. Linnerooth et al., Risk Analysis and Decision Processes - The Siting of Liquefied Energy Gas Facilities in Four Countries, (Berlin: Springer-Verlag, 1983); and in German in H. Kunreuther, J. Linnerooth et al., Risikoanalyse und politische Entscheidungsprozesse - Standortbestimmung von Flüssiggasanlagen in vier Ländern (Berlin: Springer-Verlag, 1983).

- [7] Cf. B.A. Turner, "The use of grounded theory for the qualitative analysis of organizational behaviour", Journal of Management Studies 20, 3 (July 1983), pp.338-348.
- [8] The basic design of the descriptive IIASA approach is outlined in H. Kunreuther, J. Lathrop and J. Linnerooth, "A Descriptive model of choice for siting facilities", Behavioral Science, Vol.27, (1982), 281-297.
- [9] M. Schwarz, "The Netherlands: The Rotterdam-Eemshaven Debate", Chapter 4 in H. Kunreuther, J. Linnerooth, et al (1983), op.cit., pp.64-97; also M. Schwarz, "Controversial Decision-making: LNG Technology in the Netherlands", in Umweltbundesamt (hrsg), Technologien auf dem Prüfstand - Die Rolle der Technologiefolgenabschätzung im Entscheidungsprozess (Köln: Carl Heymanns Verlag, 1983), pp.119-134. In this case, the framing of the policy issue by the national authorities, and the associated decision procedures for dealing with it, could be identified as significant factors constraining the number and types of policy 'solutions' that were taken into consideration.
- [10] In the terms appropriate to "analytic induction" as a research procedure, this dual nature of policy dissensus may be seen as a "reformulated hypothesis" for explaining the empirical events. The original IIASA approach was based on multiple interacting policy actors that were in (potential) disagreement over interests or preferred goals. This 'hypothesis' did not fit the data, in so far policy actors advanced competing formulations of the decision problem itself, and associated procedures for resolving it. Cf. M. Bulmer (ed) Sociological Research Methods: An introduction (London/Basingstoke: MacMillan, 1977), p.280.
- [11] In the words of Ball: "To say that one has an interest in something almost always means, in political contexts, more than that one simply wants, desires or prefers that thing; it means that one asserts a claim or stake in certain processes and proceedings. And because such claims can, and likely will, be disputed, acting upon them is paradigmatic for acting for a reason: one will have to be prepared to justify and defend one's claim against counterclaims." Terence Ball, "Interest-Explanations", Polity, Vol.XII, (Winter 1979), 187-201.
- [12] Some may argue that the above operational definition of interests is too narrowly cast, that policy actors will not necessarily make their "real" interests explicit, and that the "visible" policy agenda is just a medium - a strategy - to achieve "hidden" objectives. But since the "hidden" agenda is by definition invisible, any more inclusive conception of interests would be meaningless in empirical analysis. In order to assess the adequacy of the politics-of-interest model in empirical decision-making one must start from observable data. After all, the politics-of-interest frame must be seen as a conceptual model - that models rather than represents reality. It

attempts to account for the "hidden" determinants of policy behaviour in terms of visible manifestations and events.

- [13] Cf. C Argyris, "Review Essay - The Swine flu affair: Decision-making on a slippery disease", Administrative Science Quarterly Vol.24, (December 1979), 672-679.
- [14] Cf. L.Spencer and A.Dale, "Integration and regulation in organizations: a contextual approach", The Sociological Review Vol 27, (November 1979), 679-702.
- [15] W.Lance Bennett, "The Paradox of public discourse: a framework for the analysis of political accounts", The Journal of Politics Vol.42, (Aug 1980) 792-817.
- [16] *ibid.* p.792-795.
- [17] Doris A.Graber, Verbal Behaviour and Politics (Urbana: University of Illinois Press, 1976), p.202.
- [18] Bennett 1980, *op.cit.*, p.801
- [19] *ibid.* p.808
- [20] Dorwin P. Cartwright, "Analysis of Qualitative Material" in Leon Festinger & Daniel Katz (eds), Research Methods in the Behavioral Sciences, (New York: Dryden Press, 1953), p.422
- [21] Cf. Bernard Berelson, "Content Analysis", in Gardner Lindzey (ed) Handbook of Social Psychology (Reading MA: Addison-Wesley, 1954) pp.488-522.
- [22] This figure is partly derived from R.W.Budd, R.K.Thorp, and L.Donohew, Content 'Analysis of Communications (New York: MacMillan, 1967), p3.
- [23] The suggested methodology for deducing actor's problem definitions and interest-criteria may be vindicated with reference to decision theoretical studies. My operational definitions are highly compatible with concepts initially developed from normative decision theory, which have been successfully applied to descriptive studies of policy making. In these studies a high degree of inter-subjectivity and reliability of systematic text analysis has been established. The decision theoretical literature refers to policy actors' "decision trees", which is essentially a technique to combine different parts of an actor's argument as manifest in policy statements. My approach is designed to extract from the data the policy positions of actors in terms of the operational concepts defined above. The table below summarizes the comparison between decision theoretical concepts and the three main empirical referents I will be using in inferring problem definitions and interests criteria from political accounts.

Decision theory concepts	Policy analytic variables as employed in this thesis
<hr/>	
action variables: available actions	policy options considered
result variables: subjective probabilities of outcomes	Impact formulations
utility: subjective values	expressed choice criteria: ranked attributes.

Cf. I.N. Gallhofer, W.E. Saris, B.M. de Valk, "Een begrippen-apparaat voor de beschrijving van redeneringen van politici, Acta Politica, 13 (Aug 1978) 371-381; for an applicatoin see "A Decision Theoretical analysis of decisions of the Dutch government with respect to the intervention of the Security Council in Indonesia in the winter of 1948/1949", Acta Politica, 18 (1983), 63-88; I.N. Gallhofer & W.E. Saris. J. von Neumann & O.Morgenstern, The Theory of Games and Economic Behaviour (Princeton NJ: Princeton Univ. Press, 1953); I.N. Gallhofer and W.E. Saris, "An analysis of the argumentation of decision-makers using decision trees", Quality and Quantity Vol.13 (1979)

- [24] B.Berelson, Content Analysis in Communications Research (New York: The Free Press of Glencoe, 1952), p.18.
- [25] J.Gershuny, "What should forecasters do? - A Pessimistic View" in P.R. Baehr and B.Wittrock (eds), Policy Analysis and Policy Innovation - Patterns, problems and potentials (London: Sage, 1981), p.201.
- [26] Glaser and Strauss 1967 op.cit. , p.6
- [27] Cf. Richard C Snyder, "A decision-making approach to the study of political phenomena", in R.Young (ed), Approaches to the study of politics (Evanston, Ill.:Northwestern University Press, 1958).
- [28] Robert K Yin, "The Case study crisis: some answers", Administrative Science Quarterly, Vol.26 (March 1981), p.62 (1981a).
- [29] Robert K. Yin, "The Case study as a serious research strategy" Knowledge: Creation, Diffusion, Utilization, Vol.3, (September 1981), 97-114 (1981b)
- [30] In contrast to other research strategies, that depend to a greater extent on a priori instrumentation, design or hypotheses, the case study is particularly relevant for the presentation and analysis of grounded data that



emerges from the context itself. Cf. E.G. Guba and Y.S. Lincoln, Effective Evaluation (London: Jossey Bass, 1981) pp.370-380.

- [31] Yin 1981a, op.cit. p.61 Following an inductive methodology, my extended case study analysis aims to explain the process and outcome of empirical decision-making, with reference to the issues abstracted from (initial) empirical observation (in the context of the IIASA LNG study).
- [32] Donald T. Campbell, "Degrees of freedom and the case study", Comparative Political Studies, vol.8 (1975), 178-193
- [33] James G. March and Johan P. Olsen, Ambiguity and Choice in Organizations (Bergen: Universitetsforlaget, 1976)
- [34] Especially at the analytical level, my approach marks a crucial distinction with the garbage can model of March and Olson (op.cit), in that I insist on relatively persistent and recognizable configurations of their "streams"; constrained relativism, rather than complete anarchy. Similarly, my analysis is committed to the intentionality of decision-making behaviour by policy actors (which March and Olsen reject).
- [35] These elements are similar to the organizing concepts employed by March and Olsen; in terms of the Garbage Can model they correspond roughly to respectively "participants" (i), "choice opportunities" (ii) and (iii), and "policy problems + policy solutions" (iv). March and Olsen 1976, op.cit. p.26.
- [36] In line with the empirical approach followed within the IIASA project, I will use the notion of decision "rounds" as a heuristic tool for describing different stages in the policy process. Each round in the decision process indicates a renewed substantive focus in the policy discussions. Different decision rounds are usually treated as sequential, but they may be overlapping. In my extended case study the rounds of the decision process relate to the authoritative procedures for policy-making, and thus reflect predominantly the 'official' policy agenda. It is stressed that the notion of rounds is used strictly as an aid to empirical description and not as an analytic device. See: Kunreuther, Lathrop and Linnerooth 1982, op.cit.
- [37] Cf. D. Easton, A Framework for political analysis (Chicago/London: University of Chicago Press, 1965)
- [38] Cf. K. Hanf and F.W. Scharpf (eds) Interorganizational Policy-making (London/Beverly Hills: Sage, 1978); A. Wassenberg (red), Netwerken: Organisatie en Strategie

(Amsterdam: Boom Meppel, 1980), especially Chapter by J. Kooiman, "Besturen door netwerken: de publieke variant". pp.69-91.

- [39] Cf. G.T. Allison, Essence of Decision (Boston: Little Brown & Company, 1971)
- [40] In this respect the notion of policy arenas is closely related to the concept of policy agendas. Cf. R.Cobb and Elder, Participation in American Politics: The Dynamics of Agenda Building (Baltimore, Maryland: John Hopkins University Press, 1972): The notion of non-decision-making is also relevant here; see P.Bachrach and M.S. Baratz, Power and Poverty: Theory and Practice (New York: Oxford University Press, 1970).
- [41] Cf. F.W. Scharpf, "Interorganizational Policy Studies: Issues Concepts, and Perspectives", in Hanf and Scharpf 1978 (eds), op.cit. (note 41).
- [42] Cf. Barach and Baratz 1970, op.cit. (note 43); M.A. Crenson, The Un-politics of air pollution - A study of non-decision making in the cities (Baltimore: John Hopkins University Press, 1971).
- [43] The two theoretical deficiencies asserted here, are reflected in the shortcomings of the dominant political approach to the analysis of technological decision controversies, as argued in Chapter 1. The first manifests itself in the traditional 'dope' model of technological disputes; the second can be seen in the inability of the traditional approach to address the socio-cognitive dimensions involved in 'factual' impact disputes in the context of political debate.

## CHAPTER 5

CONTROVERSIAL PUBLIC DECISION-MAKING: THE CASE OF LNG  
TECHNOLOGY IN THE NETHERLANDS1. Introduction

The extended case study presented in this and subsequent chapters analyses the decision-making process concerning the siting of an import terminal for Liquefied Natural Gas (LNG) in the Netherlands. In the mid-1970s the Dutch Government was confronted with the question of whether and where to site a large-scale facility for LNG importation and storage. Particularly in the light of the considerable potential physical dangers and safety risks associated with LNG technology, public decision-making on LNG siting became a highly controversial political issue. After lengthy political deliberations and complex interactions among a considerable number of policy actors, the Dutch cabinet finally approved the siting of an LNG terminal at Eemshaven Harbour in August 1978 (see map; Figure 5.1). The political and social process leading up to that decision - with the policy debate on the desirability and acceptability of large-scale LNG technology at the centre - provides the empirical research focus of this thesis. As such it represents a significant case of a public policy controversy over 'technological decision-making'.

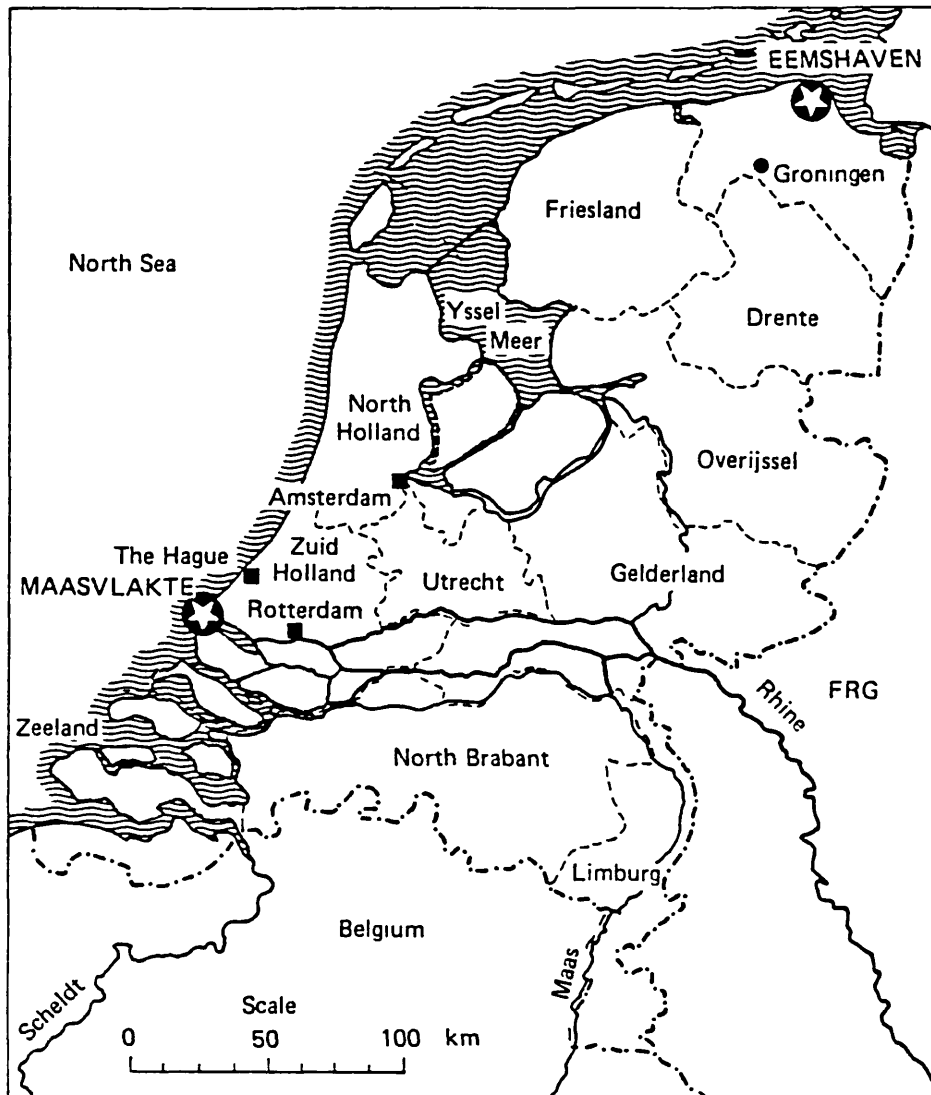


Figure 5.1:  
The Netherlands: Competing LNG import terminal locations

This chapter outlines the main sequence of events, and introduces the key policy actors involved in the political debate. It presents a detailed description of the process of decision-making, and examines the changing network of inter-institutional interactions of policy participants. The review of major policy events in the dispute over LNG technology provides the basis for subsequent analysis (Chapters 5 and 6).<sup>[1]</sup> This chapter identifies the central issues in the public decision controversy, highlighting the extent of dissensus among policy actors over the expected 'impacts' of LNG technology, especially the potential physical hazards and safety risks associated with liquefied gas.<sup>[2]</sup>

In order to facilitate analysis of the complex sequence of decision-making activities - spanning a number of years and involving a multitude of different institutional actors - the discussion on the Dutch LNG siting process is divided into three "rounds" of policy events.<sup>[3]</sup> The first of these, Round A, extending over the period between the early 1970s and around 1977, involved the industrial applicant interacting with governmental policy actors concerned with energy policy and the importation of LNG. The review of Round B, in the second half of 1977, traces the events following the signing and governmental approval a LNG import contract. It was at this stage that the potential siting decisions as regards a Dutch LNG terminal and associated technology entered the public debate and became an urgent political issue.

The policy actions in national and local government during the early periods, concentrated on debate over a proposed site at Maasvlakte, within the Rotterdam Harbour region (see Map). A final period of decision-making, Round C, was initiated in late 1977, when - following concern about a timely local approval of the Maasvlakte site - a second serious option for locating a Dutch LNG terminal entered the policy debate. The competing port of Eemshaven (see Map) - in the Northeastern province of

Groningen - was eventually selected by the Dutch Cabinet in August 1978, and was subsequently approved by the majority in Parliament. For the purpose of this case study, this approval of the Eemshaven site by Parliament (in late October 1978) marks the end of the final round of decision-making on LNG technology in the Netherlands.

As to the empirical data sources used in the case study, a complete list of published accounts and documents on the LNG decision process is presented at the end of this study (a selection of press reports on LNG is also listed). In the main text, these empirical references will be cited according to author or issuing institution and date. As far as further primary empirical data is concerned, Appendix A lists the Dutch organisations and individuals that were consulted and interviewed in the course of the empirical research (it appears on page 213, following the notes and references).

#### Introducing institutional policy actors

The multiple actors involved in the decision-making process leading to the selection and approval of a Dutch LNG import terminal ranged from national and regional governmental authorities, to environmentalist groups and special interest organizations. Before reviewing the detailed events concerning the public decision process, the key policy actors need to be introduced. They are grouped into the following categories:

- o industrial applicant;
- o national government: ministerial departments and Cabinet;
- o local government: municipal and provincial authorities;
- o parliament and the public (incl. local representative councils);
- o environmentalist groups and special interest organizations.

The major policy actors in the LNG decision controversy are summarized in Table 5.1.

<u>APPLICANT/DEVELOPER</u>	
<b>NV Nederlandse Gasunie</b>	'Gasunie': The sole national gas company set up in 1963 for the management, sale, and distribution of natural gas fields in the Netherlands. The state holds 50% of the shares, and must approve or veto many of its proposed activities.
<u>NATIONAL GOVERNMENT</u>	
<b>Cabinet</b>	Council of ministers (16), most of which are in charge of a government department, and who collectively responsible for making national policies and decisions.
<b>ICONA</b>	The inter-departmental coordinating committee on North Sea affairs (Interdepartementale Coördinatie Commissie voor Noordzeeaangelegenheden): a policy advisory group to the Cabinet comprising of representatives from all but two of the ministers that make up the Cabinet.
<u>LOCAL AUTHORITIES</u>	
<b>Groningen local authorities</b>	Include a) governors and council of the Province of Groningen, b) the municipal authorities of Uithuizermeeden, and c) the Delfzijl Harbour Authority.
<b>City of Rotterdam</b>	The municipal authority with primary responsibility for planning permission and building permits in Rotterdam; represented by mayor and aldermen; responsible for harbour activities via the Rotterdam Harbour Authority.
<b>Rijnmond Public Authority</b>	A collective of 16 municipalities in the wider Rotterdam Harbour region. including the City of Rotterdam; performs certain legislative roles regarding activities such as environmental planning, housing policy, transport, health & safety and pollution control.
<b>Zuid-Holland Province</b>	One of the 11 Dutch provinces, in the South West of the country; it encompasses the Rotterdam region and has legislative responsibility for certain environmental, planning, and housing regulations.
<u>ENVIRONMENTALIST ORGANIZATIONS</u>	
	A number of local and national environmentalist groups, operating in the context of the LNG siting debate. Among the most prominent the <b>Noordzee werkgroep</b> (North Sea working group); in the LNG decision process a collection of 13 environmentalist organizations were represented under the aegis of the Noordzee working group.
<u>OTHER POLICY ACTORS</u>	
	Dutch Shipowners Association (KNRV) Trades Union organizations (FNV; NVV) Provincial Chambers of Commerce Industrial engineering firms

Table 5.1 Key policy actors LNG decision controversy:summary [4]

The next section discusses in more detail these participants, outlining briefly their formal and informal involvement, and assessing the nature of their institutional activities in the context of the LNG decision case. In order to understand the respective roles played by various policy actors, the particular legislative and procedural context in which their involvement emerged will also be briefly discussed. The events analysed here can not be considered entirely independent from on-going and related policy developments. Hence the following discussion of institutional participants inevitably impinges on a number of policy events and (preliminary) activities, that need to be raised to facilitate a meaningful analysis of policy actors' respective positions in the course of the LNG technology dispute.

## 2. Policy actors and their contexts

### Industrial applicant: Gasunie

The specific policy issue of governmental approval for a LNG terminal was initiated by the Dutch semi-state company NV Nederlandse Gasunie (hereafter referred to as 'Gasunie'), the industrial applicant for the LNG facility. From the mid-1970s onwards, Gasunie expressed serious interest in importing large quantities of LNG via a Dutch terminal.<sup>[5]</sup> Gasunie is the single company with responsibility for the supply of natural gas in the Netherlands. The activities of the Gasunie concerning LNG importation were initially taken in the context of Dutch governmental energy policy. They eventually set into motion developments at national and local authority level leading towards cabinet decisions on the importation of LNG and the approval of a LNG terminal site.<sup>[6]</sup>

The national dimension in the LNG decision process is highlighted by the fact that the Dutch national government and



Gasunie are not independent entities. The State has a 50% stake in the national gas company, specifically for the domestic management, sale and distribution of natural gas fields in the Netherlands.<sup>[7]</sup> Significantly, in the context of the LNG case, Gasunie is responsible for all matters concerning the supply of natural gas to Dutch consumers, including the importation of foreign supplies. (Gasunie 1978a) In this context, close contacts exist between Gasunie and the Dutch government, predominantly formalized via the Ministry of Economic Affairs (Ministerie van Economische Zaken), which has overall responsibility for Dutch energy policy.

#### National government: ministerial departments

National decision-making is relatively centralized, with the national government coordinating major decisions within national policies for regional developments, energy planning, land use, etc. Planning approval and the issue of construction licenses however, is usually a matter of local authorities (Province; Municipality). Larger planning decisions therefore typically combine local and national decision procedures. The Dutch decision-making on LNG reflects this 'dual' structure of local and national authorities. The specific way LNG siting emerged as a policy issue led to a complex set of governmental policy actors involving various ministerial departments and a number of selected local authorities.

In the case of the LNG siting decisions, the involvement of the national government extended over a number of different Ministries. Table 5.2 summarizes the main ministerial departments concerned and their relevant areas of responsibility (as formulated in 1977/1978).<sup>[9]</sup>

<u>Ministry</u>	<u>Area of responsibility</u>
Economic Affairs	Energy supply and regional industrial policy *
Transport and Public Works	Waterways shipping, North Sea activities
Health & Environmental Protection	Environmental impacts; safety **
Social Affairs	Safety **
Housing and Physical Planning	Land use planning; feasibility
<p>Notes: * In 1977 the main department within the Economic Affairs Ministry involved with LNG was the energy section.</p> <p>** At the time of the LNG decision-making, there existed a potential conflict between the Ministries for Social Affairs and that of Public Health and Environmental Protections about the demarcation of responsibilities in relation to safety. They were finally resolved, largely in favour of the the latter.</p>	

Table 5.2

National government: ministerial departmental responsibilities

As a contextual factor in the Netherlands, it should be noted that as policy issues have become more complex and dependent on a number of different governmental ministries, increasing emphasis in Dutch national decision-making has been placed upon inter-departmental coordination. Where the responsibilities of different departments overlap, coordinating committees are often set up with the aim of producing agreement among senior officials from different Ministries, in order to prepare governmental (and usually Cabinet) policies (Binnenlandse Zaken 1980).

In the case of the LNG decision most of the coordination took place within the Interdepartmental Committee for North Sea Affairs, ICONA, under the responsibility of the Ministry of Transport and Public Works (ICONA 1978c). ICONA did not come into existence, however, until 1977, when a number of policy developments concerning LNG importation and site selection were already well under way. In the preceding period, Gasunie's relations with the national government was largely limited to the (formal) contacts with the Ministry of Economic Affairs.

The role the national government would eventually play in the decision process on a LNG import terminal is partly to be traced back to governmental interest relating to two developments in the 1972-1977 period. The first concerned the safety aspects of LNG (mainly involving the Ministry of Social Affairs). The second development was introduced in governmental deliberations by the Ministry of Transport and Public Works, stemming from industrial interest in a potential artificial industrial island to be constructed several miles off the Dutch coast.

In the case of the LNG siting decisions, the involvement of the national government was considerably greater than formal (minimal) procedures stipulated. Siting permission for a LNG import terminal could have been handled at the level of local authorities (provided the Economic Affairs Minister granted approval for the investment plans, in accordance with national economic policy). Formally, planning permission was the responsibility of municipal and provincial authorities in the areas concerned, via various environmental and planning legislation (eg, the pollution act, 'nuisance act', etc.). Concern at national governmental level on the safety of LNG technology, was a major factor in extending the LNG policy issue beyond the sole ministerial responsibility of the Economic Affairs Ministry, and into Cabinet circles.<sup>[10]</sup>

The involvement in the LNG siting process of the Ministry of Transport and Public Works was prompted by the setting up of a steering group (STUNET). This inter-departmental group was asked to examine the potential for a LNG terminal located on an artificial North Sea industrial island. Its activities followed Gasunie's request to the Cabinet (in 1975) to formulate a first official view on the possible governmental approval for a Dutch LNG import facility. The steering group was later made responsible to ICONA, thus creating the inter-departmental structure for policy preparation, within which the LNG siting issue was debated. Although other inter-departmental bodies also became involved in (later) governmental deliberations, ICONA remained the central policy actor at national governmental level, preparing the ground for Cabinet decisions on the matter. (For further details on these preliminary and contextual developments, and on the complex governmental structures these created, see the footnote).<sup>[11]</sup> Taking into account existing legislative procedures, local governmental policy actors were attributed a significant role in the nationally-coordinated decision process on the siting of LNG technology.

#### Local government

In the case of the LNG terminal issue, a special decision procedure was formulated by the national government to incorporate the relevant, pre-selected local authorities into the on-going process of national policy-making on LNG importation and site selection. (Except for nuclear facilities, no formal laws and regulations exist in the Netherlands to handle specific complex siting decisions, such as large scale LNG facilities, involving both national and regional authoritative procedures).<sup>[12]</sup> The special decision procedure for LNG siting brought the approval and licensing requirements at the local authority level, within the framework

of the national governmental timetable for LNG decision making.

The local authorities involved in the LNG decision process were those responsible for the two (pre-) selected potential LNG sites. Given existing regional environmental and planning legislative procedures, the local policy actors featured in this case study, reflect the two-tier structure of regional government in the Netherlands:

- Provincial authority;
- Municipal authority.

In the case of the LNG siting debate, a third inter-mediate regional 'Public Authority' was involved (Rijnmond), performing certain legislative roles for a conglomerate of municipalities around - and including - Rotterdam. At the local authority level, decision-making procedures involved municipal and provincial governors, and respective councils of representatives.

For the early rounds of the decision-making, local governmental participation in the LNG selection process was concentrated within the regional authorities concerned with the Rotterdam-Maasvlakte site, since the Rotterdam Harbour site was favoured by Gasunie as well as by national government at that stage. The other prime land-based LNG site considered by the national government, the Eemshaven harbour complex, became a serious candidate only towards the end of the governmental selection process.

In the context of my decision case study, two sets of local authorities are analysed: those concerned respectively with (i) Maasvlakte-Rotterdam, in the province of Zuid-Holland and (ii) Eemshaven, in the province of Groningen.

As far as the Maasvlakte-Rotterdam site was concerned, local

government participation in LNG decision-making involved three institutional policy actors:

- \* Zuid-Holland Province;
- \* Rijnmond Public Authority (which includes the Rotterdam area); and
- \* Rotterdam Municipality (with a.o. responsibility for Rotterdam Harbour Authority).

In respect of the Eemshaven LNG site, the following three local authority policy actors were involved:

- Groningen Province;
- the municipality of Uithuizermeeden (which includes the Eemshaven area); and
- Delfzijl Harbour (responsible for managing the Eemshaven complex).

Involvement in LNG policy deliberation by the local authorities responsible for Eemshaven, was to a high degree based on concerted actions and coordination among the various groups. Most of the political accounts that were submitted to the national government, were presented jointly, largely coordinated by the Groningen Provincial Authority. Hence, in most cases the analysis within this decision-making case study refers to 'Groningen local authorities' as a single policy actor.

#### Parliament, local councils and public representation

Public representation in national and local decisions is incorporated into the system of representatives councils, at least formally. In the Netherlands, the municipal and provincial councils as well as national Parliament are elected on the basis of proportional representation. Via political parties' representatives these councils provide important channels for public involvement in decision-making. Dutch political tradition emphasises the importance of pluralism in

political institutions; within the p.r. system considerable opportunity is provided for a wide range of political views to be expressed.

In the case of LNG decision-making local councils at municipal and provincial level were directly involved in debating the approval of a (proposed) LNG site in their respective areas. In the context of the national Parliament, the issues of importation and approval of a LNG terminal were extensively discussed by parliamentary committees. During the final stages of policy-making a special committee on LNG siting was created (14626). At various stages written questions were submitted to the Ministers with responsibility for particular aspects of the LNG issue. At the end of the governmental decision-making process, the selection and approval of Eemshaven as the Dutch LNG terminal site was discussed in a 3-day Parliamentary debate in the Lower House. (Tweede Kamer 1978a)

In local decision-making, an additional forum for public 'involvement' existed. Local government at both Maasvlakte and Eemshaven sites organized so-called "public hearings"; here concerned individuals and organizations were given the opportunity to express their views on the proposed LNG siting plans.<sup>[13]</sup> Typically, these public discussion meetings were organised in the context of the established environmental and planning legislation - locally and municipally. The outcome of these public hearings (usually limited to a few days at most) serve as non-binding advice to local governors and elected councillors involved in the formal policy deliberations.

#### Environmentalist organisations and special interest groups

In the context of the Dutch "policy style" based on negotiation,<sup>[14]</sup> environmentalist organizations and interest groups play a significant part in the formulation of public

policy. In many cases the Dutch government consults with advisory bodies which include various representative interests and associations. Over and above these 'formal' channels of involvement, special interest groups often seek to influence public decisions on specific issues by making direct approaches and appeals to political parties, ministerial departments, Cabinet ministers, and to local governors or councillors. In the case of the LNG siting dispute, environmentalist groups, trades union and business organizations addressed local and national authorities at various stages of the decision process.

No specific pro or anti-LNG were formed in the Netherlands. The Dutch environmentalist movement achieved a considerable degree of coordination in its effort to influence the outcome of the LNG siting dispute.<sup>[15]</sup> Especially in the final stages of the decision process, a group of thirteen national and local environmentalist organizations combined their 'lobbying' activities. In dealings with local authorities, Parliament, and the national government, this environmentalist collective used an existing organization, Werkgroep Noordzee (North Sea working group), to operate as a single representative voice. (Noordzee 1978a; 1978b). This collective set-up was created specifically in response to the LNG siting debate. The various constituent groups involved are listed in Table 5.3, organized according to their national versus regional concerns.



<u>National organizations</u>	<u>Local/Regional Organizations</u>
<ul style="list-style-type: none"> <li>* Werkgroep Noordzee</li> <li>* Ecologische Beweging - Anders Denken, Anders Doen</li> <li>* Landelijk Energie Komitee</li> <li>* Milieu Actiecentrum Nederland</li> <li>* Stichting Natuur &amp; Milieu</li> <li>* Vereniging tot Behoud van Natuurmonumenten in Nederland</li> <li>* Vereniging Milieudefensie</li> </ul>	<p style="text-align: center;"><u>re: Maasvlakte site</u></p> <ul style="list-style-type: none"> <li>* Rijnmond Energie Komitee</li> <li>* Stichting Centrum Milieubeheer Zuid-Holland</li> <li>* Vereniging tegen Milieubederf in en om het Nieuwe-Waterweggebied</li> </ul> <p style="text-align: center;"><u>re: Eemshaven site</u></p> <ul style="list-style-type: none"> <li>* Landelijke Vereniging tot Behoud van de Waddenzee</li> <li>* Stichting Werkgroep Eemmond</li> <li>* Milieufederatie Groningen</li> </ul>

Table 5.3:

Environmentalist organizations concerned with LNG decisions

In addition to these environmentalist organizations, the Dutch LNG decision dispute involved a number of policy actors concerned with other specific aspects or interest pertinent to the debate. These actors included trades union organizations, local chambers of commerce, industrial groups, etc. On the whole they played, however, a relatively minor role in the public decision process, especially in the context of controversy over the risk and safety issues. These participants are not, therefore, singled out for further detailed discussion. (For a list of the major relevant organizations see footnote).<sup>[16]</sup>

3. The LNG decision process: sequence of events

Having introduced the main policy actors and their background, this section examines the process of decision-making in the LNG

siting controversy. It describes the sequence of events, and the institutional interactions among policy actors, leading to the eventual policy outcome. The key policy actions are reviewed here sequentially by means of a number of crucial 'decision points' separated in time, and involving various policy actors at different stages. (As mentioned earlier, use will be made of the notion of "rounds" in decision-making to describe the LNG policy process).

Figure 5.2 presents a pictorial summary of the sequence of events in the Dutch LNG siting dispute, depicting fifteen significant policy events. These decision points have emerged from initial analysis of the complex interactions and activities of policy actors, as manifest in documentary evidence (and corroborated by interviews with representatives of the major policy actors; see Appendix A). The arrowed lines connecting the decision points indicate the flow of activities leading from one relevant policy action to another.<sup>[17]</sup> A more comprehensive chronological breakdown of events involving the key policy actors can be found in Appendix B (this Chapter p214). Figure 5.2 serves as an aid to the subsequent descriptive analysis of the decision process in the LNG siting controversy.

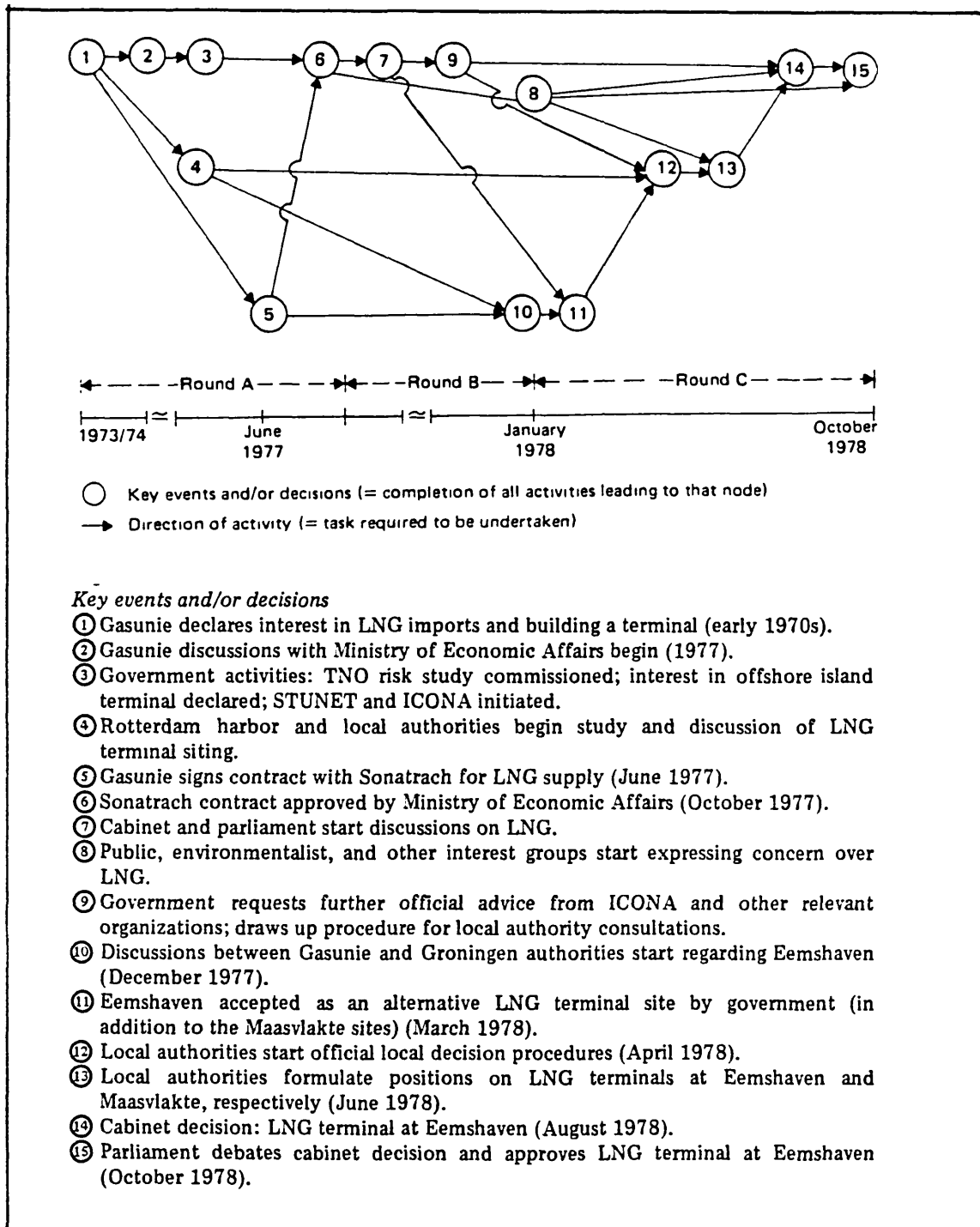


Figure 5.2:

LNG Decision-making process: flow of events

### Round A: Executing national energy policy

In the context of this case study, the public decision process on LNG siting in the Netherlands is taken to have commenced in the early 1970s, with Gasunie's declared interest in the importation of liquefied gas. (1) (The round bracketed numbers refer to the decision points in Figure 5.2). Preliminary discussions with the Algerian state company Sonatrach took place in 1973 for the supply of  $6 \times 10^9 \text{ m}^3$  of LNG per year for a period of 20 years.<sup>[18]</sup> Although a final contract was only drawn up in 1977 after a round of discussions, the early negotiations stressed Gasunie's objective of importing approximately  $10\text{-}15 \times 10^9 \text{ m}^3$  of LNG per year by the 1990s. These developments took place in the context of Dutch governmental energy policy<sup>[19]</sup> in particular the desire to import natural gas. The gas import policy had gained official approval in 1974, as part of the energy policy white paper (Energienota Tweede Kamer 1974). The involvement by national government in Gasunie's LNG plans was mainly via the Ministry of Economic Affairs(2).

Governmental concern subsequently extended to the issue of finding a suitable and safe LNG terminal site. Consequently, in March 1974, the Ministry of Social Affairs commissioned the semi-state applied research organization TNO (Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek) to carry out a study on the safety aspects of LNG importation, whilst the feasibility of potential sites was examined by the Netherlands Maritime Institute (NMI). The government became further involved in 1975, when Gasunie officially requested the government's view as to the possibility of an offshore terminal (STUNET 1977). During this time, Gasunie initiated discussions with harbour authorities (particularly at Rotterdam) within the Netherlands, as well as abroad, and approached local authorities that eventually would be responsible for granting site approval. (Rotterdam 1977a).

In response to Gasunie's request, and taking account of existing industrial interest in the possibility of an artificial island in the North Sea (notably by the North Sea Industrial Group), in 1975 the Ministry of Transport and Public Works set up the Stuurgroep Studie Noordzee-eilanden en Terminals (STUNET; North Sea Island and Terminal Steering Committee). STUNET formed a working group with the specific task to investigate the feasibility and desirability of an offshore LNG terminal as an alternative to a land-based site.(3) The technical reports of STUNET were eventually completed in 1977 and submitted to the coordinating committee for North Sea affairs (ICONA). (STUNET 1977a, 1977b) STUNET advised positively vis-a-vis the desirability of LNG imports, and judged the "pipeline option" for gas importation not advisable because of economic and practical constraints, especially given the perceived lack of "nearby" natural gas supplies (STUNET 1977a).(4)

A major impetus was introduced into the decision process in June 1977 when Gasunie signed the contract with Sonatrach for the purchase of  $4 \times 10^9 \text{ m}^3$  of LNG per year over the period 1985-2005. (5) An important deadline was hereby introduced; a side-letter to the contract stipulated (i) that approval of the contract by the Ministry of Economic Affairs was required by 31 October 1977; and (ii) that notification of the exact location of an LNG import terminal was to be given by 31 October 1978. If an LNG terminal site could not be announced by this date, the contract would become void. (Tweede Kamer 14626:5; this notation refers to Parliamentary paper 14626, document number 5 - see LNG references).

Developments concerning the establishment of a Dutch LNG terminal, however, had already been set into motion by Gasunie prior to the signing of the Algerian import contract. Early February 1977, the gas company formally requested the Rotterdam

City Authorities for permission to extend Gasunie's LNG peak shaving plant with the aim to establishing an import terminal for LNG reception by ship (Rotterdam 1978c. p 1028) Following the signing of the LNG import contract with Algeria, in mid-1977, the LNG siting issue became an urgent matter for national governmental policy-making. A first policy advice from ICONA to the Cabinet was immediately drawn up, prepared on the basis of the 'technical studies' carried out by STUNET. (STUNET 1977a; 1977b) The main policy conclusion reached by ICONA endorsed the view that LNG importation at a Dutch terminal was desirable. (ICONA 1977) Whilst identifying Maasvlakte as the preferred land-based site, the ICONA advice left open - for the time being - the question of whether Dutch LNG importation was to make use of either a land-based or an off-shore terminal. The policy advice formulated by ICONA did not carry unanimous support, however, from all ministerial departments represented in the committee. Dissent was expressed specifically on the desirability of LNG importation and the acceptability of the health and safety risks associated with LNG technology (at Maasvlakte) (Tweede Kamer 14626:3). This development was a marked indication that the decision controversy over LNG technology extended to within the national government itself.

The collective conclusion reached in ICONA's first policy report (1977) was in line with the subsequent action by the Minister of Economic Affairs, who gave official approval to the Gasunie-Sonatrach LNG import contract on 18 October 1977 (apparently without consultation with the rest of the Cabinet).(6) The issue of LNG imports and the selection of a terminal site then entered more fully the political arena - involving the Cabinet, parliament, local authorities, as well as environmentalist opposition groups. The approval of the LNG contract signalled a new round in the decision process, now focussing on whether an acceptable LNG terminal site could be found within the specified time period.

### Round B: Seeking approval for Maasvlakte site

Awareness among several government departments that the LNG siting decisions now involved a number of issues beyond energy policy alone (such as the environment, safety, land use, regional planning, etc.) drew various departments closer into the policy deliberations. It became clear that the final decision would have to be taken at Cabinet level.(7) In the latter part of 1977, ICONA, the main coordinating committee on LNG, and various other advisory bodies such as the Inter-departmentale Commissie voor Milieuhygiene (ICMH; Committee for Environmental Hygiene), and the Rijks Planologische Commissie (RPC; State Land-Use Planning Committee), were called in by the national government to provide further advice in preparation for an eventual decision on site selection (ICONA 1978a).

The responsibility for granting final siting approval and planning permission for an LNG terminal, remained with the relevant local authorities. The government therefore thought it necessary to request the relevant local authorities for "in advance" judgements as to the acceptability of an LNG terminal in their areas. A special decision procedure and a timetable were drawn up by the national government in late 1977 for consultation with the local authorities. This initiative was designed in order to avoid undesirable delays, and to ensure that a site selected at national level would not prove unacceptable at a later stage when the local authority would be asked to grant planning permission. (RPC 1977)

By 1977 Rotterdam harbour had emerged as the preferred site for the terminal, following initial screening for technical feasibility and nautical safety by the NMI and other bodies. Once it had been decided that a land-based terminal was

favoured for strategic and economic reasons, both national government (including ICONA) and Gasunie focused almost exclusively upon a Rotterdam location.(9)

The number of sites considered for the planned LNG facility was narrowed down at an early stage in the governmental decision process. Until late 1977, intragovernmental evaluation of the technical feasibility and costs/benefits of various sites had led to strong support for Maasvlakte in the Rotterdam harbour area. Technical studies (such as those by the Netherlands Maritime Institute, NMI) had concluded that alternative sites were less feasible; in particular, Eemshaven harbour was declared unsuitable on nautical and technical grounds. The emphasis upon Rotterdam was further reinforced by Gasunie, which had favoured a Maasvlakte LNG site right from the start, since it saw a number of economic and corporate-strategic advantages.<sup>[20]</sup> (Gasunie 1978b)

Despite some dissenting voices within ICONA, the majority of inter-departmental advisors also expressed the view that Maasvlakte should be selected as the site for a Dutch land-based terminal (ICONA 1978a); 1977). They concluded that the anticipated safety levels at Maasvlakte were acceptable. (ICONA 1977). Hence the approval procedures for a LNG import terminal were initially directed towards the Maasvlakte-Rotterdam area. By the second half of 1977 it was becoming increasingly apparent, however, that approval by the local authorities responsible for the Maasvlakte site would not be without considerable opposition and conditional demands.

Initial discussions (from 1977 onwards) with the local authorities in the Rotterdam region (Province of Zuid-Holland, Rijnmond Public Authority, and City of Rotterdam), indicated that they were likely to demand stringent conditions prior to any approval of an LNG terminal. In particular, Rijnmond Public Authority indicated that it would question in detail the



safety and desirability of the planned LNG technology. Public information meetings in the Rotterdam region similarly reflected public concern over the perceived local safety risks, associated with a LNG import terminal in the highly-developed industrial area.<sup>[21]</sup> Safety and other local environmental concerns thus began to endanger the tightly timed decision-making schedule foreseen by proponents of a Maasvlakte LNG terminal and by governmental planners.(8)

A serious threat of delay was presented by demands from local authorities for greater public participation and for stringent conditions, (such as the absence of a nuclear power station in the region), before approval would be granted. This opposition from local authorities, in addition to various objections being raised by environmentalist groups, triggered an important new development: in December 1977 Gasunie approached Delfzijl Harbour Authority Groningen Province to reopen discussions on the feasibility of using the newly-built Eemshaven harbour as a site for the LNG terminal.(10) This initiative introduced a major new group of policy actors into the proceedings - the local authorities in Groningen - and signalled a new round in the decision-making process. (Delfzijl 1978)

#### Round C: The Rotterdam versus Eemshaven debate

Due to the lack of consensus among the three major local authorities with jurisdiction over the Rotterdam sites, and because of the threat of delay and imposed conditions, in December 1977 Gasunie reintroduced Eemshaven as a possible site for the LNG terminal. New technical studies on the nautical conditions of Eemshaven concluded that recent shipping movements had made the approach to the harbour suitable for LNG-type tankers, and so Eemshaven was officially proposed.<sup>[32]</sup> These developments took place outside the decision procedures planned by national government.

The positive response by Groningen local authorities to Gasunie's approaches is to be seen in the context of Dutch socio-economic policies. At the time, the national government had singled out the northeastern region as a focus for development and had announced policies for attracting new industries. Dutch regional development policies specifically favor plans that provide a more equitable distribution of land use, economic activities, and employment. Consequently siting of the LNG terminal in Eemshaven could be viewed locally, as a significant way through which the government could demonstrate its commitment to promoting industrial activities in the region. (Groningen 1978c; 1978g; 1978h; 1978i). Given the perceived socioeconomic advantages, the Groningen local authorities successfully organized a large number of public and private interests to lobby in support of the facility at Eemshaven.

In March 1978 the Cabinet responded to the strong and concerted requests from the Groningen authorities for official consideration of Eemshaven. It was decided that the site was to be included in the special decision procedure, culminating in to the final selection of a Dutch LNG terminal location (Tweede Kamer 14626:6) (11) The Cabinet's interim policy position indicated preference for a Dutch land-based LNG import terminal with the Maasvlakte sites and Eemshaven harbour as the only serious contenders. From this point onwards, the national government increasingly turned the policy debate away from questions of general risk and benefits of a (Dutch) LNG import terminal, but focussed instead on comparing the respective merits and drawbacks of the two final land-based locations. Consequently, the final round of governmental decision-making increasingly became a confrontation between policy actors on whether Maasvlakte or Eemshaven should be selected.

The decision-making processes at the local authority level in

Groningen and Rotterdam formally began in April 1978. (12) The local governments were each granted a period of three months to formulate their positions vis-a-vis the "acceptability in principle" of an LNG terminal in their respective areas. The local decision procedures involved council debates at various levels, and public hearings. The official policy stances of local authorities were presented to the Cabinet in late June and early July 1978. (13)

The divergent policy positions of local authorities at Maasvlakte and Eemshaven struck at the heart of the LNG policy debate. The different arguments advanced highlighted that the real dispute in the LNG controversy centred around the issue of the expected risks and acceptable safety levels. The local authorities responsible for the Rotterdam-Maasvlakte site failed to agree on a positive verdict vis-a-vis the approval of a LNG import terminal. Rijnmond Public Authority in particular objected strongly to the LNG siting plans, citing the issues of safety and health risks to the population as the major grounds for dissent. Groningen local authorities, contrast, unanimously supported the plans for a LNG import terminal at Eemshaven, viewing the safety levels as acceptable and perceiving the local socio-economic benefits of LNG technology as considerable.

The stated policy views of the local authorities at the two contending LNG sites, constituted a significant input into the Cabinet's final deliberations in the LNG decision case. Additionally, ICONA submitted a final policy advice to the Cabinet in June 1978. The majority advice from ICONA came out clearly in favour of a Maasvlakte LNG site, rather than Eemshaven, mainly in view of the stated economic and energy policy advantages. ICONA's advice was once again accompanied by a number of dissenting positions from individual ministerial departments. The Cabinet's, policy stance fell largely in line with the majority view expressed by ICONA, when it stated (in

June 1978) that it attached "not insignificant objections" to a LNG terminal site at Eemshaven. (Tweede Kamer 14626:7)

The final siting decision by the Cabinet, however, diverged from the policy advice submitted to it by ICONA. In August 1978 the Cabinet declared its preference for Eemshaven, justified primarily in terms of the perceived socioeconomic and regional industrial advantages. (14) (Tweede Kamer 14626:11). Risk considerations assertedly did not influence the final choice between the two contending land-based sites (Tweede Kamer 1978). Confronted by the various positions on the safety of LNG technology, the Cabinet declared that both Maasvlakte and Eemshaven were acceptable in terms of risks (without specifying, however, the analytic basis for this conclusion). The fact that the government's own risk assessments showed that the Eemshaven site was in some respects safer for the local population than Maasvlakte, was not advanced as a criterion or justification by the Cabinet in its final selection of the Eemshaven site. (Tweede Kamer 1978).

The Cabinet's decision was debated at considerable length in Parliament; it was criticized and questioned by a number of political opposition parties, but was nevertheless approved by a Parliamentary majority at the end of October 1978. (15) (Tweede Kamer 1978a). In the context of this case study, the Parliamentary approval of the selection of Eemshaven as a Dutch LNG import terminal, marks the end of the decision-making process.

#### 4. The policy arenas: context of decision controversy

The description of events in the Dutch policy debate over LNG technology siting highlights that the process and outcome of decision-making disputes can not be understood simply in terms

of choices by 'authorized' decision-makers with formal responsibility for policy formulation. The public decision process needs to be analysed by reference to the dynamics and inter-institutional actions produced by a range of governmental and non-governmental participants. Hence, a proper understanding of the LNG decision controversy requires analysing the context in which respective policy actors participated in the debate, and how they related to each other. This section examines the evolution of the public policy arena: the changing network of interrelations between actors, through which the issues in the dispute were debated.

The notion of policy arenas in empirical analysis accompanies a conceptualization of public decision-making as the resultant of an interactive process among multiple policy actors. It captures the context in which different participants to the debate operated. The changing nature of the policy arena had significant implications for the involvement or exclusion of institutional actors into the decision process, at different stages of the debate. Furthermore, given my concern with competing problem definitions and policy preferences in controversies, the structure of the 'formal' policy arena is of particular importance in setting the terms of the debate. The inter-institutional network both shapes and reflects the policy agenda, in the limitations placed upon the legitimate problem frames and policy solutions that are debated in the official public policy arena (see also Chapter 4, section 5).

Analysing the decision-making process of LNG siting in the Netherlands thus depends on addressing both the contextual locations of policy actors involved, and the historical path that lead them to interact. The official institutional channels incorporated in the formal decision-making procedures will be taken as a starting point for assessing the way in which the social and political setting prejudged and constrained the process and outcome of public decision-making.

The dynamics of the policy arena can be traced through the visible interactions of policy actors participating in the formal decision procedures on LNG siting. Additionally the following section describes the extent to which 'unofficial' participants challenged existing institutional channels through which the LNG siting controversy evolved.

#### Pre-1975 period: national energy policy arena

An appropriate starting point for assessing the evolving structure of the policy arena for the LNG siting controversy is the formulation of Dutch national energy policy, as set out in the 'white paper' on energy policy of 1974. (Energienota; Tweede Kamer 1974). This policy memorandum provided the official mandate for the semi-state company Gasunie for pursuing a strategy of natural gas importation. Whilst the 1974 policy memorandum did not discuss explicitly the importation of liquefied gas, it provided the framework for an active LNG import policy on the part of Gasunie. Consequently, the initial policy arena in which the LNG issue emerged was that of national energy policy implementation.

During the first half of the 1970s, Gasunie explored different LNG import options, raising the question of a Dutch reception facility. Given the required governmental approval of eventual LNG import contracts (and for the investments for a Dutch import terminal), the initial involvement of national government in Gasunie's corporate initiatives, were institutionalized through the Ministry of Economic Affairs.

Involvement of other ministerial departments must be considered in the context of the implementation of energy policy in general, and LNG importation in particular. The Social Affairs Ministry focused on the safety aspects of LNG activities implied by the potential siting of a reception and storage

facility considered by Gasunie. Similarly, the initial involvement by the Transport and Public Works Ministry (in 1975) concerning the possible use of an off-shore terminal, essentially dealt with the need for and feasibility of a Dutch LNG terminal that would enable national gas policy and planning to be implemented.

In addition to Gasunie and national government, a third institutional participant was involved in the early period of the LNG decision process: Rotterdam Harbour Authority. In the 1972-1974 period Gasunie established contacts with the Rotterdam authorities over the potential use of the Maasvlakte site for LNG activities, and to discuss at the local level the operational issues involved (Rotterdam 1977a).<sup>[23]</sup> Consequently, the early institutional network comprising the initial policy arena for LNG siting decision-making involved three main groups of policy actors, as illustrated in Figure 5.3.

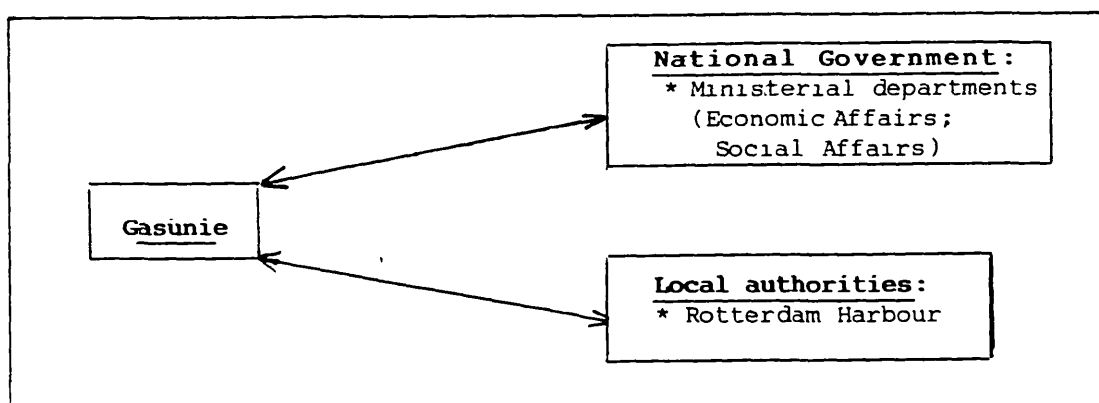


Figure 5.3:

Institutional network 1972-1975: Energy policy arena

The setting up of the STUNET study group by the Ministry of Transport and Public Works marked the beginning of the LNG siting issue as an inter-departmental policy concern,<sup>[24]</sup> but did not initially alter the contextual frame of energy policy implementation. It was not until 1977, with the creation of ICONA and the associated involvement of the Cabinet, that the public policy arena for LNG decision-making began to see significant change.

#### 1977: Broadening the policy arena

The second half of 1977 saw a considerable broadening of the policy arena, as the urgency and political significance of the LNG siting decisions became increasingly apparent. At the level of national government, the installation of ICONA (at administrative, civil servants level) and its ministerial counterpart MICONA (chaired by the Prime Minister)<sup>[25]</sup>, placed the LNG siting debate explicitly in an inter-departmental context. The central governmental role assigned to ICONA in coordinating the decision process, became more urgent and pronounced in mid-1977, following the signing of Gasunie's LNG import contract.

The contractual arrangements made by Gasunie to further involvement of local government actors in the LNG policy arena. The approval of the LNG import contract by the Economic Affairs Minister was preceded by preliminary discussions with a number of local authorities responsible for the Maasvlakte site (Tweede Kamer 14626). Following national government approval, consultation with local government actors in the Rotterdam region began in earnest. As stated earlier, at this stage both Gasunie and national government policy-makers (especially ICONA) considered the Maasvlakte site as the only viable land-based option for a Dutch LNG facility.

A number of developments in the second half of 1977 placed the LNG decision process on importation and terminal siting increasingly in a political context. Following the publication



of the STUNET LNG Terminal study (Verkeer en Waterstaat 1977) and the governmental announcement of the LNG contract approval, Parliament became directly involved in the LNG controversy (Tweede Kamer 1977, p.493). Similarly, at local government level, those concerned with approval of the Maasvlakte site increasingly became part of the political and public debate.<sup>[26]</sup> This in turn intensified interest in the issue by local and national environmentalist organizations, including environmentalist groups and political parties.

The formal involvement of local authorities into the national decision procedures initially related only those concerned with approval of the Maasvlakte site. In November 1977 national government began formulating a timetable for 'synchronizing' local and national decision and approval procedures for LNG siting (within the time period specified in the LNG contract). The procedure envisaged by the national government involved an early preliminary policy statement by the Cabinet on the Maasvlakte location, followed by local authorities' decision procedures for the approval "in principle" of a LNG terminal within their area of jurisdiction (RPC 1977). In this context a number of formal and informal discussions between national and local government policy actors concerned with Maasvlakte took place in late 1977. The official policy arena for LNG decision-making at this stage is pictured in Figure 5.4.

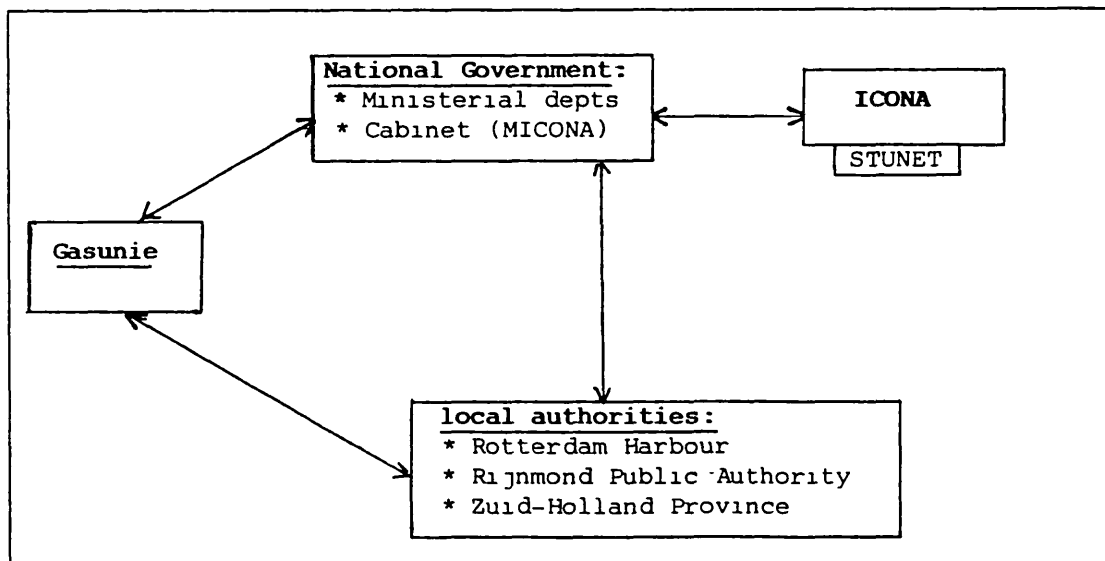


Figure 5.4

National and local government policy arena 1977

A significant shift in the structure of the policy arena, began in December 1977, when a second set of local government actors entered the debate. Following initiatives by Gasunie, local authorities in the province of Groningen were introduced into the policy arena (Delfzijl 1977). In subsequent months, in response to concerted action by the Groningen local authorities, the Cabinet decided to consider Eemshaven as a potential LNG terminal site (Tweede Kamer 14626:6). Consequently the official policy arena for LNG decision-making also saw an important transformation. The inclusion of a second land-based alternative in the selection procedures signalled a new round in the policy-making process by involving Groningen local authorities directly in the formal approval deliberations designed by national government. The broadening of the inter-organizational network made the decision process increasingly a contest between two competing land-based LNG sites. The changed institutional arena which was thus created for the final round of the decision process is presented in Figure 5.5.

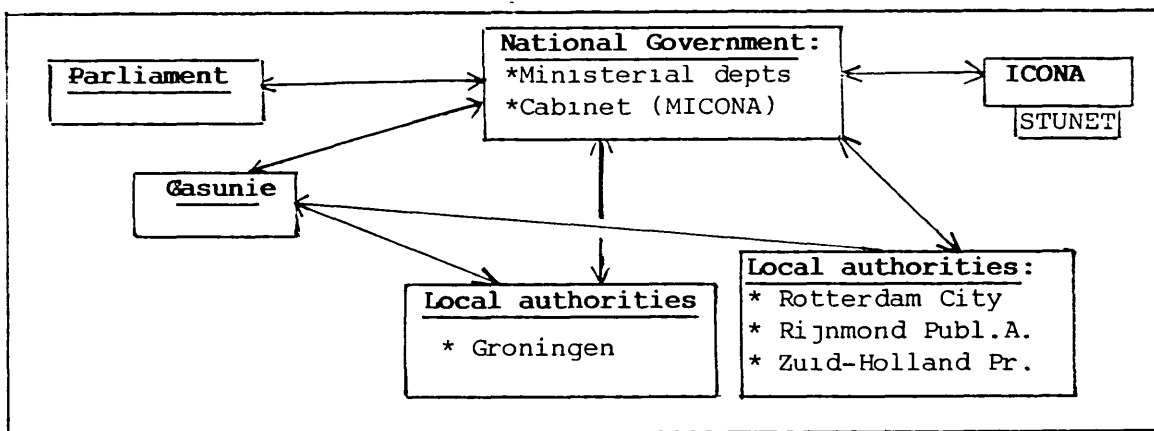


Figure 5.5  
Institutional network early 1978

In addition to the formal input by local authorities in the national governmental decision process, participation in the policy debate increasingly began to include 'unofficial' institutional actors. In particular, during the final round, the decision process saw the entry of a considerable number of non-governmental actors into the policy arena. Environmentalist groups, trades unions, local chambers of commerce and other (local) organization advanced their respective cases, addressing local and national authorities and parliamentary politicians. Additionally, 'public hearings' provided channels for these groups and members of the public to influence local decision-making on the acceptability of the siting of LNG technology at the two contending sites. The resultant policy arena, with official and 'unofficial' links among institutions participants to the LNG debate is pictured in Figure 5.6.

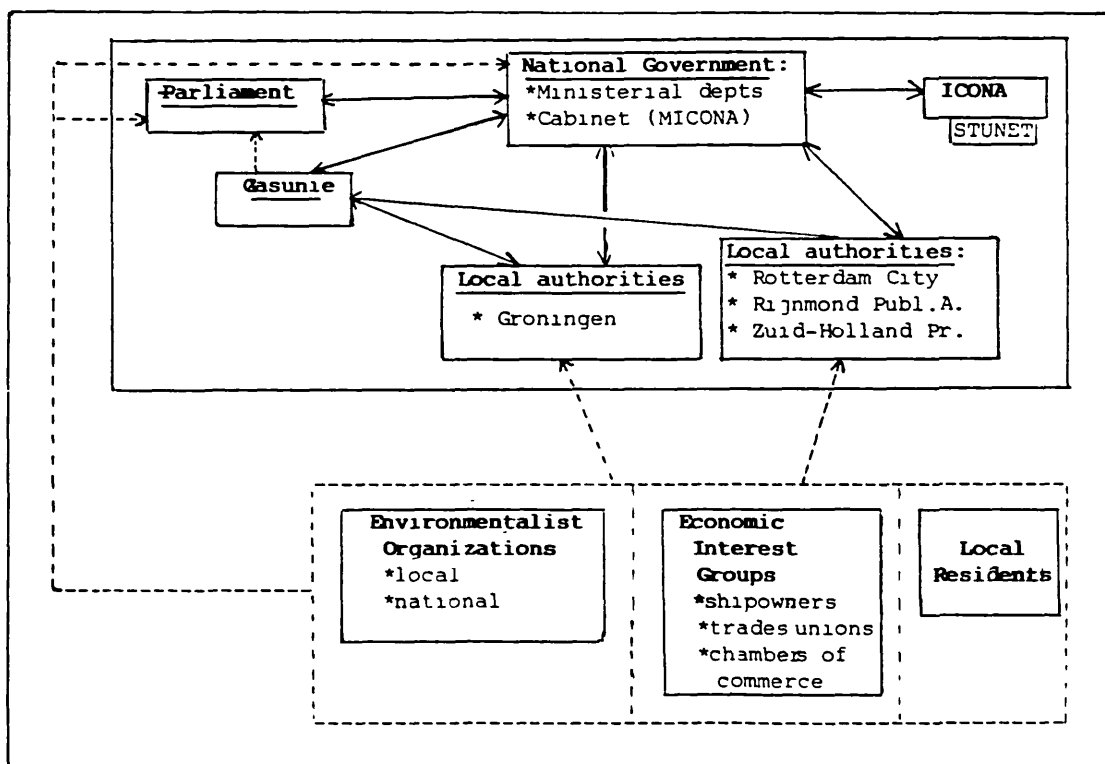
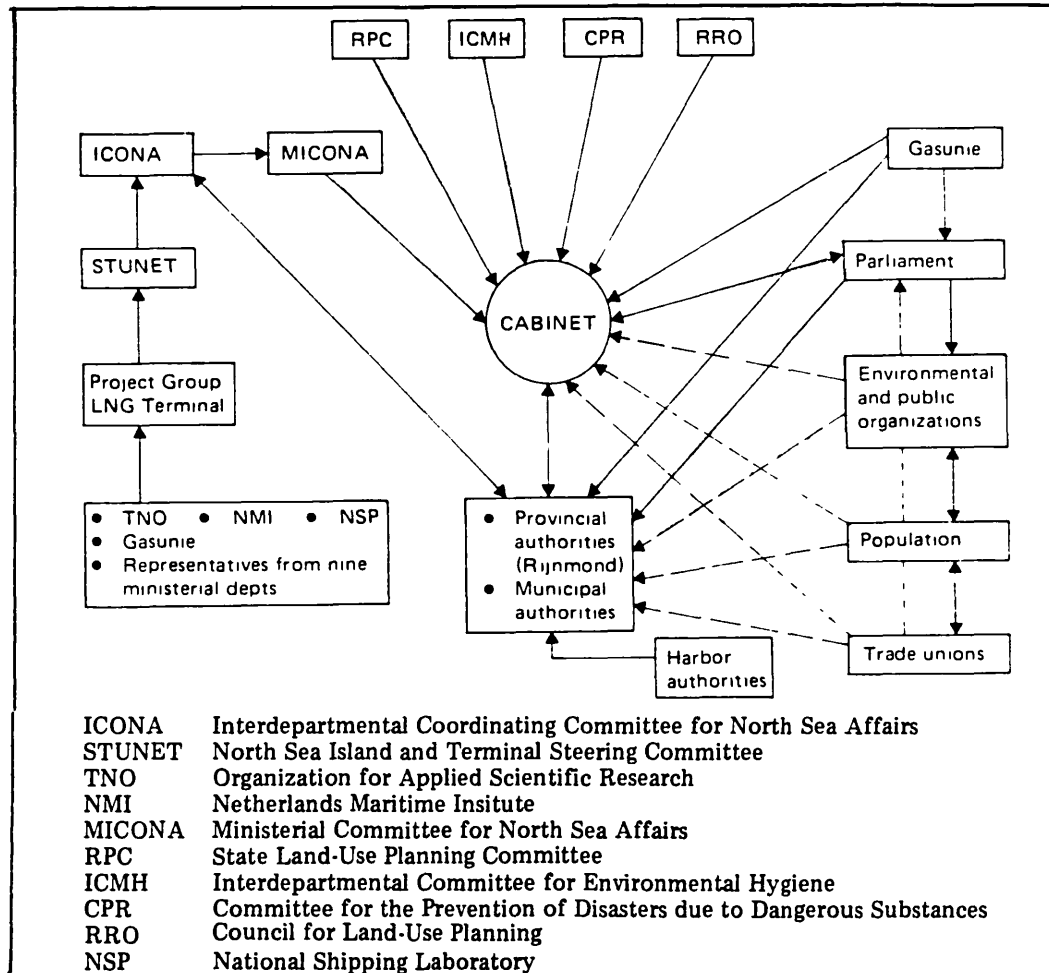


Figure 5.6:

Policy arena 1978: final LNG decision period

The official policy arena dictated the formal and informal channels through which participants attempted to influence the final outcome to the LNG controversy.<sup>[27]</sup> Whereas local authority policy actors had been made part of the decision procedures set out by national government, environmentalist organizations and other special interest groups remained largely outside the official policy arena. The main 'input channels' of these actors concerned direct contacts with members of local councils and national parliament, and direct submissions to responsible Cabinet Ministers (Noordzee 1978b; 1978c; Eemsmond 1978a; 1978b; N&M 1978a; MAN 1978 EGD 1978; Kamer 1978; NVV 1978).

In this context, the final decision by the Cabinet may be seen as the resultant or 'product' of the various institutional demands and policy positions advanced in the course of the debate. Given the central position which was thus assigned to the Cabinet, the final policy arena may be visualized as in Figure 5.7, below.<sup>[28]</sup>



Central decision network LNG: input into the Dutch Cabinet

The Cabinet decision (of August 1978) was subject to Parliamentary approval. Final deliberations in the LNG siting dispute therefore concerned the various links between Parliament, national and local authorities and non-governmental actors. A special Parliamentary committee on LNG siting (Committee 14626) held a series of meetings with representatives of leading policy actors - national ministerial departments, local authorities, Gasunie, and representatives of environmentalist organizations (Tweede Kamer 14626:12).<sup>[19]</sup> These institutional contacts did not affect the essential make up of the LNG policy arena, as discussed above. It is in this context that we need now address the main areas of dissensus that marked the public decision controversy over LNG siting.

##### 5. Outlining the LNG controversy: the essential policy conflicts

The LNG siting controversy in the Netherlands centred around two inter-related policy issues: (i) the need or desirability of liquefied gas importation, and (ii) the selection of an acceptable LNG terminal site. In examining policy actors' respective views in response to these issues, this section reviews the main areas of policy dissensus in the course the public decision controversy. By identifying the divergent policy stances at various stages of the decision process, it sets the scene for subsequent analysis (in Chapter 6) of contending interest-criteria and problem definitions that marked the dispute over LNG technology.

Taking the official governmental policy agenda as a starting point, reveals conflicting preferences among policy actors on both the issues of whether and where to import LNG into the Netherlands. Limiting the discussion initially to "issue

dissensus", [30] the question of desirability of LNG importation was addressed predominantly by national governmental actors (including ICONA) and the industrial applicant Gasunie (Round A). In large measure these participants favoured LNG importation into the Netherlands, on the grounds of energy policy considerations.

Whilst local governmental policy-making was structured around the limited issue of acceptance of a LNG terminal in respective areas of responsibility (at the request of national government), the broader question of desirability featured to some extent at Provincial and Municipal levels in the dispute. At later stages of the decision process (Rounds B and C), the need for liquefied gas imports - and hence for a LNG terminal - was questioned by a number of environmentalist groups (e.g. Noordzee 1978b) and local political parties (e.g. PPR 1978). As to national politics level, Parliamentary (opposition) parties similarly raised the issue (Round C) (Tweede Kamer 1978a). In consequence, the major contrasting policy stances by institutional actors on the need for LNG importation can be summarized as in Table 5.4. The separation of the questions of LNG desirability and the selection of a terminal site was a significant characteristic of a national governmental policy frame within which the LNG controversy was debated.

<i>Desirable/required</i>	<i>Undesirable/not required</i>
<ul style="list-style-type: none"> <li>● Gasunie</li> <li>● ICONA (majority)</li> <li>● Cabinet</li> </ul>	<ul style="list-style-type: none"> <li>● Environmentalist groups</li> <li>● Various Parliamentary parties</li> <li>● Various local and regional council political parties</li> </ul>

Table 5.4:

Policy issue: LNG importation into the Netherlands

Siting the LNG terminal: selection of an acceptable location

The search for an acceptable LNG terminal site involved the choice between a land-based or an off-shore site, as well as the exact location for a terminal. The first question was settled almost exclusively within national government. The majority governmental preference (in round A) was for a land-based terminal, (advancing the argument that an island-terminal could not be completed within the stringent timescales set by the Algerian LNG import contract) (Tweede Kamer 14626:3).

In line with the majority advice of ICONA, [31] and following other governmental advisors, national government concentrated its local approval procedures upon the Maasvlakte site. An official Cabinet statement endorsing a land-based terminal (rejecting an island terminal mainly on high cost grounds) came in early 1978 (Tweede Kamer 14626:6). By this time, however, the policy considerations on the location of a Dutch LNG terminal was limited to two alternatives: Maasvlakte and Eemshaven. The major divergent preferences among contending policy actors on the issue of the selection of a Dutch LNG terminal are summarized in Table 5.5. (It must be noted, that the negative stances on the need or desirability of LNG importation led some policy actors - such as certain environmentalist groups to reject a LNG terminal at any site; hence they are not included in this table).

<u>OFF-SHORE</u>	<u>LAND-BASED</u>	
	<u>Maasvlakte</u>	<u>Eemshaven</u>
<ul style="list-style-type: none"> <li>● Minority view ICONA (Min.Health)</li> <li>● Rijnmond P.A.. (re:reception LNG)</li> <li>● Zuid-Holland Prov. Authority (re:Voornedam)</li> </ul>	<ul style="list-style-type: none"> <li>● ICONA</li> <li>● Gasunie</li> <li>● Rijnmond P.A. (re:storage)</li> <li>● Rotterdam City</li> </ul>	<ul style="list-style-type: none"> <li>{ Groningen Province</li> <li>● ( Uithuizermeeden Mun. ( Delfzijl Harbour</li> <li>● Cabinet</li> <li>● Parliament (majority)</li> <li>● Trades unions</li> </ul>

Table 5.5

Policy issue: preferred LNG terminal site location

Underlying the dissensus among policy actors over LNG importation and siting are divergences in assessing the expected 'benefits' and 'risks' associated with the proposed developments. In order to account for the way different policy options were formulated and the various criteria by which these were evaluated, we need to examine in detail the contending policy stances which made for controversy. In particular, we need to identify for each policy actor which 'dimensions' of the policy issue were seen as salient, and how they were appraised. Understanding the underlying factors in the decision controversy over LNG technology, therefore requires policy dissensus to be analysed by reference to the various manifest interest criteria and problem definitions by which policy actors operated. The next chapter addresses this task, examining in detail the various arguments advanced by disputants in the policy process, and identifying the essential factors underpinning the divergent policy perspectives manifest in the LNG decision controversy. [32]



## Chapter 5

NOTES AND REFERENCES

- [1] In addition to primary empirical data and interview material, this chapter draws on my assessment of the LNG decision-making case in the Netherlands in the context of the IIASA project. See Michiel Schwarz, "The Netherlands: The Rotterdam-Eemshaven Debate", in H. Kunreuther, J. Linnerooth, et al., Risk Analysis and Decision Processes - The Siting of Liquefied Energy Gas Facilities in Four Countries (Berlin/Heidelberg/New York: Springer-Verlag, 1983), pp.64-97.
- [2] Liquefaction of natural gas has potential transportation advantages. It entails cooling the gas to a temperature of 162° Centigrade below zero, thereby reducing it to 1/6 th of its volume. If LNG escapes from its container, it vaporizes and becomes highly flammable and explosive. A major LNG spill in a densely populated area - whether by accident or sabotage - could have catastrophic consequences. Cf. Office of Technology Assessment (OTA), Transportation of Liquefied natural Gas (Washington, D.C.: OTA, 1977); Lee N. Davis, Frozen Fire (San Francisco: Friends of the Earth, 1979).
- [3] See H. Kunreuther, J. Lathrop and J. Linnerooth, "A descriptive model of choice for siting facilities", Behavioural Science 27, (1982), 281-297. Cf. D. Braybrooke, Traffic congestion goes through the issue-machine (London: Routledge & Kegan Paul, 1974.)
- [4] This table is based on that presented in Schwarz 1983, op.cit. (note 1).
- [5] Discussions on LNG imports from Algeria started in 1973.
- [6] The first contact between Gasunie and Rotterdam Harbour Authority took place in 1972. (Interview with Ph.Bijl, Gasunie).
- [7] The shares of Gasunie are divided as follows: The State of the Netherlands-10%, DSM Aardgas B.V.-40% (DSM = Dutch State Mines) Shell Nederland BV-25%, and Esso Holding Company Holland-25% (Gasunie 1978a).
- [8] Governmental State involvement in the governing body of Gasunie takes place representatives of the Ministry of Economic Affairs (one of 16 Cabinet ministers). The Minister also has to approve Gasunie decisions concerning the annual sales plan, gas prices, and the construction of facilities and equipment for the transport and storage of gas (Tweede Kamer 1974). Cf. Stand van Zaken - Staatsbestel in feiten en cijfers, Ministerie van

Binnenlandse Zaken ('s-Gravenhage: Staatsuitgeverij, 1981), p.72.

- [9] Personal communication, Ministry of Economic Affairs, The Hague.
- [10] The issue of siting a large-scale LNG import terminal had to some extent a precedent. In the first half of 1972 Gasunie had sought approval for a peak-shaving plant for LNG at Maasvlakte. (This was a facility for storing natural gas in low-demand periods and does not involve the transport and handling of LNG as required for an import terminal.) Discussions between Gasunie and the national government on the safety aspects of such a LNG facility led in 1972 to the direct involvement of the Ministry of Social Affairs (with formal responsibility for occupational hazards). One consequence of this development was the setting up by national government of a special advisory committee (Commission Buschmann) to evaluate the safety aspects of a LNG peak shaving plant, proposed for the Rotterdam-Maasvlakte site. Maasvlakte was selected by Gasunie for its peak shaving plant on economic grounds and because of the proximity of major gas users. Potential expansion of the site for an LNG terminal at a later date was considered. In the early 1970s, the gas company was already involved in discussions with Algeria regarding imports of LNG, for which a terminal would eventually have to be built. The peak shaving plant was approved in the mid-1970s by the local authorities at Rotterdam (after considerable discussion on issues of safety) and became operational in May 1977. The initial brief of the Buschmann Committee on a LNG peak shaving plant was later extended to cover the safety aspects of a LNG import terminal (at Maasvlakte). Partly as a result of this governmental concern with LNG safety, the Social Affairs Ministry commissioned a comprehensive safety study and risk analysis on LNG importation (in 1974) from the Dutch organization for applied scientific research TNO (Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek). For a brief review of the general use of risk analyses in the Netherlands to date, see E.F. Blokker, "The use of risk analysis in the Netherlands" Angewandte Systemanalyse, 2 (4), 1981, p.1968-71. TNO is a government-supported institute for applied scientific research. The TNO risk analysis Evaluatie van de gevaren verbonden aan aanvoer, overslag en opslag van vloeibaar aardgas (TNO Bureau Explosieveilgheid) was published in 1976.
- [11] In 1975 Gasunie requested a first official view from the Cabinet concerning the possibility for a LNG import terminal in the Netherlands - thereby intensifying governmental interest on the issue of LNG imports and

reception/storage facilities. (STUNET 1979,p1). This formal request was a major decision point, in that it gave rise to (further) national government involvement in the LNG siting issue. A first development emerged when the official Gasunie request was linked in governmental circles to existing interest (by industrial engineering organizations and the Ministry of Transport and Public Works) in an artificial island for industrial activities in the North Sea off the Dutch coast. The immediate result was the creation of the so-called STUNET "steering group for the study of North Sea islands and terminals". Its first major task: to study and to advise the Cabinet on the desirability and modalities of a Dutch LNG terminal to be located off-shore on an artificial North Sea island. A comparison with a land-based location was also to be made (ICONA 1978c). To carry out this task the "STUNET LNG Project Group" was set up. The group included representatives of four ministerial departments; one of its sub-groups, concerned with environmental and safety aspects incorporated the on-going activities of the Buschmann committee (see note 10). Gasunie had observer status in STUNET's LNG Terminal project group. Research by the group involved five sub-groups, concerned with legal, administrative, economic, design and environmental/safety aspects of LNG terminal locations (STUNET 1977a). These sub-groups included representatives (at civil servant level) of other ministerial department: Internal Affairs, Defence, Foreign Affairs and Finance (STUNET 1979b).

STUNET-which completed its report in 1977 - was made responsible to a governmental advisory committee, ICONA (for Interdepartmental Coordinating Committee for North Sea Affairs), which was to become a major policy actor at the national level concerned with LNG decision-making. ICONA was established by the Cabinet (in 1977) with the task of coordinating policy formulation among different Ministries on affairs concerning the North Sea - including LNG transport and importation. (ICONA 1978c) ICONA's activities were carried out under the auspices of the Ministry of Transport and Public Works. The relationship between STUNET and ICONA is an intricate one, with five of ICONA's 17 committee members also belonging to STUNET (including the Chairman). At ICONA's installation, by the Minister for Transport and Public Works (in June 1977), STUNET was officially described as the "executive committee" of ICONA (ICONA 1978c, 42). The inter-departmental structure of ICONA was seen to be required in order to prepare Cabinet decisions concerning LNG. ICONA (Interdepartementale Coordinatie Commissie voor Noordzee-aangelegenheden) included representatives of government Ministries, and was designed to give policy advice on North Sea affairs, directly to the Cabinet. Officially, ICONA advised MICONA, a Cabinet sub-committee consisting of Ministers of many of the departments

represented in ICONA (at senior civil servant level). Because of the way the LNG siting issue had entered at the level of national government, became the central forum for interdepartmental discussion on siting policy (see ICONA 1978c). In this manner, the national government acknowledged that whilst the interest in LNG importation stemmed from national energy planning considerations (which in 1974 had become official policy) the LNG siting issue went beyond the singular concern of energy policy. ICONA thus institutionalized the selection of a LNG terminal site as including aspects of regional and industrial planning, health and safety, and international relations. Involvement by different parts of the national government was further enhanced by the introduction of additional governmental 'advisory bodies' into the decision-making process, e.g. the Interdepartmental Committee for Environmental Hygiene (ICMH), and the National Physical Planning Commission (RPC). ICONA remained, however the central coordinating policy actor at national government level, preparing Cabinet decisions concerning LNG siting.

- [12] Personal communication with Ministry of Social Affairs.
- [13] See the following references: Groningen 1978k, Zuid-Holland 1978b, and Rotterdam 1978 for reports of local public hearings on LNG siting.
- [14] J. van Putten, "Policy styles in the Netherlands: negotiation and conflict", in J.J. Richardson, G. Gustaffson and G. Jordan (eds) Policy Styles in Western Europe (London: Allen & Unwin, 1982), pp.168-196.
- [15] For a brief review of the Dutch environmentalist groups see E. Tellegen, "The environmental movement in the Netherlands" in T. O'Riordan and R. Kerry Turner (eds), Progress in Resource Management and Environmental Planning, vol. 3 (Chichester: John Wiley & Sons, 1981), p.1-32; also E. Tellegen Milieubeweging (Utrecht/Antwerpen: Het Spectrum, 1983)
- [16] The major additional 'special interest' groups involved in the LNG siting debate were the following:
- FNV Federatie Nederlandse Vakvereniging - the largest and main employees' organization in the Netherlands, the Dutch federation of trades unions
  - Kamer van Koophandel en Fabrieken voor de Veenkolonien in Oostelijk Groningen - Chamber of Commerce for Eastern Groningen
  - Electriciteitsbedrijf voor Groningen en Drenthe - Electricity Corporation for the Groningen and Drenthe Provinces
  - Koninklijke Nederlandse Redersvereniging KNRV - Royal Dutch Shipowners Association

- North Sea Industrial Group - group of Dutch construction firms interested in North Sea off-shore artificial island.

At empirical level these policy actors were manifest in the policy statements they made on in the course of the LNG decision dispute. See FNV 1978; Kamer 1978; EGD 1978; and KNRV 1978.

- [17] This tracer approach is originally derived from research designed to evaluate the progress of the US Navy's Polaris missile programme; See C. Emory and P. Niland, Making Management Decisions (Boston: Houghton Mifflin, 1968). It was subsequently adopted for describing LNG decision-making in the context of the IIASA research reported in H. Kunreuther, J. Linnerooth, et al (1983) op.cit. (note 1).
- [18] Personal communications with Gasunie. The various discussions with Sonatrach took place within a consortium involving the West German firms Ruhrgas AG and Salzgitter Ferngas GmbH.
- [19] The annual gas consumption on the Netherlands is about  $44 \times 10^9 \text{ m}^3$ , less than half of the domestic gas production (CBS 1979). The other half is exported, mainly to Italy and France, under long-term contracts made in the mid-late 1960s for 20-25 year periods. The energy situation in the late 1970 was seen in a different light, however. Since a large part of the energy infrastructure was designed to use natural gas, Dutch gas fields were being conserved, and the government and Gasunie had agreed to embark on a policy of importing LNG to offset the exports.
- [20] In addition to the land-based sites at Rotterdam and (later) Eemshaven, several other alternatives were also considered. These included an artificial island 27km offshore, connected by pipeline to Maasvlakte or other parts of the mainland, and an offshore tunnel terminal system (OTTS) comprising a receiving platform 4 km offshore (11 km to the nearest town of Hoek van Holland), connected by an underwater pipeline to a storage site at Maasvlakte. Another "intermediate" solution was also rejected - the Voornedam breakwater, a 7-10 km long dam extending from the southwestern point of Maasvlakte. These three alternative solutions had the advantage that the shipping routes to the unloading terminals would not interfere with other Rotterdam harbour traffic, but they were rejected by the government (mainly because of the high cost). A summary of the main proposed LNG terminal sites featured in the Dutch policy debate is presented in the Table below (based on Schwarz 1983, op.cit.).
- [21] For example, a public information day was organized by Rijnmond Public Authority on the LNG siting issue - 1 November 1977. Reference: press notice Voorlichting Rijnmond. "Informatiedag over LNG", (24 Oktober 1977).

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 Details of the alternative LNG terminal sites in the Netherlands.
 

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Maasvlakte (site A)	In southwestern corner of Maasvlakte, adjacent to existing Gasunie Peakshaving plant. Relatively small site; distance to nearest towns Hoek van Holland (5 km); Oostvoorne (4 km).
Maasvlakte (site B)	In northwestern corner of Maasvlakte, larger than site A; distance to nearest towns Hoek van Holland (6 km); Oostvoorne (8 km). Shipping route to sites A and B 2 km from the center of Hoek van Holland.
Maasvlakte (site C)	Extension west of existing Maasvlakte area to be constructed. Size of area can be designed as required. Distance to nearest towns Oostvoorne (7 km); Hoek van Holland (9 km).
Voornedam Breakwater (short or long)	Extended dam to be constructed 7 or 10 km long from southwestern point of Maasvlakte. Shipping route does not interfere with other Rotterdam harbor traffic. Distance to nearest town Oostvoorne (10–13 km) (short or long dam).
North Sea island location	Artificial island to be built 20–50 km off the Dutch coast, connected by pipeline to Maasvlakte or elsewhere.
Offshore tunnel terminal system (OTTS)	Platform 4 km offshore from Maasvlakte for reception of LNG, with underwater pipeline for transport of gas to storage site at Maasvlakte. Distance to nearest town Hoek van Holland (11 km).
Eemshaven	New harbor complex at the northernmost tip of the province of Groningen. Situated in open agricultural land, with very low population density (140 people per km <sup>2</sup> ). Distance to nearest towns Oudeschip (3 km); Uithuizermeeden (6 km). Eemshaven complex is managed by the Delfzijl Harbor Authority.

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- [22] New nautical studies concluded that since 1976, when the NMI had first investigated the possibility of an LNG terminal at Eemshaven, changes had occurred in the approach to the port, making it (under certain conditions) feasible as an LNG harbour. TNO was therefore commissioned to carry out a risk analysis of the site (Gronigen 1978g). For this and other risk studies on Eemshaven see TNO 1978 and Groningen 1978a.
- [23] At this stage, discussions were mainly of a "technical" nature, involving in particular the Rotterdam Harbour Authority; no political debate took place at this stage within municipal or regional authorities as regards the approval of a potential LNG site in the Rotterdam area.
- [24] STUNET was set up to carry out studies concerning the desirability and feasibility of an artificial island in the North Sea for industrial uses. STUNET's first task was to examine the desirability and modalities for a LNG terminal either in the North Sea or on-shore. For this task the STUNET LNG Terminal Project Group was set up. This LNG project group included representatives of four Ministerial departments: Economic Affairs (which housed the Secretariat of the group), Transport and Public Works, Social Affairs and Health & Environmental Protection.
- [25] ICONA members included representatives (at civil servant level) of all but two of the sixteen ministers of state which make up the Cabinet (ICONA 1977a, p. 35): Prime Minister; Foreign Affairs, Justice, Interior, Education and Sciences, Science Policy, Finance, Defence, Housing & Physical Planning, Transport and Public Works, Economic Affairs, Agriculture & Fisheries, Health and Environmental Protection. ICONA was to report to MICONA, the Ministerial Committee for North Sea Affairs. MICONA, chaired by the Prime Minister, included membership by the Ministers for Transport & Public Works, Economic Affairs, Finance, Housing & Physical Planning, and Health & Environmental Protection. ICONA was entrusted to prepare policy advice for MICONA and the Cabinet, utilizing STUNET's "technical studies."
- [26] In particular, Rijnmond Public Authority became increasingly more concerned with the LNG siting issue. Rijnmond Council members tabled questions addressed at the Rijnmond Governors, (Rijnmond 1977d) and the Authority became increasingly active in organizing local discussion and disseminating information on the issue. (Rijnmond 1977c).
- [27] The personal contacts between the Provincial Governor of Groningen (Commissaris van de Koningin) and some key Cabinet ministers provided a significant illustrative example of the informal contacts which were exploited by

various policy actors within the official network of decision-making.

- [28] This figure is taken from Schwarz 1983, op.cit (note 1).
- [29] Submissions made by various policy actors to the Parliamentary committee on LNG siting included the following: Eemsmond 1978b; Gasunie 1978c; Groningen 1978j; Zuid-Holland 1978d; Rijnmond 1978e.
- [30] Cf. Jonathan I. Gershuny, "What should forecasters do? - A pessimistic View", in P.R. Baehr and B. Wittrock (eds), Policy analysis and Policy Innovation - Patterns, Problems, and Potentials (London: Sage, 1981), p. 193-207.
- [31] A minority view was expressed by the ICONA member representing the Science Policy Minister, questioning the way and structure by which ICONA had reached its policy conclusion, in favour of the Maasvlakte land-based site. (Tweede Kamer 14626:3)
- [32] This table corresponds to the one presented in Schwarz 1983, op.cit. (note 1).



Appendix A: INTERVIEWS WITH INSTITUTIONAL REPRESENTATIVES

In the course of the empirical research on LNG decision-making twenty-two detailed, semi-structured interviews were conducted (typically lasting 1-1½ hours each). The following organizations and individuals were consulted by the author in carrying out the study (where more than one senior official was involved, the total number of interviewees is indicated in brackets):

Delfzijl Harbour Authority  
 Groningen Provincial Authority  
 dr.ir. J.L.A. Jansen (PPR; Member of Parliament at the time of LNG decision-making)  
 Ministry of Economic Affairs (2)  
 Ministry of Education and Sciences (Science Policy)  
 Ministry of Public Health and Environmental Protection (2)  
 Ministry of Home Affairs  
 Ministry of Housing and Physical Planning  
 Ministry of Social Affairs  
 Ministry of Transport and Public Works (ICONA) (2)  
 Natuur en Milieu Foundation (national environmentalist organization)  
 N.V. Nederlandse Gasunie (2)  
 Noordzee Working Group (environmentalist organization)  
 drs.A.P.J. Planken (Parliamentary journalist;  
 Erasmus University Rotterdam)  
 mr. A.A. T. van Rhijn (formerly senior official at Energy Dept. Ministry of Economic Affairs)  
 Rijnmond Public Authority (3)  
 Rotterdam Harbour Authority  
 Rotterdam Municipal Authority  
 TNO Netherlands Organization for Applied Scientific Research(2)  
 Vereniging tegen Milieubederf in en om het Nieuwe-Waterweg gebied (Zuid-Holland environmentalist organization)  
 Zuid-Holland Provincial Authority

Appendix B: Chronology: LNG DECISION PROCESS THE NETHERLANDS1974 - 1978

1974-1976

<u>DATE</u>	<u>EVENTS</u>
1 May 1974	TNO: Start LNG safety study/risk analysis; commissioned by Ministry of Social Affairs
Sep 1974	National government: Energy policy memorandum published ( <u>Energienota</u> ); includes commitment to natural gas imports
22 Oct 1974	Gasunie: application for license for LNG peak-shaving facility at Maasvlakte
Early 1975	Gasunie: requests official view from national government on possible off-shore LNG terminal
Apr 1975	Cabinet sets up STUNET committee; first task to assess LNG terminal at off-shore artificial industrial island
Jan 1976	Eemshaven: Nautical report (by NMI) on Eemshaven completed; LNG importation not considered favourably
10 June 1976	National government: Ministry of Economic Affairs advises Delfzijl Harbour Authority (on latter request) that it sees nautical and environmental objections to the possible use of Eemshaven as LNG import terminal
Dec 1976	TNO: LNG risk analysis (Maasvlakte) completed

## 1977

- 8 Feb 1977 Gasunie: requests official permission from Rotterdam City Governors for extending peak shaving plant at Maasvlakte for LNG importation by tanker
- March 1977 STUNET: Completion of "LNG Terminal" study
- 17 June 1977 ICONA: First official meeting of advisory committee
- 30 June 1977 Gasunie: signs LNG import contract<sub>3</sub> with Algerian state-company Sonatrach -  $4 \times 10^9$  m<sup>3</sup> LNG/year for 1985-2005 period
- 11 July 1977 Rijnmond Governors: receive questions on LNG from council members
- 12 July 1977 Parliament: MPs question government on LNG importation policy
- 15 July 1977 National government: STUNET study "LNG Terminal" published
- 27 Sep 1977 Parliament: further questions on LNG policy from MPs
- 12 Oct 1977 ICONA: Policy advice concerning STUNET study for Cabinet submitted to the national government
- 18 Oct 1977 Minister of Economic Affairs (EZ): approves LNG import contract with Sonatrach; conditions stipulate import terminal location should be announced by 31 Oct 1978
- 21 Oct 1977 Cabinet: Ministerial sub-committee MICONA discusses LNG policy at its first meeting.
- Oct 1977 Rijnmond Public Authority (Governors): publishes information brochure on LNG.
- Oct 1977 Rotterdam Harbour Authority: publishes evaluation report on LNG siting at Rotterdam; favours Maasvlakte site.
- 28 Oct 1977 Rijnmond Public Authority: requested by Min. Economic Affairs to start preparing local decision process for LNG terminal approval/licensing

- 1 Nov 1977 Rijnmond Public Authority: organizes public information day on LNG terminal
- 1 Dec 1977 Gasunie: holds meeting with Delfzijl Harbour on possible siting of LNG terminal at Eemshaven
- 4 Nov 1977 Cabinet: commissions further advice from ICONA and plan for decision from RPC (State Planning Commission)
- Dec 1977 Delfzijl Harbour/Groningen provincial authorities: nautical and safety studies commissioned on Eemshaven as LNG terminal site

## 1978

- Feb 1978 TNO: completes risk analysis for LNG at Eemshaven
- 13 Feb 1978 Groningen/Delfzijl Province Harbour: official request to Cabinet to include Eemshaven as potential LNG terminal site in governmental decision process
- 17 Feb 1978 National government: notifies local authorities concerned with LNG siting on special decision procedures planned
- 23 Feb 1978 ICONA: Second policy report submitted to Cabinet
- 3 Mar 1978 Cabinet: Ministerial Sub-Committees MICONA and RROM (land use planning/environment council) discuss ICONA advice
- 6 Mar 1978 Groningen local authorities: meet with national government; reiterate request for Eemshaven consideration.
- 9 Mar 1978 Uithuizermeeden Municipality: council debates LNG favourable position as regards LNG terminal at Eemshaven
- 10 Mar 1978 Cabinet: discusses LNG siting policy

- 13 Mar 1978 Cabinet: preliminary policy view announced - Maasvlakte sites are under consideration, Eemshaven not excluded at this stage
- 21 Mar 1978 Local authorities Eemshaven and Maasvlakte sites: receive official national governmental request to start local decision procedures; notification of policy views on LNG expected by July 1978
- 24 Apr 1978 Groningen Province: public hearing on LNG siting at Eemshaven
- 26 Apr 1978 Rotterdam City Governors: publish policy memo on LNG for discussion in Council
- 2/3 May 1978 Rotterdam City Governors: public information meetings organized in municipalities close to proposed Maasvlakte LNG sites (Hoek van Holland; Oostvoorne)
- 8 May 1978 Groningen Provincial Governors: submit LNG policy memo to Provincial Council committees
- 9 May 1978 Zuid-Holland Provincial Authority: organizes public information meeting on LNG siting
- 16 May 1978 Groningen Provincial Governors: further policy memo on LNG submitted to Provincial Council committees
- 23 May 1978 Municipality of Hoek van Holland: debates LNG siting in Council - endorses Maasvlakte LNG terminal
- 25 May 1978 Groningen Provincial Council: debate on LNG siting - Eemshaven LNG terminal endorsed
- 30 May 1978 Zuid-Holland Provincial Governors: policy memo on LNG submitted to Provincial Council
- 1 June 1978 ICONA: further (3rd) policy advice on LNG terminal siting submitted to Cabinet
- 5 June 1978 Groningen Provincial Governors: publishes policy statement for meeting with national governments
- 6 June 1978 National Government: holds discussions with Groningen provincial authority delegation
- 7 June 1978 Rijnmond Public Authority Governors: publish policy memo on LNG for Council meeting
- 9 June 1978 Cabinet: discusses LNG siting policy

- 13 June 1978 Cabinet: announces further policy position - Eemshaven site is possible, as additional option to Maasvlakte, but is not unproblematic
- 15 June 1978 Zuid-Holland Provincial Council: debates on LNG siting
- 16 June 1978 Rotterdam City Governors: publish policy memo for discussion in City Council
- 23 June 1978 Parliament: MPs address written questions to Cabinet ministers on LNG siting policy
- 26 June 1978 Rijnmond Council: debates LNG siting
- 27 June 1978 Groningen Provincial Governors: publish policy statement addressed to Cabinet
- 29 June 1978 Parliament: Lower House Committees discuss LNG with Cabinet Ministers
- 29 June 1978 Rotterdam City Council: debates LNG siting; notifies Cabinet on policy position
- 6 July 1978 Rijnmond Council: further debates LNG siting and voting on policy position
- 17 July 1978 Rijnmond Public Authority officially notifies Cabinet on policy position
- 20 July 1978 Cabinet: Ministerial subcommittees MICONA and RROM meet on LNG
- 25 July 1978 Zuid-Holland Provincial Governors: notify Cabinet on outcome of Provincial council debate and official position
- 1 Aug 1978 Rotterdam City Governors: publish pro-Maasvlakte document on LNG, addressed to national government and Parliament
- 3 Aug 1978 Groningen Province/local authorities delegation: meets with national government ministers
- 17 Aug 1978 Groningen Provincial Governors: further statement on policy views published and submitted to Cabinet and Parliament
- 25 Aug 1978 Rotterdam City Governors: meet with government Ministers
- 25 Aug 1978 Cabinet: discusses LNG policy leading to final siting decision - Eemshaven favoured

- 15 Sep 1978 National government: announces final policy decision by Cabinet on LNG terminal site selection - Eemshaven
- 9 Oct 1978 Parliament: special Parliamentary committee (14626) on LNG holds discussions with representatives of local authorities responsible for Eemshaven and Maasvlakte site approval (respectively) and Gasunie officials
- 18 Oct 1978 Parliament: written questions on LNG policy to Cabinet Ministers
- 20 Oct 1978 National government: Cabinet Ministers answer Parliamentary questions on LNG policy
- 26-27 Oct & 31 Oct 1978 Parliament: Lower House debates LNG siting policy of the government - majority approves Cabinet decision in favour of Eemshaven.

## CHAPTER 6

LNG DECISION DISPUTE: POLICY STANCES AND CONTENDING PROBLEM DEFINITIONS1. Introduction

For an adequate understanding of the underlying policy conflicts in the LNG decision controversy, we will have to inquire into the strategies and motivations of contending policy actors. In examining what lies behind the conflicting preferences in the siting dispute, this chapter assesses the arguments and selection criteria of the various participants to the debate.

This chapter is concerned with two analytic tasks. First, it examines in detail the various policy statements and accounts by participants to the LNG controversy, and assesses for each policy actor the options under consideration and the evaluative criteria governing choice. Secondly, by reviewing the way different policy actors framed the 'givens' of the policy situation, it examines the presence of competing problem definitions as a significant feature of the dispute.

The policy conflicts over the desirability and acceptability of a Dutch LNG terminal (as discussed in the previous chapter),



were underpinned by significant disagreements among policy actors in respect of the options and consequences that were taken into account, as well as over the relevant criteria for assessment and choice. This chapter analyses in detail the policy perspectives of participants to the LNG dispute, examining the dominant dimensional criteria manifest in their political accounts, and identifying the (contending) reference frames through which they compared and ranked the (perceived) policy options.

The empirical analysis of the LNG siting controversy assesses policy dissensus in terms of three actor-specific variables (see Chapter 4): policy options under considerations; dimensional impact formulations; ranking of evaluative criteria. By identifying the contending policy perspectives among actors, this chapter thus maps the essential empirical features which made for controversy in the LNG siting case. It analyses the policy dispute in terms of conflicting interest-criteria and competing problem definitions, which will be subject to further analysis in Chapter 7.

#### Impact dimensions: substantive themes in the LNG siting dispute

Policy actors involved in decision-making can be distinguished according to their respective evaluations of anticipated consequences associated with different policy options.<sup>[1]</sup> Characterizing a policy issue in terms of 'impact dimensions' enables identification of substantive themes through which questions of assessment and choice are debated. In the context of technological decision controversies the formulation and evaluation of impacts provide an appropriate focal point for the analysis of policy disputes (see Chapter 1).

In the empirical analysis of the manifest policy perspectives in the LNG siting controversy, the following set of impact dimensions is employed:

- \* energy policy
- \* economics/cost
- \* health/safety (risks)
- \* socioeconomics/employment generation
- \* environmental impact.

By examining how the various policy actors interpreted and appraised these impact dimensions, enables the different policy perspectives that featured in the LNG decision controversy to be disaggregated. Whilst the formulation of these various dimensions may be a matter of some contention, it is feasible to identify broad substantive impact areas against which the choice criteria and problem frames of policy actors can be described and compared. The broad impact dimensions used in the description and analysis of policy perspectives in the Dutch LNG siting controversy are introduced below.<sup>[2]</sup>

The energy policy dimension refers to aspects concerned with national energy planning and supply policies, both generally, and in respect of the specific case of natural gas. In this context a significant 'background' factor is the fact that the national energy mix in the Netherlands which is dependent for more than 50% upon natural gas (mid-1970s; CBS 1978). Despite the fact that the Netherlands is (and will remain) a net exporter of natural gas, the Dutch government in the 1970s embarked upon a policy of selective gas imports, in order to safeguard long-term strategic national gas reserves. (Tweede Kamer 1974).

The economics/cost dimension concerns primarily the direct financial cost of various policy options, including the overall cost of LNG importation as compared to imports of pipeline gas and the investment and operating cost for a LNG terminal. In comparing alternative LNG sites, the following cost aspects are included: transport, distribution to major users, terminal infrastructure, maintenance, harbour modification, and additional technical safety measures.

The health/safety dimension refers to the physical risk aspects in terms of (potential) hazardous accidents associated with LNG activities and their impacts. It involves an assessment of the probabilities and consequences of LNG accidents, as well as the perception of potential hazards as experienced by (sectors of) the population.

Socioeconomics includes the expected impacts upon the (local or national) industrial infrastructure. This may entail direct anticipated consequences, in terms of the generation additional employment, as well as the prospective future follow-on effects, such as associated industrial activities. This dimension includes the issue of local and regional economic development (as a policy concern) and the potential effects on the enhancement of local skills and know-how.

Environmental impact dimension concerns the potential effects upon the natural environment (excluding the physical consequences of hazardous accidents), due to either the LNG terminal itself or the transportation and handling of LNG. Various kinds of environmental pollution, thermal effects, noise, infringement upon recreational areas are included here.

This chapter now turns to the actor-by-actor analysis of policy stances of the various participants to the LNG decision dispute. In the discussion below the policy perspective of the interdepartmental committee ICONA (at various stages of the debate) is more extensively analysed than other policy stances. In this case, the additional degree of detail seeks to amplify how the formulation and evaluation of expected impacts can be used to characterize policy views and strategies. Furthermore, the extended analysis highlights the significant role played by ICONA in structuring and defining the (official) agenda and terms of the policy process in the LNG decision controversy.

## 2. ICONA Policy perspective

ICONA acted as the central coordinating body at national governmental level in the LNG decision process. During 1977 and 1978 the interdepartmental committee prepared three policy studies as input to decision-making by the Dutch Cabinet. ICONA concerned itself with the following policy questions:

- the desirability of LNG imports;
- the need for a Dutch LNG terminal;
- the location of a (Dutch) facility, either off-shore or land-based;
- the selection of a LNG terminal site and the conditions for its approval.

In examining in detail ICONA's three advisory reports<sup>[3]</sup>, the policy stance of this inter-governmental committee on these issues is analysed below.

The first policy advice of 1977 reflects in many ways the overall framework within which ICONA appraised the LNG policy questions. The ICONA assessment endorsed Dutch national energy policy as formulated by the Government in 1974, arguing the need for diversification of energy supply. It justified its positions by citing the anticipated reduction of Dutch natural gas production (for the 1980s) arguing the strategic importance of Dutch gas reserves and the continued use of existing infrastructure, and asserting the environmental benefits of gas over the use of oil.

Considering the scope for gas importation via pipeline as "limited" and citing the "very high gas demand" (expected) in Western Europe (1977:3), ICONA perceived natural gas imports in liquefied form as representing the only "realistic" option for acquiring gas over long distances. As a means for retaining the "central position" of the Netherlands as a Western European gas supplier, ICONA argued the case for a Dutch LNG facility, citing the economic and energy policy advantages of re-export of imported gas to other countries (1977:3,7,9).

On the location of a Dutch LNG terminal, ICONA rejected an island-terminal, mainly because of the additional financial investments required (comparison to a land-based facility). Furthermore, referring to the Algerian LNG contract, ICONA asserted that it was "practically impossible" to complete an off-shore island terminal within the time constraints specified (1977:8-9).<sup>[4]</sup>

As to the safety dimension, ICONA defined the risk of the various options by reference to the "probabilities x consequences" of various options. On this basis, ICONA concluded that the risks of LNG importation/handling at the Maasvlakte site "hardly diverged" from those associated with an island terminal (1977:6).<sup>[5]</sup> The majority of ICONA concluded that both off-shore and land-based terminals were "acceptable" options. It is significant that ICONA argued this position in terms of a comparison - or trade off - between safety factors and the expected benefits of various options. The committee stated that "the acceptability of the risks of a project can only be determined by weighing against each other the advantages and disadvantages of that project and the available alternatives" (1977:6). It argued that energy policy and economic justifications for a land-based terminal "amply outweighed" the "relatively small" risk advantages associated with an island terminal (1977:6). Whilst the ICONA member representing the Ministry of Health and Environmental Protection published a minority view point on the issue of safety,<sup>[6]</sup> the majority conclusion reached by ICONA was that the risks of LNG were acceptable, and that a Dutch land-based terminal was desirable.

The policy stance taken by ICONA in its first advisory report is summarized in Table 6.1, indicating the major policy options which were considered, the dominant impact dimensions, and the major arguments advanced in support of particular policy preferences on the key policy questions.

Table 6.1  
 ICONA second policy advice: the Maasvlakte imperative

<u>POLICY OPTIONS</u>	<u>Dominant IMPACT DIMENSION(S)</u>	<u>ARGUMENTS/CRITERIA</u>	<u>OUTCOME</u>
LNG imports yes/no	Energy policy Environmental impact	-Energy supply diversification -Availability LNG suppliers	● LNG importation desirable
Dutch LNG terminal ? or abroad ?	Energy policy Economics Socioeconomics	-Security of supply -Re-export gas -industrial activity: tankers & technical fac. -anticipated benefit outweighs risks (=majority view)	● Dutch LNG terminal acceptable and desirable
LNG terminal land-based ? or off-shore ?	Economics Energy policy Health & safety	-High investment cost off-shore -inadequate time for completion off-shore terminal to honour Algerian LNG contract -risks off-shore and land-based almost identical	● Both options are feasible and acceptable (=majority view)
Exact location LNG terminal ?	Economics Physical planning	-Investment cost to be minimised -Accessability and nautical advantage to be maximised	● No firm selection made:-Maasvlakte preferred, if land-based site - Breakwater dam preferred if off-shore

In its second policy report, ICONA assessed in more detail a number of policy options, but the committee did not diverge fundamentally from its earlier position. Most significantly it re-iterated its preference for a Dutch land-based LNG facility at Maasvlakte. A number of additional justificatory criteria advanced in support of this policy conclusion are noteworthy, in that they reflect the prevailing problem definition. Especially significant was the insistence that the issue of "perceived risk to the local population" was excluded from ICONA's policy brief.

In the context of the energy policy 'imperative', the option of a Dutch LNG terminal was framed by ICONA as a significant "opportunity" for Dutch energy supply.<sup>[7]</sup> The perceived need for importing natural gas and the anticipated strategic advantages of a Dutch terminal provided the justification for rejecting a number of alternative policy options, in particular the possibility of exchange agreements with importers of Dutch natural gas, and the use of a foreign LNG terminal. (ICONA 1978a:section 2).<sup>[8]</sup>

The perceived significance of energy policy considerations was further highlighted by ICONA's insistence that the Algerian LNG contract should be honoured. This outlook provided the 'terms of reference' for ICONA's assessment of the siting issue, since it accepted as its premise that:

"One aspect which a priori plays a special role - i.e. in the sense of a boundary condition which should not be overstepped - concerns the time for realization. In connection with the already agreed contract for the supply for LNG, the construction of a LNG terminal at the location to be selected needs to be completed in the third quarter of 1984 at the latest." (my emphasis) (ICONA 1978a:4-6)

In this context, ICONA rejected all but the Maasvlakte site as a viable option (ICONA 1978a:4-28).

As to its risk assessment, the rejection by ICONA of an island-terminal was based on the assertion that the small

"factual" risk advantages (as defined by "risk probabilities x consequences") of an island terminal did not justify the considerably higher financial cost (ICONA 1978a:4-8). Whilst ICONA discussed the issue of "perceived risk", it was defined essentially by reference to its "factual" risk formulation, namely as

"the phenomena that in the way people perceive and experience risk, the conceivable actual (feitelijk) effect of a serious accident is often given much more weight than the probability of it occurring". (ICONA 1978a:4-8) [9]

In these terms, the Maasvlakte site was considered as having a higher level of "perceived risk" compared to the other sites. ICONA reiterated its view that both an island-terminal and a Maasvlakte LNG facility were "socially not unacceptable". It argued that the (local) population was in any case already "exposed to comparable risks". (ICONA 1978a:4-30) In its final deliberations, ICONA did not raise any safety objections.

#### Eemshaven versus Maasvlakte: the ICONA assessment

The third and final ICONA policy advice was concerned primarily with Eemshaven harbour as a potential LNG terminal site and its relative (dis)advantages compared to Maasvlakte. By the time ICONA was requested to carry out this assessment (March 1978), the Cabinet had come to announce its preference for a land-based LNG import facility in the Netherlands. (Tweede Kamer 14626:6). [10]

In the comparison between Maasvlakte and Eemshaven, ICONA considered the Rotterdam site as offering significant cost advantages, partly because of its closer proximity to large industrial users of natural gas (as well as to the Algerian suppliers) (ICONA 1978b:2-30). [11] Energy policy considerations were however, less pronounced than had been the case in earlier ICONA reports. [12] As to the anticipated



regional socioeconomic impacts, ICONA considered the scope for employment generation "not as significantly different" among the two prime sites. (ICONA 1978b:3-5). Consequently "no clear preference" was expressed in respect of the quantitative employment effects at the contending locations (ICONA 1978b:2-25).<sup>[13]</sup> The minority viewpoint of the Ministry of Economic Affairs excepted, ICONA excluded from considerations the potential advantages of either site in terms of broader issues of regional economic policy and industrial development programmes.<sup>[14]</sup>

The comparison of safety levels associated with the Maasvlakte and Eemshaven sites did not significantly influence ICONA's overall policy preference in favour of the former. In considering the issue of safety risks, ICONA cited the conclusions reached by the Committee for the Prevention of Disasters (CPR) which had acted as advisor to ICONA. Its policy stance on the safety issue can be summarized as follows (ICONA 1978b:2-12)

- \* the maximum consequences of a LNG accident would be lower at Eemshaven by a factor 10 (compared to Maasvlakte sites);
- \* the longer route to Eemshaven would result in a greater probability of accidents at sea during the transport stage;
- \* the perceived risk - i.e. to the local population in the Eemshaven area - would be considerably higher than at Maasvlakte in the Rotterdam region, where industrial activities were already very much developed.

Nonetheless, in combining the various factors, ICONA reiterated that "on the basis of the total of risk considerations no clear preference in favour of one of the locations can be made" (ICONA 1978b:3-5).<sup>[15]</sup> On the issue of "perceived" risk to the local population, ICONA stressed that further understanding into the significance of this factor could only be gained within (subsequent stages of) the local decision-making process. As to the risk and safety issue, the committee repeated that the Maasvlakte sites (A and B) were "socially not unacceptable" (ICONA 1978b:3-5).

ICONA policy stance: interest criteria and problem definitions

Drawing together now the foregoing discussion, the overall policy stance of ICONA is summarized in Table 6.2. It reviews ICONA's evaluation of major policy questions by reference to the five impact dimensions. Table 6.3 summarizes the major arguments and justificatory criteria by which ICONA argued its preferences on the various policy issues. It highlights the extent to which ICONA's policy stance can be characterized in terms of a hierarchy of policy issues. The way the LNG policy question was framed, is reflected in the sequence by which each of the issues were addressed. The outcome of partial assessments of each preceding policy question, thus set the interpretive context for the appraisal and evaluation of subsequent policy questions and their resolution. The way ICONA 'related' to the LNG decision issue can also be discerned in its particular ranking of the various impact dimensions.

Policy Question Dimension	LNG Import?	Dutch Terminal?	Land-based?	Siting: a) Maasvlakte	Siting: b) Eemshaven
energy policy	+	+	+	+/-	-/+
economics/cost	+/-	+ <sup>1)</sup>	+	+	-
environmental impact	+	o	+/-	+	-
health and safety	+/-	o	-/+	o	o
socio-economics	+	+	+	o	o
Outcome	Yes	Yes	Yes	Yes	No

KEY: + favorable  
 - unfavorable  
 +/- indecisive: marginally favorable  
 -/+ indecisive: marginally unfavorable  
 o no preference; not affecting outcome  
 1) when land-based terminal was considered, in case of off-shore terminal, foreign LNG terminal would yield lower cost.

Table 6.2:

ICONA: Policy views by impact dimensions

<u>POLICY CONCLUSIONS</u>	<u>STATED SUPPORT CRITERIA</u>
1 ● natural gas imports required	- energy supply diversification - maintenance of strategic Dutch gas reserves
2 ● importation of gas in liquefied form required	- limited suppliers in Western Europe - LNG only 'realistic' option for large-scale, long-distance imports
3 ● Dutch LNG terminal favoured	- strategic and economic advantages in national energy policy context - possibility of re-export to neighbouring countries
4 ● land-based terminal preferred	- cost advantages - timing: energy policy imperative to honour Algerian import contract
5 ● both off-shore and land terminal socially acceptable	- formal risk analyses indicate LNG has lower risks than certain existing industrial activities
6 ● cost/risks versus benefits assessment favours land-based LNG terminal	- marginal safety advantages of off-shore outweighed by economic and cost advantages of land-based terminal
7 ● Maasvlakte is preferred LNG terminal site location	- advantages Rotterdam sites in terms of energy policy considerations, costs nautical and technical requirements - no clear preference between two final land-based options (Maasvlakte/ Eemshaven) in terms of factual risks and employment effects

Table 6.3:

ICONA: Policy evaluation and manifest support criteria

The accounts reviewed here, highlight the dominance of the dimensions of energy policy and economics in ICONA's policy perspective. The hierarchical ordering of the different dimensions is further illustrated by ICONA's rejection of the off-shore siting options because of high costs, despite its acknowledgment of the (small) associated safety advantages. In the trade-off between safety and economic dimensions, ICONA's expressed interest-criteria clearly placed emphasis upon the cost factor.

Table 6.4 provides a summary of the dominant impact dimensions underpinning ICONA's expressed policy preferences. It represents the ranking of interest-criteria and justifications and highlights the evaluative basis for ICONA's assessment in the LNG decision controversy.

<u>POLICY QUESTION</u>	<u>DOMINANT DIMENSION(S)</u>	<u>OUTCOME</u>
LNG imports desirable?	(1) Energy policy	Yes
LNG terminal in the Netherlands?	(1) Energy policy	Yes
LNG terminal land-based or offshore?	(1) Economics/cost (2) Energy policy	Land-based
Preferred location?	(1) Economics/cost (2) Energy policy (3) Environmental impact	Maasvlakte

Table 6.4:

ICONA: Dominant impact dimensions

### 3. Local authorities: policy stances

#### City of Rotterdam policy perspective

The Municipal Authority of Rotterdam was concerned essentially with two inter-related policy issues:

- (i) the feasibility and desirability of a LNG import facility at Maasvlakte; and
- (ii) the (conditions for) acceptability of a LNG terminal at Maasvlakte

The first issue was initially addressed by the Rotterdam Harbour Authorities in response to a request by Gasunie. The Harbour Authorities carried out a detailed quantitative cost/benefit analysis (Rotterdam 1977a) which became a significant input into the local political process. The municipal decision procedures involved the City Mayor and Aldermen, and the Rotterdam City council. The City of Rotterdam Authority endorsed the view that there were significant economic and socio-economic benefits associated with LNG developments in the (harbour) region. As indicated in Table 6.5 these two impact dimensions represented the major criteria by which the desirability of a LNG terminal at Maasvlakte was argued. Given the framing of the policy questions set by national government, the Rotterdam authorities largely excluded from their appraisal issues of national energy policy.

Policy Question Dimension	LNG at Maasvlakte desirable?	LNG at Maasvlakte acceptable?	Preferred site?
1. economics/cost	+ <sup>1)</sup>	+ <sup>2)</sup>	A
2. socio-economics	+	+ <sup>2)</sup>	B
3. health and safety		+ <sup>3)</sup>	C
4. environmental impact		+/-	o
Outcome	Yes	Yes	site B

KEY: + favorable  
o no preference  
not considered/not relevant  
+/- marginally favorable

NOTES. 1) depending on quantity imported  
2) if LNG would provide economic benefit; LNG tanker <sup>to be</sup> build in Rotterdam: supply in area to be guaranteed  
3) no nuclear power plant in Rotterdam area was condition

Table 6.5: Rotterdam: Policy implications by impact dimension

The positive stance in respect of the issue of desirability of a LNG facility in the Rotterdam region provided the context for addressing the question of acceptability. The policy debate thus shifted to the conditions under which the siting of a LNG terminal would be approved by the Municipal Authority. An important feature in the way the issue of safety was framed by the Rotterdam City authorities, was the insistence that the 'risks' associated with LNG developments should not be assessed in themselves, but should be evaluated in relation to the (other) costs and benefits involved. Consequently the question of acceptability of a Rotterdam LNG facility largely became one of trade-off among different anticipated impacts.

In this context, the safety dimension was treated as one of the factors to be incorporated into the assessment. This particular problem definition in determining the conditions for acceptability, was supported by the assertion that an LNG terminal at Maasvlakte would not be more dangerous than other industrial activities already in the area. The City Governors argued that the cumulative level of risk would not increase (Rotterdam 1978a:62;1978c:1053). They failed to specify, however, under which exact safety conditions a LNG terminal would be acceptable or not.<sup>[16]</sup> The City authority simply argued that once risk-reducing measures had been taken, the "rest risk" (sic) of the LNG activities should be weighed against the anticipated social benefits of LNG. In this respect, the City Governors cited the positive impact upon the national and local economy, upon employment and the environment (Rotterdam 1978c:1054).

As indicated in Table 6.5, the acceptability of a LNG terminal at Maasvlakte was dependent on a number of conditions set by the Municipal authorities. In the Governor's account, the Rotterdam Governors and the Municipal Council attached great importance to the condition that a LNG terminal at Maasvlakte would effectively rule out a (future) siting of a nuclear power plant in the region (Rotterdam 1978c:1053). The City Council

finally approved the siting of a LNG facility at Maasvlakte (site B) <sup>[17]</sup>, but made its approval dependent on strict traffic control, the introduction of risk-reducing measures, in addition to the agreed absence of nuclear power (Rotterdam 1978d:220).

Table 6.6 summarizes the dominant dimensional criteria which underpinned the Rotterdam City authorities policy preferences on the three key policy questions.

<i>Policy question</i>	<i>Dominant dimension(s)</i>	<i>Oytcome</i>
LNG terminal feasible and desirable? (at Maasvlakte)	1. socio-economics 2. economics/cost	Yes
LNG terminal acceptable? (at Maasvlakte)	1. health and safety 2. economics/cost	Yes
Preferred Maasvlakte site?	1. economics/cost 2. Socio-economics	site B

Table 6.6: Rotterdam: Dominant dimensional criteria

#### Rijnmond Public Authority policy perspective

Whilst Rijnmond Public Authority perceived significant social and economic benefits associated with LNG activities in the Rotterdam harbour area, it did not divorce the question of desirability of a LNG terminal from the issue of (local) acceptability. In this context, the policy perspective of Rijnmond authority was dominated by concerns for safety on the one hand, and socio-economic aspects on the other. In balancing these two impact dimensions, both the Rijnmond Governors and the majority of the Rijnmond Council rejected a combined LNG import/handling facility at the proposed Maasvlakte sites. The main arguments in support of this policy stance related to the expected health and safety risks to the local population. In this respect Rijnmond Public Authorities

concluded that LNG only storage of LNG would be acceptable at Maasvlakte, whilst refusing approval for importation and handling at a Maasvlakte terminal. (Rijnmond 1978;Rijnmond 1978b;1978c).

Table 6.7 summarizes the major implications of Rijnmond's assessment of the various impact dimensions and the policy questions it was addressing. The energy policy dimension is not featured here, since Rijnmond accepted the national government's intention of LNG importation as an underlying premise for the evaluation of potential LNG sites at Maasvlakte (Rijnmond 1978a,67).

Policy Question Dimension	LNG in Rijnmond area desirable?	LNG in Rijnmond area acceptable?	Preferred LNG site?
<i>economics/cost</i>	+	+	Rijnmond region/o
<i>socioeconomics</i>	+	+	Rijnmond region/o
<i>health &amp; safety</i>	o	(-/+) <sup>1)</sup>	Maasvlakte <sup>2)</sup> / Off-shore <sup>3)</sup>
<i>environmental impacts</i>	+/-	+/-	o

Key: + favourable  
- unfavourable  
(-/+)<sup>1)</sup> mixed preference , depending on partial aspects  
+/- marginally favourable  
o no preference

Notes: 1) LNG reception/handling deemed unacceptable at Maasvlakte; storage of LNG at Maasvlakte acceptable.  
2) relates to storage of LNG only  
3) relates to reception of LNG; to be combined with large-scale LPG reception facility off Rijnmond coast.

Table 6.7:

Rijnmond: Policy implications by impact dimension

The dominant dimensions which governed Rijnmond's policy position in relation to the three main policy questions are summarized in Table 6.8. It reflects the view that LNG activities were encouraged in the Rijnmond region because of the anticipated economic and socioeconomic benefits. On-shore



reception of LNG, however was deemed unacceptable in the light of the perceived associated safety risks to the local population.

<u>Policy Question</u>	<u>Major Dimension(s)</u>	<u>Outcome</u>
LNG desirable for Rijnmond area?	1. socio-economics 2. economics/cost	Yes
LNG acceptable in Rijnmond area?	1. health and safety	Yes/No <sup>1)</sup>
Where to site LNG terminal?	1. socio-economics 2. health and safety	in/near Rijnmond; not at Maasvlakte <sup>2)</sup>

1) as far as Maasvlakte sites A and B were concerned:  
storage—acceptable;  
handling/reception—not acceptable

2) handling/storage combined

Table 6.8: Rijnmond: Dominant dimensional criteria

Whilst Rijnmond did not formulate absolute (quantitative) safety requirements for its assessment of risks, it judged LNG reception and handling (as distinct from its storage) as unacceptable in terms of safety. In this respect the Rijnmond authorities paid particular attention to the risk of LNG as perceived and experienced by the local population. With respect to the acceptability of increased risk in the Rijnmond region, it noted that the Rijnmond area already experiences higher (environmental) risks than the rest of the Netherlands; this, it argued, has led to a "mental pressure" upon the local population. According to Rijnmond, the siting of a LNG terminal in the area would further increase the "psychological-social" pressure among the population. Particularly the high anticipated consequences of an LNG accident led Rijnmond Authority to argue against the reception and handling of LNG at the proposed Maasvlakte sites, (even though it acknowledged that the chances of a major hazard were very low) (Rijnmond 1978a, p66).

The opposition to LNG by Rijnmond Public Authority must be seen in the context of Rijnmond's historic institutional concern for local environmental management and pollution control (this issue will be addressed in more detail in Chapter 7). In this respect, the opposition to a nuclear power plant in the Maasvlakte area was explicitly raised within the LNG policy deliberations (Rijnmond 1978a p50). In arguing in favour of an off-shore terminal for the reception of LNG, Rijnmond Governors stepped outside the 'terms of reference' set by the official national governmental policy agenda. The national government had requested the policy position of Rijnmond Authority in respect only of the approval of the Maasvlakte sites. (A and B).

#### Zuid-Holland Province policy perspective

The Provincial Authority of Zuid-Holland endorsed the views of other local authorities as to the socio-economic benefits associated with a LNG terminal in the Rotterdam region (Zuid-Holland 1978b). The question of general desirability of a LNG terminal was dominated therefore by the anticipated socio-economic and economic impacts. The issue of acceptability of the local siting of a LNG terminal, however, was predominantly appraised by reference to the safety dimension. In seeking to maximize the employment-generating effects and the anticipated benefits for upon associated industrial activities, the Zuid-Holland Authority argued in favour of LNG site in the region. (Zuid Holland 1978b,22). Nonetheless, the concern with local safety risks, led it to argue for an alternative location (Voornedam). (This option had been ruled by national government at an earlier stage of the LNG decision procedures).

The assessment of the anticipated local safety impact of LNG activities, led the Zuid-Holland Authority to endorse neither Maasvlakte site A nor site B. Underlying its concern about safety was the "standstill" principle, i.e. that a decline in environmental health and/or safety levels a result of a LNG terminal was unacceptable (Zuid-Holland 1978b, p22). The Zuid-Holland Authority argued the need to maximize the distance between LNG activities and any built-up area, and this made Maasvlakte sites A and B unacceptable in terms of safety (given the limited distance of LNG tankers to the local town of Hoek van Holland when entering Rotterdam harbour). Consequently, the safety dimension led to an overall preference for the Voornedam breakwater as LNG import and storage site. (Zuid-Holland 1978b, p.23). Table 6.9 summarizes the implications of the various impact dimensions for the three major policy questions as considered by Zuid-Holland Province.

Policy Question Dimension	LNG terminal in province desirable?	LNG terminal in province acceptable?	Preferred site?
energy policy	+	[]	[]
economics/cost	+ / ●	+ / ●	Maasvlakte A or B
health and safety/ environment	[]	+ <sup>1)</sup>	Voornedam
socio-economics	+	+	Maasvlakte B
Outcome	Yes	Yes <sup>2)</sup>	Voornedam <sup>3)</sup> (undetermined)

KEY.    +    favorable  
          []    not considered, not relevant  
          ●    no preference; not affecting outcome

Notes: 1) conditions - risk-reducing measures; stand-still principle to be followed  
 2) standstill principle as main condition  
 3) unable to approve Maasvlakte sites without adequate further assessment of other alternatives, including Voornedam breakwater

Table 6.9:

Zuid-Holland: Policy implications by impact dimension

In the overall policy assessment by Zuid-Holland Province, the impact dimensions of socioeconomic and safety dominated.<sup>[18]</sup> The Provincial Governors' preference for Voornedam was supported by the view that a decision in favour of alternative, potentially less economical sites was justified given the existing environmental burden to the local population in the Rijnmond/Rotterdam region. (Zuid-Holland 1978b p23). Whilst stressing that the Maasvlakte area was already subject to many other risks, the Zuid-Holland Provincial Authority did not advance explicit criteria for its assessment of the acceptability of Maasvlakte sites A and B. Nonetheless, it decided to reject approval of these sites, and urged further investigation of the Voornedam site and other alternatives, arguing that these options had not hitherto been adequately explored.<sup>[19]</sup> (Zuid-Holland 1978c, p 4361). Table 6.10 summarizes the dominant impact dimensions underpinning the policy stance of Zuid-Holland Provincial Authority.

<i>Policy question</i>	<i>Dominant dimension</i>	<i>Outcome</i>
LNG in province desirable?	(1) Socioeconomics	Yes
LNG terminal in Zuid-Holland acceptable?	(1) Health and safety (2) Socioeconomics	Yes/no <sup>1)</sup>
Preferred LNG site?	(1) Health and safety (2) Socioeconomics	Voornedam/ undetermined <sup>2)</sup>
<i>Notes</i> 1) safety and environmental health standards not to be reduced 2) Voornedam site preferred from safety viewpoint; no definite commitment until other alternatives had been assessed further		

Table 6.10: Zuid-Holland: dominant dimensional criteria

#### Groningen local authorities policy perspective

The policy stance of the various local authorities responsible for approval of a LNG terminal at Eemshaven, reflected strong support for the Groningen site, mainly argued in terms of the perceived regional economic benefits. As mentioned earlier,

the policy perspective reviewed here, is considered as a single viewpoint, aggregating the policy stances of the Provincial Authorities of Groningen the municipal authorities of the town of Uithuizermeeden (covering the Eemshaven harbour area), and the Delfzijl Harbour Authority (which is formally responsible for managing the Eemshaven complex).

Groningen local authorities were anxious to attract new industrial activities as a means of stimulating the economy of this relatively poorly-developed Northern province. Its involvement in the LNG siting discussion - responding to the request made by Gasunie - must be considered in this particular context. Given the perceived economic advantages of an LNG terminal (esp. employment) the Groningen local authorities addressed predominantly the conditions of acceptability of an Eemshaven LNG terminal.<sup>[20]</sup>

The dominant dimension governing the outcome of the policy assessment by the Groningen local authorities was that of socioeconomics. The local authorities saw the siting of a LNG terminal as being of real importance for stimulating new industrial activities in the area, and for providing employment. As compared to the Maasvlakte site, the Groningen authorities stressed that at Eemshaven the employment generated by LNG activities would be relatively and "qualitatively" more significant. (Groningen 1978g, p4). The socioeconomic case was argued with strong political overtones. According to the Groningen authorities, it presented a "unique opportunity" for the national government to show that it was serious in implementing its stated policy of selective regional support for the northern provinces (Groningen 1978b, p.56-12;1978f,p11). Groningen authorities argued that in addition to the direct employment effects, LNG activities would have an important "psychological" effect, in that they would stimulate other interest in the Eemshaven region (Groningen 1978f, p4).

The risk and safety dimension was of relevant concern vis-a-vis the acceptability. The Groningen local authorities did not specify a precise level of safety, but concluded that a LNG terminal at Eemshaven was acceptable, provided "safety measures to be determined" would be implemented. The Groningen local authorities stressed that the levels of risk (in terms of "probabilities x consequences") were considerably lower at Eemshaven: as compared to Maasvlakte a difference by a factor 100 (Groningen 1978i, p8). The risk "as experienced by the local population" was considered unrealistic (irreel) as policy argument against siting the LNG terminal at Eemshaven (Groningen 1978h, p4).

In support of its risk and safety stance, the Groningen Provincial authorities cited the "unanimous conclusion" from research into the safety aspects of LNG transport, that "the objective risk is not unacceptable, compared to other sizeable industrial projects". (Groningen 1978i, p8).

Table 6.11 summarizes the dimensional impact assessment by the Groningen local authorities. The way the authorities framed the LNG siting issue reflects the dominance of the socioeconomic dimension, which provided the context for assessing other impact dimensions. This policy perspective is summarized in Table 6.12. After establishing their favourable stance vis-a-vis a LNG terminal at Eemshaven because of the anticipated socioeconomic gains, the Groningen authorities concluded that the various other factors "do not result in arguments which will alter our overall conclusion" (as to the desirability and importance of LNG developments at Eemshaven) (Groningen 1978b, p56-11/12).

Policy Question Dimensions (in order of significance)	LNG at Eemshaven acceptable?	Eemshaven preferred to Maasvlakte?
socio-economics	+	+
health and safety	+	+
economics/cost	+	-
environmental impact	+	●
energy policy	[]	[]
Outcome	Yes	Yes

KEY: + favorable  
- unfavorable  
● no preference; not affecting outcome  
[] not considered; not relevant

Table 6.11:

Groningen authorities: Policy implications by impact dimension

Policy question	Dominant dimension(s)	Outcome
LNG at Eemshaven acceptable?	(1) Socioeconomics (2) Health and safety	Yes
Preferred site for LNG: Eemshaven or Maasvlakte?	(1) Socioeconomics (2) Health and safety	Eemshaven

Table 6.12

Groningen authorities: Dominant dimensional criteria

#### 4. Industrial actor: Gasunie policy perspective

The policy perspective of NV Nederlandse Gasunie was based on its responsibility for supplying natural gas to Dutch users at economical prices, and the desire to maximise the benefits to the semi-state company. Consequently Gasunie's policy stance on LNG decision-making was argued predominantly by reference to two main dimensions: energy policy and economics/cost. These concerns dominated the policy position of Gasunie in respect of a singular policy question: "What is the optimal site for a LNG terminal?"

The dimension of energy policy impinged on its longer-term strategic goals, such as competitive strength and its international position in the energy market. The cost dimension was more directly related to Gasunie's corporate concern with cost reduction and efficiency. From the viewpoint of both energy policy and economics, a Maasvlakte site was considered as the company's preference for a Dutch LNG terminal.

In relation to energy policy, the Maasvlakte site was preferred by Gasunie, since it was seen to provide greatest flexibility for gas supplies in the Netherlands (Gasunie 1978c, pl), and because it enhanced the Dutch potential for buying and selling natural gas (Gasunie 1978b, p7). (Rotterdam was the largest and most important energy harbour of Western Europe strategically placed in relation to the major potential European buyers of natural gas). Gasunie saw it in the interest of Dutch energy policy, to enhance its role as major supplier of natural gas - as set out by national government policy. (Gasunie 1978c pl) In this context the Rotterdam harbour - where Gasunie already operated a LNG peak-shaving plant - was favoured. (Gasunie 1978c, pl).

The dimension of economics played a significant role as a justification for Gasunie's preference for the Rotterdam as the



preferred LNG site. The company stated the following factors (Gasunie 1978c p2/3):

- Maasvlakte was cheapest option. Shipping route to Rotterdam shorter than to Eemshaven for Algerian LNG. Largest concentration of demand for natural gas is in the western part of the Netherlands. Island terminal was rejected on the ground of the high cost involved.
- Unloading and storing large quantities of LNG considered technically and economically as extension of LNG peak-shaving activities at Maasvlakte. Maasvlakte site A would be optimal in this respect.
- In terms of cost, Maasvlakte maximized potential for gas supply to neighbouring countries, resulting in economies of scale, with consequent economic benefits.

Judging from these justificatory arguments economics and energy policy concerns seemed to have played a minor role in Gasunie's policy position.<sup>[21]</sup> Gasunie's policy perspective was predominantly argued in terms of the perceived need to minimize the financial cost and to maximize the financial and corporate-strategic benefits. Table 6.13 highlights these various considerations. The dimension of safety can be seen to have played a minor role in Gasunie's selection process. The Company assumed that, whatever the selected site, the location of a LNG terminal "should fulfill the safety requirements in an acceptable manner" (Gasunie 1978c, p3).

Policy Question Dimension	Optimal Site for LNG Terminal?	
	a. Rotterdam	b. Eemshaven (2nd choice)*
energy policy	+	+/-
economics/cost	+	+/-
health and safety	[]/o	[]/o

KEY:    +    favorable  
          +/-    indecisive, marginally favorable  
          o    no preference; not affecting outcome  
          []    not considered; not relevant  
          \*    Only considered if Rotterdam site could not be approved within required time limits.

Table 6.13

Gasunie: Policy implications by main impact dimension

Gasunie remained in favour of a Maasvlakte site, but its wish to find a politically acceptable LNG site before the stipulated deadline in the Algerian contract, led the company eventually to accept a LNG terminal at Eemshaven, be it as a second choice. (Gasunie 1978c, p3).<sup>[22]</sup> Other alternatives, including an island terminal, were never seriously considered by Gasunie, because of the high financial costs involved and/or the lack of technical feasibility as perceived by Gasunie. The dominance of energy supply and cost considerations underpinning Gasunie's policy stance is indicated in Table 6.14.

<i>Policy question</i>	<i>Dominant dimension(s)</i>	<i>Outcome</i>
Optimal site for LNG terminal ?	(1) Energy policy (2) Economics/cost	Maasvlakte <sup>#</sup>
<p><sup>#</sup> <i>Note:</i> Eemshaven LNG terminal site acceptable as second choice</p>		

Table 6.14

Gasunie: Dominant dimensional criteria

##### 5. Environmentalist perspective: the Noordzee working group

Given the 'coordinating' role of the Noordzee Working Group among environmentalist organizations concerned with the LNG decision controversy, the following review is predominantly based on accounts published through this group.<sup>[23]</sup> The Noordzee Working Group, whilst primarily concerned with issues pertaining to the human and natural environment (including health and safety), also discussed a number of other impact dimensions associated with the LNG siting dispute. In its overall policy perspective the Noordzee working group rejected the approval of a land-based LNG terminal because of what it saw as inadequate consideration of alternatives, and because it

claimed there was insufficient data and research on the associated risks and environmental impacts. Additionally, the environmentalist collective advanced a number of substantive objections to the LNG siting plans (as formulated by the national government in 1977/78).

As to the dimensions of national energy policy, the Noordzee working group questioned the need for importing gas in liquefied form and suggested that as a prerequisite for a final decision, alternatives (e.g. imports via pipeline, possibly involving contractual re-arrangements with buyers of Dutch natural gas) should be further investigated. (Noordzee 1978a p16; Noordzee 1978b p9) Additionally, the group argued that the siting issue should be examined in the context of medium and long-term energy planning (including e.g. energy conservation policies) rather than solely with reference to national gas supply. (Noordzee 1978b p2, Noordzee 1978a p11/14). The group explicitly raised the option of obtaining natural gas via a foreign LNG import terminal (e.g. via Belgium or FR Germany). (Noordzee 1978a, p22).

Given the safety risks and environmental implications attached to LNG activities, the (re-)examination of alternatives to LNG importation at a Dutch land-based terminal was seen as particularly important by the Noordzee working group. According to the group, a considered view on the risk of LNG activities, could not be based on formal risk analyses, because of "inadequate" experience with LNG transport and handling. (Noordzee 1978 p6) Given the anticipated potential consequences of an accident involving LNG, the working group judged the risks unacceptable, notwithstanding the small probability of a maximum credible accident.<sup>[24]</sup> In this respect, the group quoted the California State norms for LNG terminal siting (Senate bill 1081, par .5582), arguing that at both Maasvlakte and Eemshaven locations, the population density in surrounding areas were above the acceptable limits as set in the California legislation. (Noordzee 1978b p6).

As to the anticipated environmental impact of LNG activities, the working group argued that greater weight should be attached to the detrimental effects at Eemshaven. It urged further investigation of the environmental consequences. (Noordzee 1978b, p7). An off-shore LNG terminal was rejected by the Noordzee working group, mainly because of the environmental considerations (Noordzee 1978a p19).

The Noordzee working group questioned a number of assumptions and analyses in the ICONA governmental assessments. The cost of importation of LNG at a Dutch land-based terminal, the group argued, had generally been under-estimated, (by governmental actors) whilst the anticipated socioeconomic benefits for local employment and industrial development had been over-estimated (Noordzee 1978b, p8/10). Table 6.15 summarizes the dimensional policy assessment by Noordzee working group.

Policy Question / Dimension	LNG import desirable?	Dutch LNG terminal?	LNG terminal off-shore?	LNG acceptable at Maasvlakte or Eemshaven?
energy policy	- 1)	- 3)	•	•/[ ]
economics/cost	- 1)	- 3)	-/•	•/[ ]
socioeconomics	•	- 3)	[ ] 2)	• 2)
health/safety	•/[ ]	•	[ ]	-
environmental impact	•/[ ]	•	-	- 4)

• no preference/not significantly affecting outcome  
 [ ] not considered/not relevant                      - unfavorable

Notes: 1) alternatives to LNG imports not adequately examined/ too many gaps in information and analysis  
 2) governmental assessment has over-estimated socioeconomic/ employment benefits  
 3) dependent on quantities involved/ more data and analysis needed  
 4) governmental assessment under-estimated environmental damage at Eemshaven/ more analysis needed before decision can be made

Table 6.15: Noordzee environmentalists: policy implications by impact dimension

The group's emphasis upon alternative policy options concerned both the importation issue and the need for liquefied gas. Whilst it argued in favour of the so-called "pipeline alternative" the Noordzee working group called upon the national government and Parliament for a postponement of the decision on LNG importation into the Netherlands until after this and other policy options had been further investigated (Noordzee 1978b pl2). Table 6.16 summarizes the policy view advanced by the Noordzee working group (on behalf of the 'collective' of environmentalist organizations active in relation to the LNG siting issue; see Table 5.3).

<i>Policy question</i>	<i>Dominant dimension(s)</i>	<i>Outcome</i>
LNG import desirable?	(1) energy policy (2) health and safety	no/? <sup>1)</sup>
Dutch LNG terminal desirable?	(1) energy policy (2) economics (3) socioeconomics	no/? <sup>2)</sup>
LNG terminal land-based or off-shore?	(1) environmental impact (2) cost	not off-shore
LNG terminal acceptable at Maasvlakte or Eemshaven?	(1) health and safety (2) environmental impact (3) socioeconomics	no
<i>Notes.</i> 1) based on total evaluation of energy policy alternatives; no definite decision can be made until further examination of policy options; 2) can not be definitely considered until further data and analysis of quantities and of available options. 3) consequences of maxible credible accident unacceptable/ reliable risk analyses impossible until more data and research is available.		

Table 6.16:

Noordzee environmentalists: Dominant dimensional criteria

## 6. National government: Cabinet policy perspective

The policy perspective of the Cabinet was concerned with three inter-related policy questions (TK 14626:11,p.5):<sup>[25]</sup>

- (a) the desirability of importing LNG into the Netherlands;
- (b) the desirability of importing LNG at a Dutch terminal
- (c) the selection of the location of a (Dutch) LNG terminal.

The Cabinet considered the issue of desirability predominantly in the context of the 1974 Energy Policy (that stressed the importance of energy supply diversification, and of saving of strategic reserves of Dutch natural gas supply). Additionally, the Cabinet expressed its conviction that nearby suppliers of natural gas would be too limited, thus ruling out the importation of natural gas via pipeline (TK 14626:11 p7). Similarly, the options of renegotiating the contractual arrangements with foreign customers of Dutch natural gas, and/or the use of a pipeline from Algeria to the Netherlands were opposed by the Cabinet. They were rejected on the grounds of 'practical' considerations and financial criteria (TK 14626:11, p7-8; TK 14626:13, p17). The Cabinet's preference for importation of liquefied gas was argued predominantly in terms of the expected cost advantages (especially when large transport distances from suppliers were involved) (TK 14626:9 p5).

Having 'established' the need for LNG importation, the Cabinet addressed the issue of where to locate a LNG terminal. The Cabinet favoured a Dutch terminal mainly because of its perceived energy policy advantages, the anticipated benefits in terms of employment, and the opportunities for acquiring technical knowledge (on LNG transport and handling) within the Netherlands (TK 14626:11 p9). The energy policy advantages were seen in the potential for re-export of LNG to neighbouring countries. (At later stages of the political debate, however, as the import figures decreased to  $4 \times 10^6 \text{ m}^3$  LNG/ year this

argument ceased to be advanced by the Cabinet). As to employment, the Cabinet argued that the anticipated employment gains associated with building and operating a LNG terminal were to be achieved within the Netherlands if at all possible (TK 14626:5, p7).

The most prominent single issue featured in the policy statements and policy justifications by the Cabinet, concerned the selection of a suitable location for a Dutch LNG import facility. The main factor cited in support of the Cabinet's preference for a land-based LNG terminal (over the off-shore or Breakwater options), was the anticipated cost involved. (TK 14626:3 p 8)<sup>[26]</sup> Significantly, the Cabinet's case for a land-based terminal was not argued by reference to the risk and safety impacts. (TK 14626:6 p2)<sup>[27]</sup>

The Cabinet officially ruled out an off-shore LNG terminal in early 1978. Having argued that the Maasvlakte site was the only viable land-based LNG facility location, it increasingly limited policy discussion to the issue of acceptability and feasibility of the Maasvlakte sites alone (TK 14626:5 p2). Following the (re)introduction of the Eemshaven site as potential (land-based) option for the Dutch LNG terminal (March 1978; TK 14626:6 p2), the Cabinet, however, addressed the various advantages and disadvantages of the Eemshaven and Maasvlakte sites.

#### Maasvlakte versus Eemshaven: shifting policy perspectives

Analysis of the Cabinet's policy assessment of the two land-based sites, reveals two distinct periods in the policy process. The first period, (covering rounds A and B and most of the final round C of decision-making) was characterized by implicit and explicit references in support of the Maasvlakte

sites. The second period, including the Cabinet's final policy memorandum and its Parliamentary statements, reflected a policy intention in support of the Eemshaven location. The Cabinet's apparent initial preference for the Maasvlakte site was revealed by the policy statements made prior to August 1978; at that stage, the national government, however, did not make any formal commitment on the selection of a LNG terminal location.<sup>[28]</sup> (TK 14626:7 p7).

Analysis indicates that in the final stage of policy deliberations, the national government shifted its preference from Maasvlakte to Eemshaven. The Cabinet's final policy decision is therefore at odds with earlier intra-governmental evaluations of the LNG site options. Especially ICONA had cited the distinct advantages of the Maasvlakte sites. (TK 14626:9 p22).<sup>[29]</sup>

In the Cabinet's early policy position, support for the Maasvlakte site in terms of the anticipated socioeconomic impacts was minimal. The employment-generating effects of (operating) a LNG terminal were considered small; in policy statements the Cabinet acknowledged, that the "relative employment effect" would be larger at Eemshaven, given the higher employment rate in the province of Groningen as compared to the Rotterdam region (TK 14626:9 p26). Nonetheless, the Cabinet (initially) largely played down the secondary socioeconomic advantages of adjacent industrial activities (TK 14626/9 p36).<sup>[30]</sup>

No final commitment for the selection of a LNG terminal site was made by the Cabinet until mid-August 1978. Policy statements made prior to that date, can be summarized, as in Table 6.17 revealing the following implicit 'preliminary' Cabinet policy position (as regards the Maasvlakte versus Eemshaven question).<sup>[31]</sup>



<i>Policy question</i>	<i>Dominant dimension(s)</i>	<i>Outcome [preliminary]</i>
Preferred LNG site ?	1. Economics/cost 2. Energy policy	Maasvlakte (sites A or B)

Table 6.17:

Cabinet: implicit dominant dimensional criteria on site selection - preliminary position [prior to August 1978]

The risk/safety dimension was not treated as an independent factor by the Cabinet in comparing the Eemshaven and Maasvlakte sites (both having been considered "acceptable" in principle). The Cabinet argued that the use of 'general criteria' for assessing the acceptability of a LNG terminal location was "practically impossible". Furthermore, it believed that "all relevant aspects" of a proposed location should be taken into consideration (TK 14626:9 p5).

The shift in the Cabinet's policy position - as manifest by its final policy announcement (TK 14626:11; August 1978) - in favour of Eemshaven, was argued predominantly in terms of the perceived socioeconomic advantages over the Maasvlakte sites. The Cabinet emphasised the contribution of LNG to the regional development policies of the national government, more so since it had been acknowledged that in absolute terms the direct employment advantages of the Eemshaven site over Maasvlakte were very small (TK 14626:11, Bijlage 2). In its final policy announcement, the Cabinet referred to the "necessary impulse" to the Northern region of the Netherlands (which included Eemshaven) for stimulating industrial activities and employment generation (TK 4626:11 pl). A major socio-economic factor cited by the Cabinet was the "psychological effect" (my emphasis) of the actual use of Eemshaven, which was believed to have a positive effect upon the economic activities in the region (TK 14626:9 p36; TK 14626:11 pl2). The Cabinet's

statements show that its decision in favour of siting LNG at Eemshaven was considered especially important in giving credibility to the government's regional industrial policy. (TK 14626:11 pl2; Tweede Kamer 1978a, p862).

Table 6.18 summarizes the final policy position of the Cabinet in terms of the dimensional criteria impinging on the major relevant policy questions.<sup>[32]</sup> It is significant that in the assessment of risk and safety, the Cabinet concluded that "no clear preference" could be given in favour of either Maasvlakte or Eemshaven LNG sites (TK 14626:11 pl1). In their perspective, a risk comparison was deemed difficult: whereas the maximum consequences of LNG accidents would be lower at Eemshaven by a factor 10, the longer shipping route on the other hand would increase the probability of calamities as compared to Maasvlakte (TK 14626:11 pl1). The Cabinet did not actually use safety as a final selection criterion; nor did it make any fundamental objections to LNG on safety grounds. In supporting its policy stance the Cabinet instead focused on the dimension of socioeconomics. The Cabinet's final policy perspective on the LNG siting issue is summarized in Table 6.19.

Policy Question	LNG importation desirable?	Dutch terminal desirable?	Location LNG Terminal: Eemshaven or Maasvlakte?
<b>Dimensions</b>			
energy policy	+	+	Maasvlakte*
economics/cost	+	o	Maasvlakte**(?)
health and safety	o/[]	o/[]	o
socio-economics	o/[]	+	Eemshaven
environmental impact	o/[]	o/[]	Maasvlakte

KEY.    +    favorable  
           o    no preference  
           []   not considered/not relevant

NOTES.    \*    greater opportunities for larger LNG carriers, if required,  
              \*\*    by implication from cost data, policy preference never explicitly stated stated in final governmental view; this dimension was dominant with respect to preference of land-based LNG terminal.

Table 6.18:

Cabinet: Policy implications by impact dimension

<u>Policy question</u>	<u>Dominant dimension(s)</u>	<u>Outcome</u>
LNG import desirable?	1. energy policy 2. cost/economics	Yes
Dutch terminal desirable?	1. energy policy 2. socioeconomics	Yes
Land-based or off-shore terminal?	1. economics/cost 2. energy policy	Land-based
Preferred LNG site?	1. socioeconomics	Eemshaven

Table 6.19:

Cabinet: Dominant dimensions criteria - final policy stance

### 7. Contending problem definitions

Having established in broad terms the various policy stances in the LNG decision controversy, we now examine the contending problem definitions in the policy debate. The foregoing discussion has highlighted the absence of consensus among policy actors on the policy options to be considered, as well as on the relevant criteria for assessment and choice. Here I identify and amplify a number of manifestations of dissensus in terms of contending reference frames and problem formulations adopted by disputants in the policy debate.

The notion of divergent problem definitions enables one to account for the different ways contending policy actors 'related' to the decision controversy. In contrast with much decisional analysis - which sees the policy process in a one-dimensional plane - this multiple-problem approach acknowledges that disputants in the LNG decision controversy (may) have very different perceptions and timescales within which the 'LNG siting issue' reaches their attention. In assessing the contending problem definitions, a distinction can be made

between "issue dissensus" and "process dissensus". The former relates to disagreement on substantive content and evaluative criteria; the latter to policy conflict pertaining to the procedures and reference frames through which policy decisions are reached.<sup>[33]</sup>

In the context of the LNG controversy, process dissensus was especially manifest in contending reference frames for assessing the various dimensional aspects of the dispute. These represented contrasting views on the appropriate boundaries for assessing the LNG policy issue and on the procedures for its 'resolution'. In the LNG controversy, issue dissensus centred around contending risk definitions and safety criteria - highlighting divergent cognitive stances in formulating and appraising the relevant dimensions to the LNG decision dispute.

This section analyses these manifestations of competing problem definitions, thus disaggregating the policy participants according to their contending socio-cognitive perspectives.

#### Competing policy frames

In the LNG decision controversy a number of different policy frames may be identified, emphasising distinctions in the relevant boundaries to the policy agenda. Whilst the LNG decisions initially concerned questions of national energy planning, at subsequent stages of the debate they were increasingly framed in the context of their inter-related economic, environmental, and technical dimensions. Three main frames of reference can be discerned in the LNG decision controversy, each defining the problem in different terms, leading to different policy options and to alternative criteria for choice.<sup>[34]</sup> Table 6.20 summarises these contending policy frames, and shows the implications for the appropriate set of policy questions.

Frame A considers the LNG issue as a problem of energy policy implementation. Here the LNG decisions are appraised in the context of the 1974 national energy policy. In this context the need for the importation of natural gas as a means towards energy supply diversification (as argued in the 1974 white paper) is accepted as one of the 'givens' of the decision situation. Hence, the policy option of importing liquefied gas is perceived as an appropriate solution to the problem of national gas supply and planning. The siting of a LNG terminal thus follows from the commitment to the (1974) national energy policy.

A broader perspective is reflected in Frame B, which approaches the LNG decisions in the context of the selection of an appropriate Dutch energy policy. In this frame, the need for LNG importation is considered a matter for policy deliberation; it is assessed predominantly by reference to demand and supply policies in national energy planning. The requirements for LNG importation and the policy options that flow from it are made contingent here on the selection of an appropriate energy strategy (e.g. emphasis upon demand management). It is in this context that various means of gas importation - e.g. the use of pipelines; or LNG tankers - are evaluated and selected.

In contrast, Frame C considers the LNG issue as an acceptability and/or feasibility problem. In this reference frame, policy appraisal is limited to establishing the (boundary) conditions under which the siting of a LNG terminal is deemed acceptable or feasible (either in general or at a specific location). Here policy actors are concerned with the criteria which are to be adopted to evaluate the desirability and acceptability of a LNG terminal. In this context, the need for such a terminal is not questioned in itself.

<i>PERCEPTION OF POLICY PROBLEM</i>	<i>RELEVANT POLICY QUESTION</i>
<i>[A] Energy policy implementation</i>	<ul style="list-style-type: none"> <li>● preferred means of natural gas importation?</li> <li>● (if LNG:) preferred location for LNG terminal?</li> </ul>
<i>[B] Energy policy selection</i>	<ul style="list-style-type: none"> <li>● preferred demand/supply energy strategy?</li> <li>● preferred gas supply policy within national energy strategy?</li> <li>● LNG importation desirable?</li> <li>● (if yes:) preferred location for LNG terminal?</li> </ul>
<i>[c] Acceptability/feasibility LNG</i>	<ul style="list-style-type: none"> <li>● conditions of feasible LNG LNG site?</li> <li>● conditions for accepting/rejecting a LNG terminal location?</li> </ul>

Table 6.20:

Competing reference frames LNG policy problem

Policy actors involved in the LNG decision controversy may now be grouped against these three reference frames. Previous analysis indicates that governmental policy actors at the national level (Cabinet, ministerial departments, advisory bodies) considered the LNG policy issue predominantly in the context of established Dutch gas policies (Frame A). The desirability of natural gas imports was accepted, and the policy discussion concerned the means and conditions for implementation. This perspective reflected the 'official' policy frame by which the LNG decision process was structured. In this context, policy actors at the provincial, regional and municipal levels were requested by the national government to evaluate only the feasibility and acceptability of a LNG terminal in their respective area of responsibility. Local governmental actors were thus to limit the policy discussion largely to Frame C.

The earlier discussion highlights, however, that a number of local governmental policy actors went beyond the 'official'

frame of reference that were assigned to them. Rijnmond Public Authority did not limit discussion to the evaluation of the pre-selected LNG sites (Frame C), but debated the potential for alternative policy options (relevant to the Rijnmond region). Consequently, the policy frame adopted by Rijnmond Authority was largely that of Frame A (energy policy implementation). Similarly, Zuid-Holland Provincial Authority included additional LNG options in their policy assessment, requesting further investigation of sites, and reconsideration of the Voornedam and island locations. At national governmental level also, the 'official' policy frame was challenged. Within the national government, for example, the Ministry of Health and Environmental Protection (within ICONA) evaluated the LNG issue from the perspective of Frame B (rather than A), by questioning the need for natural gas imports in liquefied form (Tweede Kamer 14626:3, Bijlage 3).

As to non-governmental actors, the applicant Gasunie addressed the LNG issue predominantly in the context of Dutch energy policy (Frame A). Even before the process of public decision-making commenced in full, Gasunie had resolved the policy question as to the need for LNG importation. At later stages of the policy process, Gasunie effectively operated in the context of Frame C, examining the feasibility and operating conditions for a LNG site at (pre-)selected sites (Maasvlakte; and in Round C, Eemshaven).<sup>[35]</sup>

The most comprehensive policy perspective in the LNG decision dispute, Frame B, was adopted by two groups of policy actors that were critical of the governmental LNG siting plans: environmentalist organisations, and a number of Parliamentary opposition parties. Both groups questioned the need for natural gas importation, and challenged the national governmental view that foreign supply by means of LNG tankers was the only feasible policy option. In the context of this reference frame, they argued that the question of selecting an appropriate energy strategy was to be re-opened. Table 6.21 summarises the

policy stances of the main actors in the LNG decision controversy in terms of the three contending reference frames identified here.

[A] Energy policy implementation	[B] Energy policy selection	[C] Acceptability/feasibility LNG
ICONA (majority) Cabinet/national Government Rijnmond Public <sup>+</sup> Authority Zuid-Holland <sup>+</sup> Province Gasunie	Environmentalist Groups Parliamentary parties (minority) ICONA (minority: Min. Health & Env.)	Rotterdam City Groningen Local authorities (Gasunie) <sup>++</sup>
<p>Notes: <sup>+</sup> Although these policy actors did not address all policy questions associated with this reference frame, they are included here since they did evaluate a number of policy options for (liquefied) natural gas importation which were outside the more restrictive terms set by the national government (Frame C) of assessing Maasvlakte sites A and B only.</p> <p><sup>++</sup> Gasunie has a prime responsibility for implementing Dutch energy policy in so far it concerns gas supply; its commitment to a Dutch LNG terminal, however, was made early during Round A. Gasunie's policy frame during most of the LNG decision-making process was thus limited to establishing the feasibility and acceptability of various LNG terminal locations.</p>		

Table 6.21:

Competing policy actors: contending reference frames

Process dissensus: the time imperative

The contending reference frames that emerged in the LNG policy dispute are to be considered in the context of the dynamics of the decision process. In the early stages of decision-making (Round A), the policy arena involved only a limited number of actors; these were in broad agreement as to the appropriate reference frame for debating the various policy options. The Economic Affairs Ministry, Gasunie and Rotterdam Harbour Authority were all concerned with the formulation and implementation of national energy policy, thus operating in the context of Frame A (see Figure 5.3). This dominant energy policy frame had significant structural implications for the



various detailed issues that were debated in subsequent stages of the controversy. In this respect, a particular contentious question was the approval of the Algerian LNG import contract and its stringent time constraints. The issue of timing represents an insightful 'indicator' of process dissensus in the conflicting problem definitions adopted by policy actors.<sup>[36]</sup>

The signing and approval of the Algerian LNG import contract (by Gasunie and the Economic Affairs Ministry), highlighted the dominant governmental view (in Round A) that gas importation in liquefied form was desirable.<sup>[37]</sup> In this context, the subsequent governmental procedures were structured around the issue of LNG importation per se, taking the Algerian contract as a premise for further policy decisions (Tweede Kamer 14626:3,p.3; Tweede Kamer 1977b, p.405). The existence of the LNG import contract enabled the national government to shift the policy agenda from the issue of whether natural gas should be imported (in liquefied form or not) , to where LNG should be imported.<sup>[38]</sup> In considering the various 'appropriate' policy options , much depended therefore on the acceptance of the LNG import contract as boundary condition for further assessment and evaluation. In particular, the time constraints set by the Gasunie-Sonatrach contract provided a significant touchstone for the contending frames of reference in the LNG decision controversy.

The dominant perspective on the issue of timing was the view that the dates set by the Algerian contract should be honoured (i.e. a definite decision on the LNG import location by October 1978) The imperative of this 'a priori' governmental position prompted the national government to design a special local approval procedure, and became a significant premise for further evaluation of the various options. ICONA explicitly identified the Algerian contract and the timing specified within it as a boundary condition for assessment and choice.<sup>[39]</sup> (ICONA 1977,p.12; ICONA 1978a,p.4-6; ICONA

1978b,p.3-5). The Cabinet's position - although not finalised until August 1978 - reflected the acceptance of this boundary condition in its policy formulation <sup>[40]</sup> (Tweede Kamer 1977b,403; Tweede Kamer 14626:5/6/9/11/13; Tweede Kamer 1978a,849,860).

Given the request as framed by the national authorities, local governmental policy actors accepted the time constraints set by the Algerian LNG contract. The policy assessments made by the local authorities at Rotterdam and Eemshaven were made in context of the national government decision in favour of LNG importation. The contractual arrangements were considered outside their terms of reference.

The main group of policy actors challenging the contractual terms as premise for LNG decision-making were Parliamentary opposition parties, and environmental organisations. A number of Parliamentary parties argued the case for delaying a definite decision on LNG beyond the stipulated 'deadline', in order to (re-)assess alternative policy options, and to examine further a number of controversial aspects, especially safety. <sup>[41]</sup> (Tweede Kamer 1978a). Similarly, environmentalist groups, such as the Working Group Noordzee rejected the time constraints of the Sonatrach contract. As shown earlier, they argued for a delay in the final decision by the national government until further aspects and policy options were (re-)examined. (Noordzee 1978a,b). Table 6.22 summarises the various contending policy stances in terms of acceptance or rejection of the Algerian LNG import contract as a 'boundary condition' for policy evaluations and selection in the LNG decision dispute.

<i>Terms of contract binding</i>	<i>Terms of contract not binding</i>	<i>Terms of contract not considered relevant for policy preference<sup>[+]</sup></i>
<ul style="list-style-type: none"> <li>● ICONA</li> <li>● Cabinet/national government</li> <li>● Gasunie</li> </ul>	<ul style="list-style-type: none"> <li>● Environmentalist groups</li> <li>● Parliamentary parties [minority]</li> </ul>	<ul style="list-style-type: none"> <li>● Rotterdam City</li> <li>● Rijnmond Public Authority</li> <li>● Zuid-Holland Province</li> <li>● Groningen local authorities</li> </ul>
<p><i>[+] Note: This perspective on the LNG contract was underpinned by the restrictive frame within which local authorities assessed the LNG siting alternatives exclusively within their areas of jurisdiction (conform governmental requests)</i></p>		

Table 6.22

Process dissensus: contractual imperativesIssue dissensus: contending formulations and evaluations of impacts

The policy statements reviewed in this chapter highlight that the participants to the LNG decision controversy made divergent assessments of the perceived impacts of different policy options. Dissensus on the evaluation of policy alternatives was underpinned by different formulations and comparisons of expected consequences. By reference to the dimensions introduced earlier in the Chapter, this section identifies a number of structural differences in the way conflicting policy actors perceived and assessed the potential impacts of alternatives, and in the premises they adopted for policy evaluation and choice. It analyses divergent problem definitions among policy actors, examining a number of significant instances of issue dissensus in the LNG siting dispute.

In the LNG decision case two main 'modes' of impact assessment and evaluation may be distinguished: one based on comparative measures and trade-offs, the other on absolute evaluative criteria. The comparative mode is biased towards policy evaluation on the basis of a trade-off among different impact dimensions and a comparison between alternative options (e.g. different LNG sites). By contrast, the 'absolute' assessment mode, tends to focus on separate impact dimensions, evaluating the various options in their own right by reference to certain absolute impact criteria.<sup>[42]</sup>

#### Risk assessment and evaluation

The divergent bases for assessing the perceived impacts of policy alternatives in the LNG decision controversy were particularly significant in relation to the health and safety dimension. The following review illustrates that policy conflicts over the assessment of safety risks associated with LNG were manifest at a number of different levels. First, there was disagreement as to the inherent properties of LNG, especially on the probability of detonation.<sup>[43]</sup> Secondly, policy actors diverged on the risk definition that was adopted, in particular whether assessment was to be based solely on 'technical' risk analyses. Thirdly, conflicts persisted over how risk evaluations were to be related to other impact assessments, and the extent to which the safety dimension served as criterium for policy choice. Below, I examine these three elements of the LNG risk dispute, and analyse policy actors' contending problem definitions in relation to the various impact assessment manifest in the policy controversy.

The dispute over the risk probabilities associated with the detonation of LNG can be considered a 'scientific controversy': expert disagreed about the 'facts' and their interpretation.<sup>[44]</sup> Without elaborating on the possible factors

underlying the various contending scientific views on detonation per se, I am concerned here with the different stances policy actors took up in the context of the LNG decision controversy. Three risk perspectives on the issue of LNG detonation can be distinguished:

- (a) detonation of LNG can not occur: probability is zero;
- (b) detonation of LNG can occur: positive probability which (in principle) can be quantified;
- (c) detonation can occur: probability positive, but can not be determined.

Table 6.23 groups the major policy actors according to their respective stances on the issue of LNG detonation. [45]

<i>LNG DETONATION IMPOSSIBLE</i> <i>Probability = zero [P=0]</i>	<i>LNG DETONATION POSSIBLE</i>	
	<i>Probability quantified [P=1%]</i>	<i>Probability indeterminate [P=positive]</i>
<ul style="list-style-type: none"> <li>● ICONA [majority]</li> </ul>	<ul style="list-style-type: none"> <li>● Cabinet/government</li> <li>● Groningen Province</li> <li>● Rijnmond Authority</li> <li>● Rotterdam City</li> </ul>	<ul style="list-style-type: none"> <li>● Zuid-Holland Province</li> <li>● Environmentalist groups</li> <li>● Parliament [minority]</li> </ul>

Table 6.23:

Scientific dispute: risk probabilities detonation LNG

Disagreement among policy actors on the definition of risk used in impact assessment was a significant case of issue dissensus in the LNG decision dispute. Two basic risk formulations can be identified from the political accounts reviewed in this chapter:

- [i] 'factual risk' - defined as the (quantitative) product of "probabilities x consequences" of accidents; and

- [ii] 'perceived risk' - defined by the risk experienced by the (local) population, esp. in the areas where a LNG terminal is planned.

Given the importance of the risk issue in the LNG decision controversy, the contending risk definitions used by different policy actors provide significant indicators of competing problem definitions underlying the policy dispute. Below, I analyse the various risk perspectives of participants to the debate.

The quantitative risk definition in terms of "probabilities x consequences" was used in the formal risk analyses carried out by TNO (TNO 1976;1978), and was adopted by the majority of national governmental actors. The risk comparison made by ICONA in assessing the desirability of a land-based or off-shore terminal was made on this basis. ICONA's overall risk assessment (during Round B) similarly was premised on this risk formulation. (ICONA 1977; Tweede Kamer 14626:3,6). ICONA made some distinctions between the so-called "factual risks" and "perceived risks" during the latter stages of the decision process, but its impact evaluation and policy assessments continued to refer to the quantitative risk analytic data alone. In the comparison between Eemshaven and Maasvlakte sites, the issue of "perceived risk" was discussed, but played a minor role in ICONA's policy evaluation.<sup>[46]</sup>

The governmental view as advanced by the Cabinet, similarly emphasised the quantitative risk definition [i], as basis for impact evaluation and policy assessment. Especially in the earlier stages of decision-making the Cabinet used the notion of "risk x probabilities" to compare the land-based Maasvlakte site with other LNG terminal locations (Tweede Kamer 14626:6,2). Issues of "perceived risk" were largely seen in terms of "psychological pressures" upon the local population, resulting from the "totality" of hazardous activities in a particular region (Tweede Kamer 14626:9,31).<sup>[47]</sup> The Cabinet justified its risk assessment, however, largely by reference to the "factual risk" data (as calculated by TNO).

The safety evaluations made by local governmental policy actors were dominated by consideration of the "factual risks", using mainly the TNO risk analyses. Only Rijnmond Public Authority based its risk assessment and policy evaluation explicitly on the notion of perceived safety risks. Neither Zuid-Holland Provincial Authority nor the City of Rotterdam Authority evaluated the risk dimension explicitly in terms of the local perception of safety hazards. The Rotterdam Governors viewed the perceived risks as "psychological pressure" upon the local population, which they believed could only be evaluated in the context of other dimensions (Rotterdam 1978c,1054). Both these local government actors based their assessments predominantly by reference to the quantitative risk data. (Rotterdam 1978c,1039; Zuid-Holland 1978b,22). The Groningen local authorities carried out their own risk analysis (Groningen 1978a), using the "probabilities x consequences" definition of safety risks. The Groningen authorities referred to the notion of risk as "experienced" by the local population ("ondervonden risico"), but treated it as a "psychological" risk factor, that was deemed an "unrealistic" basis for policy evaluation (Groningen 1978h,4).

By contrast to the above local government actors Rijnmond Public Authority placed particular emphasis in policy evaluation upon the (so-called) "psychological-social" pressure upon the local population. This perspective on risk attached particular significance to the large effects of a potential LNG accident in the region (Rijnmond 1978a,66). In this context, the Rijnmond Authority argued that the national government had over-emphasised the "total risk" level at different sites (i.e. the product of probability and effect). It argued that the consequences of accidents at different sites should be compared in assessing and evaluating the safety dimension (Rijnmond 1978,67-68). The bias towards the risk level as perceived by the local population is highlighted the words of the Rijnmond Governor responsible for environmental affairs:

"[for the] risk experienced by the population, it does not make much difference whether the probability of death as a result of LNG was once in ten-thousand or once in hundred-thousand". (RRM 1978,3)

Environmentalist groups similarly rejected the technical risk definition in terms of "probabilities x consequences". The Noordzee environmentalist organization argued that the consequences of accidents were indicative of the risk level experienced by individuals (Noordzee 1978,5). This notion of 'perceived' risks, dominated their perspective whilst largely accepting the calculations of "factual risk" as presented in the TNO risk analyses. Environmentalist groups<sup>[48]</sup> furthermore, stressed the "mental pressure" upon the local population in the Hoek van Holland/Rotterdam region as a significant factor in the assessment of risk (RRM 1978,7).

Many of the Parliamentary political parties were critical of using solely the risk definition in terms of the product of probabilities and consequences. Some argued that even when accepting the risk analytic data (the "factual risk" level as calculated by TNO), this risk formulation was not meaningful in such cases where the potential accidents give rise to exceptionally large consequences (Tweede Kamer 1978,764/772/791).<sup>[49]</sup> In Parliament and elsewhere, it was apparent that the dispute on defining and formulating the safety risk associated with LNG developments was inexorably linked to the issue of risk evaluation. Before summarising the different risk definitions adopted by the policy participants in the LNG dispute, the following discussion therefore reviews the contending bases for risk evaluation as manifest in the policy stances of the various actors.

In the LNG decision controversy three basic contending positions can be discerned on risk evaluation:

- (i) The view that the acceptability of risk levels can only be judged in comparison to other impact dimensions. The assessment of risk is seen here as a trade-off between risks (and other perceived negative impacts) and (perceived) benefits.



- (ii) The view that criteria for acceptable/unacceptable risks levels are to be used, in order to determine whether a policy option or LNG site should be accepted or rejected.
- (iii) The view that it is possible to determine references and acceptable risk levels by comparative assessments of different options or LNG sites. Risk assessment is thus seen here as a relative measure only. (Included here are cases where the acceptability of a LNG terminal is judged relative the risk of other industrial activities).

The contending policy assessments of participants in the LNG controversy can now be analysed by reference to these three basic perspectives on risk evaluation. (A degree of repetition of the earlier discussion is inevitable here).

ICONA assessed the risk and safety dimension predominantly in comparative terms. The inter-departmental committee did not specify a specific (absolute) risk level by which the the acceptability/unacceptability was to be judged.<sup>[50]</sup> The "socially acceptable" level of safety of LNG activities at or near Maasvlakte was partly argued by ICONA in terms of the "comparable risks" to which the population was already exposed (Icona 1978,4-30). A risk comparison between the two prime land-based sites (mainly in quantitative terms) was presented by ICONA, but no distinct policy implications were attached to this safety assessment (Icona 1978b,3-5).

The risk assessment advanced by the Cabinet was strongly biased towards comparative approaches - both in the evaluation of land-based versus off-shore siting, and in assessing the Maasvlakte and Eemshaven locations (Tweede Kamer 14626:6,2;14626:11,11). The Cabinet rejected the use of general criteria for evaluating acceptable risk levels, since it argued that the safety dimension could only be evaluated by taking into account other "relevant aspects" (Tweede Kamer 14626:29,5). Hence the Cabinet assessed the risk and safety of LNG activities (albeit implicitly) in terms of a trade-off against other impact dimensions.

Among the three local authorities concerned with the Maasvlakte sites, considerable differences can be detected in the mode of risk assessment. The Rotterdam City Authority considered the safety dimensions in comparative terms, arguing that the risks involved should be weighed against the social benefits expected for the local area (Rotterdam 1978c,1054). The Provincial authorities of Zuid-Holland adopted a comparative approach to risk assessment, stressing the adherence to the so-called "stand-still" principle. In this perspective, the "cumulative" risk level in the region was not to increase (Zuid-Holland 1978b,22). Rijnmond Public Authority, on the other hand, took a less comparative approach, judging the "perceived risk" associated with LNG handling in itself as unacceptable. Whilst rejecting a risk assessment on the basis of absolute quantitative safety levels, Rijnmond Authority expressed an uncompromising stance as to the unacceptability of the potential consequences of a LNG accident (regardless of the probabilities involved). (Rijnmond 1978a,66).

The Groningen local authorities initially assessed the risk associated with LNG activities by reference to limits set within the standard provincial "environmental norms". On the basis of quantitative risk data the proposed LNG plans at Eemshaven were considered within these limits.<sup>[51]</sup> (Groningen 1978c,56-9). The Groningen authorities subsequently assessed the acceptability of LNG at Eemshaven in comparative terms, evaluating the (expected) risk levels relative to other sizeable industrial projects and in comparison to Maasvlakte (Groningen 1978i,8).

Environmentalist organisations assessed the acceptability of risks predominantly in 'absolute' terms. Whilst being critical of the qualitative risk analyses carried out by TNO, environmentalist groups used the figures on casualties to argue their objection to the health risks of the proposed LNG developments. Quoting the figure of 17,600 deaths in the case

of a "maximum credible accident" at Maasvlakte, environmentalist groups considered such a "catastrophic accident" unacceptable (Noordzee 1978b,5). Similarly, the consequences calculated (by TNO) for potential LNG accidents at Eemshaven provided the basis for their rejection of the safety levels (cf. Eemsmond 1978b,4). As mentioned earlier, the rejection of the risk levels at the Maasvlakte and Eemshaven sites were also argued by reference to the absolute criteria cited in California's LNG Senate Bill 1081 (in terms of minimum distance to populated areas).

Gasunie did not explicate its position on risk formulation and risk assessment. The industrial applicant assumed that the (technical) safety levels could be made to "acceptable" requirements (Gasunie 1978c,3).

Summarizing the above review of risk assessment and risk evaluation, Table 6.24 presents the conflicting perspectives on the health and safety dimension in the LNG controversy. It shows the impact assessments made by the major policy participants in terms of risk definitions and the contending evaluative bases for risk assessment. This table indicates a considerable degree of divergence in problem definitions among policy actors in relation to the LNG risk dispute.

The basic differences in risk perspectives reviewed above, highlight the importance of the safety dimension in judging the acceptability of LNG technology by various policy actors. Table 6.25 summarises the position of major participants to the LNG debate on the issue of risk and acceptability, showing the extent of policy dissensus on the appropriate bases for risk assessment and the implications for policy choice. They represent significant manifestations of competing policy perceptions in relation to the assessment of technological risks.

Table 6.24:  
Policy actors' risk definitions and risk assessment criteria

<u>POLICY ACTORS</u>	<u>RISK DEFINITIONS [dominant]</u>		<u>RISK ASSESSMENT CRITERIA</u>		
	<i>probabilities x consequences</i>	<i>as perceived/ experienced by local population</i>	<i>risk v versus benefit trade-off</i>	<i>absolute risk criteria</i>	<i>comparative risk assessment</i>
● ICONA	X		X		(X)
● Cabinet/national government	X		(X)		X
● Rotterdam City	X		X		(X)
● Rijnmond Public Authority		X		X	
● Zuid-Holland Province	X				X
● Groningen local authorities	X			(X)	X
● Environmentalist organizations		X		X	

Acceptable	Too uncertain	Additional population risk unacceptable	Unacceptable
Cabinet ICONA Parliament (majority) Rotterdam Harbor Authority Rotterdam municipal authorities Groningen local authorities RPC	Zuid-Holland Provincial Council Eemmond Environmentalist Group North Sea (Noordzee) Environmentalist Group	Zuid-Holland Provincial Governors Rijnmond Public Authority Minister of Health and Environmental Hygiene (minority view) ICONA (minority)	North Sea (Noordzee) Environmentalist Group Electricity Corporation of Groningen

*Notes*  
*Acceptable*: risks are negligibly small or acceptable in relation to the advantages of LNG.  
*Too uncertain*: the risk analyses are too uncertain; too many underlying assumptions and contradictions; it is unacceptable to draw conclusions (at this stage); further investigation of risk and alternative options should be pursued.  
*Additional population risk unacceptable*: psychological factor/perceptions of risk; at least handling/reception of LNG should not take place at Maasvlakte (parties in this group did not express views on the acceptability of the risk at other locations, nor on absolute levels of acceptable risk).  
*Unacceptable*: possible consequences of an accident are too great; reception/handling and storage of LNG onshore are unacceptable.

Table 6.25:

Risk positions policy actors in LNG decision controversy-  
conclusions

Re-examining the LNG decision controversy

This chapter has analysed the conflicting policy stances in the LNG decision dispute in terms of competing interest criteria and contending problem definitions. It has established that policy actors differed in significant ways on the appropriate bases for policy evaluation and on the relevant definitional boundaries to the LNG policy issue. In this respect, competing

perspectives on the safety risks associated with LNG technology have been identified as significant features of dissensus among institutional actors. In order to account for the process and outcome of decision-making in the LNG controversy, these manifestations of controversy have to be analysed in their inter-relationship and need to be assessed in their appropriate contexts. In particular, the role of contending problem definitions as (partial) determinants in the controversy will not be subjected to further analysis.

Given the discussion above, the next chapter re-examines the LNG controversy and tries to account for the process and outcome of the decision dispute by reference to the conflicting policy stances. It assesses the key determinants of dissensus among policy actors, and analyses the extent to which divergent problem definitions may be understood in relation to the expressed interests advanced by the disputants. In assessing the social and political contexts within which policy actors operated, it examines the strength of the cultural bias frame in empirical policy analysis of 'technological decision' controversies.

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Notes and references - see next page.

## Chapter 6

NOTES AND REFERENCES

1. cf. J.D. Thompson and A. Tuden, "Strategies, Structures and processes of Organizational Decision", in J. Thompson, et al (eds), Comparative Studies in Administration (Pittsburgh: Pittsburgh University Press, 1959), pp.195-216.
2. My impact dimensions are derived from an initial analysis of empirical data, and focus in particular on those areas which features highly in the manifest policy dispute. (see also Chapter 4).
3. The three ICONA reports were submitted to the Cabinet (sub-committee MICONA) in October 1977, February 1978 and June 1978 respectively. The first report, (during 'Round A' 1977) took the form of 'policy advice' (beleidsadvies) accompanying the STUNET studies (1977a; 1977b). ICONA drew heavily upon the STUNET reports in terms of factual data and initial analysis (Tweede Kamer 14626:3). At the request of the Cabinet in its second report ICONA focussed (in 'Round B') in more detail on a number of aspects of the LNG issue, including safety, economic, nautical and planning considerations. This second report (ICONA 1978a) was largely concerned with the Maasvlakte sites and a number of off-shore locations, which were still under consideration at the time (early 1978). It is significant that ICONA did not make a detailed assessment of the Eemshaven option until its third policy report (ICONA 1978b).
4. All quotations from empirical policy documents are based on original text in Dutch (unless otherwise stated, translation by M.S.).  
As to the cost comparison, ICONA also argued that the expensive off-shore options would result in a cost prices for gas in the Netherlands which it considered "far too high" (ICONA 1977:8).
5. This claim was based on risk analytic figures, quoting the respective levels ("probabilities x consequences") at Maasvlakte and an island-terminal of 0.27 as compared to 0.24 (based on the import volume of 25 billion m<sup>3</sup> LNG per year). According to ICONA this difference was "virtually negligible" ("vrijwel verwaarloosbaar") (Tweede Kamer 14626:3, p.5). ICONA's risk definition was based on the approaches taken by STUNET (1977; 1977b) and the TNO risk analysis (TNO 1976).

6. As regards the safety dimension of a LNG terminal, a minority view was published by the ICONA member representing the Ministry of Health and Environmental Protection (Volksgezondheid en Milieuhygiëne). This position was argued in terms of the following assertions (ICONA 1977:13)

- the evidence does not indicate "incontestably" that importation of LNG is absolutely required for Dutch energy supply;
- the possibility of LNG detonation can not be ruled out completely and could lead to thousands of deaths and billions of guilders of damage in an area such as Rijnmond;
- the STUNET Project Group should have considered the 'maximum credible accident' in assessing the consequences of a Maasvlakte terminal for LNG;
- public concern of the local population in the Rijnmond (Rotterdam) area is justified; that the dangers associated with existing (chemical) industries in the densely populated area were already considerable.

On the basis of these considerations, it was concluded that "location of a storage and handling facility for LNG at a Maasvlakte site is unacceptable".

A second minority view, expressed by the ICONA member representing the Minister of Science Policy, concerned the "structure" of the ICONA advisory report (p.14). It stressed the divergence between a draft version of the ICONA report and the final study published, on the assessment of an off-shore versus land-based terminal. In particular, the minority view questioned the lack of detailed information underpinning the cost comparison, and the "insufficient" data for assessing the likely completion dates for an off-shore terminal (ICONA 1977:14).

7. In the words of the ICONA report, Gasunie "could ensure" the supply of Algerian gas to the Netherlands (1977,p.1-3). This wording corresponds with a perception of the LNG demand/supply situation as a "sellers market".
8. This latter option was a realistic possibility given that both Belgium and FR Germany were at the time considering to build LNG import terminals. ICONA judged this "undesirable" (1978a,3-8) because of strategic factors (security of supply, etc.) and additional cost.



9. In this respect, ICONA concluded that the 'perceived risk' was highest at the Maasvlakte sites, but believed that this risk aspect could better be assessed in the course of local policy deliberations.
10. The policy debate was thereby reduced to a choice between the Maasvlakte and Eemshaven sites. ICONA assessed the respective options in terms of the following policy 'dimensions': "energy policy, safety, technical-nautical consequences, safety/risk, environmental protection, physical planning, economic activities, cost, international consultation, and the required time for completion" (1978b,1-4).
11. This factor was also assessed in the context of the cost dimension, resulting in an advantage of the Maasvlakte sites as compared to Eemshaven. The main reasons cited were the 10% shorter route from the Algerian suppliers and the need for additional dredging at Eemshaven.
12. As a selection criterion for the exact location of a land-based LNG terminal in the Netherland, the energy policy considerations played a less significant role in ICONA's policy formulation, as compared to earlier stages of the decision process. Nevertheless, its assessment led to a marginal preference of Maasvlakte, because of the larger quantities that could be handled, the proximity to major users, and the anticipated scope for coal gassification facilities in conjunction with a LNG terminal (1978b,2-5; bijlage 2,7).
13. The 'direct' employment effects (of 50 man-years) at both sites were considered identical, but in the case of Eemshaven an additional 50 man-years stemming from "infrastructural activities" were foreseen (1978b,2-23). However, larger prospects for additional employment were seen at Maasvlakte due to "external" industrial activities (e.g. the development of a cryogenics industry). (1978b,2-25).
14. The majority report by ICONA purposively left out of its assessment the regional policy imperatives. A separate statement by the Economic Affairs Ministry representative stressed that it was inappropriate for ICONA to express its opinion as to the 'weight' to be given to the "political dimensions" of regional policy. In his view, it should be assessed in the Cabinet's policy selection relative to other impact dimensions: "If on account of regional economic policy an Eemshaven location would be preferred, this would have to outweigh the additional cost associated with a terminal at Eemshaven" (1978b,3-6).

15. ICONA reiterated the conclusion of the CPR that the lower risk at Eemshaven in terms of maximum consequences, were offset by an expected higher level of 'perceived' risk experienced by the local population around Maasvlakte. It noted that local policy-making procedures and public involvement (inspraak) at local authority level would establish whether the local risk perceptions were as high as anticipated (1978b 3-2).
16. It is significant that the Rotterdam Harbour "cost-benefits analysis" was carried out in quantitative terms only and excluded the risks associated with LNG hazards. An important aspect in the acceptance of LNG from a "societal points of view", was the fact that the cost-benefit analysis assumed a high level of LNG imports (25 billion cubic metres per year); at considerable lower quantities the Rotterdam Harbour benefit/cost ratio would fall below 1. (Rotterdam 1977a,94).
17. Economic and socioeconomic considerations played a major role. Policy statements suggest that Maasvlakte site C was rejected on the basis of high cost, whilst in the comparison between sites A and B, the latter was favoured because of the scope for additional industrial developments adjacent to the LNG terminal site.
18. Zuid-Holland Authority argued against Maasvlakte site A because of the limited space for adjacent industrial activities, whilst site C was seen as unfavourable in view of regional planning considerations.
19. The political sensitivity of the LNG siting issue was reflected in the delicate way in which Zuid-Holland Provincial Council worded its rejection of the Maasvlakte sites: "a forced choice between Maasvlakte A and B ... has to lead to a rejection of site A, whilst it cannot lead to a positive choice in favour of site B, until other seemingly more attractive alternatives (incl. Voornedam, island terminal) are further investigated and reconsidered" (Zuid-Holland 1978c, p4361). This position was based on four stated considerations:
  - the outstanding importance of LNG in the Rotterdam region;
  - the considerable risk, especially at site A, due to the proximity of populated areas, which were already subject to many other risks; and
  - the limited scope for extended activities for Maasvlakte sites A and B;
  - the view that potential advantages and disadvantages of alternative sites had not been adequately explored.
 In the context of the above, it was surprising that in partial deviance of the Provincial Council, the

Zuid-Holland governors indicated in a letter to the national government (25 July 1978) that Maasvlakte B would be an acceptable LNG site conditional to maximum safety measures and other risk-reducing measures. (incl. safety to chemical industries in teh Rijnmond area). (Zuid-Holland 1978e).

20. Contrary to the national government's request, Groningen authorities also assessed the comparative advantages of the Eemshaven site over Maasvlakte.
21. Other impact dimensions can be seen to have been addressed largely as 'operational conditions': once a preferred LNG site was selected on the grounds of economic and energy policy considerations, the feasibility and acceptability was assessed in terms of its nautical access, safety, environmental impact and socio-economic effects.
22. Gasunie's preference for Rotterdam - which was apparent from the early 1970s when it planned the LNG peak-shaving plant (Gasunie 1978a, p.14) - was initially strengthened by its concern for timely access for LNG terminal for the reception of the contracted Algerian LNG. In the perceived "sellers market", time was seen as of the essence - both in respect of contracting LNG supplies, and as regards the selection of a suitable LNG facility site. Only later, in the face of local opposition, was Gasunie 'forced' to accept alternative sites.
23. In the LNG decision case, Noordzee working group acted in collaboration with, and on behalf of twelve other environmentalist organizations, whose involvement is not analysed separately in this respect (see Table 5.3).
24. The Noordzee working group quoted the TNO figures for a maximum credible accident at Maasvlakte in this respect: 17,600 fatal casualties. (Noordzee 1978b.,p.5; reference to TNO 1976).
25. This section is based on the analysis of documents and statements by the Cabinet or individual Cabinet ministers (rather than by civil servants, representing the 'national government'), The abbreviated notation of reference followed here, uses TK for Tweede Kamer, denoting a Parliamentary Paper presented to the Lower House; the number 14626 refers to the subject number of the LNG siting policy issue, and the number 11 indicates the document number. The full reference for this statement would be Tweede Kamer, zitting 1977-1978,14626,nr.11 page 5.

26. Mainly by reference to the ICONA figures, the Cabinet concluded that the cost of an island-terminal was "excessive" (TK 146262/3,p8).
27. In March 1978 the Cabinet expressed its view that "the probability of calamities involved in the location of a LNG terminal at an artificial island does not differ essentially from that involved at Maasvlakte sites A and B". The same conclusion applied to Maasvlakte site C (TK 14626:6,p2).
28. The Cabinet policy statement of June 1978, for example, whilst not eliminating the Eemshaven option entirely at that stage, concluded that it saw "not inconsiderable objections" to this site (TK 14626:7,p1).
29. It is significant that the assessment by the Cabinet was based on the assumption of a yearly import level of 12 billion cubic metres of LNG. The potential for larger LNG tankers at Maasvlakte had been cited as a factor in favour of this site. (TK14626:9, p36).
30. However, the Cabinet noted that in terms of the potential use of "cold energy" (cryogenics), the external effects would possibly be greater in the Rotterdam region (TK 14626:9,p.36).
31. The fact that this policy position was entirely consistent with the majority view expressed by ICONA (which included civil servants representing most Cabinet ministers), lends support for my analysis of the Cabinet's initial policy perspective, as summarised in Table 6.18.
32. This summarised final policy perspective is based on analysis of TK 14626:11 and Tweede Kamer 1978a.
33. For the notions of "issue dissensus" and "process dissensus" see Jonathan I. Gershuny, "What should forecasters do? - A Pessimistic View", in P.R. Baehr and B. Wittrock, Policy Analysis and Policy Innovation - Patterns Problems and Potentials (London: Sage, 1981), pp. 193-207.
34. The three reference frames identified here are partially overlapping; the crucial distinction is the level of problems attended to. A higher-order level typically acts as a contextual premise for lower-order questions. Within one frame of reference, a particular policy choice may be taken as given, whereas in another it is considered still open for negotiation. For a brief discussion of sequential decision-making in the context of gas terminal siting see also J. Linnerooth "Risk analysis in the Policy Process", in H. Kunreuther, J. Linnerooth, et al., Risk

Analysis and Decision Processes - The Siting of Liquefied Energy Gas Facilities in Four Countries (Berlin: Springer-Verlag, 1983) esp. p.185-187.

35. In the sense that Gasunie did no longer question the need for LNG importation and a Dutch facility (Frames B and A respectively).
36. The contention was due to the fact that the LNG import contract seem to 'close' policy discussion on the need for LNG importation and on the desirability of a Dutch terminal. New policy actors fuelled the LNG decision controversy, by re-opening debate on these issues (see the changing policy arenas discussed in Chapter 5, section 4).
37. The signing of the LNG import contract characterised the 'imperative' towards rejecting the so-called "pipeline alternative" of importing natural gas in gaseous form.
38. The rejection of the island terminal as a viable option highlights the significance of the 'official' policy agenda in providing the background to the 'screening procedures' for evaluating siting options, and to set the terms for initial assessments.
39. As mentioned earlier, the time constraints were seen as an "a priori boundary condition" by ICONA (ICONA 1978a, 4-6). In its final policy report, ICONA stated explicitly that "the time required for the realisation of a LNG terminal ... constitutes a determining factor in the selection of a location" (ICONA 1978b,2-36). (my emphasis)
40. It was in this context that the national government saw the need for a special consultation procedure on local authority approval of a LNG terminal. (Tweede Kamer 1977b,p403).
41. In particular the following political parties: PvdA, d'66, PPR, PSP. These represented, however, a minority at the time of the Parliament debate, and a motion requesting the Cabinet to follow this policy line was defeated in the Lower House (Tweede Kamer 1978).
42. These criteria could relate to the assessment of 'positive' or 'negative' impact dimensions. E.g. the perceived need of a LNG terminal "at all cost", or the absolute "unacceptability" of a particular (perceived) risk level, whatever the benefits anticipated.
43. There is no scientific consensus as to the conditions under which detonation (the explosion of a natural gas vapour cloud) will actually take place. For a discussion of export disagreement on the properties of LNG and

- conflicting risk analyses, see C. Mandl and J. Lathrop, "LEG Risk Assessments: Experts disagree", in Kunreuther and Linnerooth et al. 1983, op.cit. (note 34), pp.148-177.
44. I am referring here strictly to disputes among scientists, rather than political controversies involving 'scientific' issues.
  45. The 1% probability in the middle column corresponds to the risk analytic data on detonation as presented in the TNO risk analyses (TNO 1976;TNO 1978). The analysis presented in this table draws partly on J. Heitink, "Risiko's in Recht en Besluitvorming", Technische Hogeschool Twente, Afdeling der Chemische Technologie, November 1981, mimeo.
  46. ICONA saw the issue of risk perception as being appropriate to assessment in the context of local policy deliberations, interpreting this aspects as the risk "as experienced" to the local population in the vicinity of a LNG terminal (ICONA 1978a,4-30; 1978b,3-2). In any case, the perceived risk levels at Eemshaven and Maasvlakte were not considered significant factors in the comparative assessment of the two LNG sites (ICONA 1978b,3-5).
  47. The fact that the perceived risk levels could not be quantified was cited by the Cabinet as a justification for its conclusion that on the basis of risk assessments no preference for either Maasvlakte or Eemshaven sites could be made (TK14626/11,p14). Elsewhere, however, the Cabinet has stated that in terms of the "psychological-social" dimension of safety risk, the Eemshaven site was favoured over the Maasvlakte location (TK 14626:9, p.31;36)
  48. Particular concern was expressed by the local environmentalist group operating in the area between Rotterdam and the coastal region, the "Vereniging tegen Milieubederf in en om het Nieuwe-Waterweggebied" (VMNW 1978).
  49. The main political parties in the Lower House who adopted this line were PPR, d'66, and CDA (Tweede Kamer 1978, esp. p764/765, 772/773, and 791).
  50. An example of this comparative mode of risk assessment was the rejection by ICONA of the island-terminal justified on the basis of a trade-off between the low gains in safety versus the high additional cost involved (ICONA 1978a, p4-30).
  51. More precisely, the quantitative risk level was such that it did not lead to a rejection on the basis of the environmental safety norms, nor could it be approved unconditionally. Following further assessments of the

conditions for LNG developments (e.g. risk reducing measures), the proposed plans were deemed acceptable. (Groningen 1978c, 56-9). The norms were set in "Pollution control and use of norms in Groningen" (County Aldermen of the Province of Groningen, 1979, mimeo). (A translation of Nota Milieunormen 1976). This document defined a range of risk levels situated in between the "acceptable" and "unacceptable" extremes, which required "further assessment" (Dutch: "verdere toetsing", p54).

## CHAPTER 7

DETERMINANTS OF POLICY DISSENSUS IN THE LNG CONTROVERSY:  
THE ADVANCE OF CULTURAL ANALYSIS

1. Introduction

The preceding chapters have examined the LNG decision controversy by analysing the conflicting policy positions of institutional actors. They have identified not only conflicting interests among policy participants - in the sense of contending evaluative criteria for choice - but have analysed competing perceptions as to the nature of the LNG decision issues. In examining the LNG policy controversy it was obvious that a number of institutional actors disagreed on the level of policy preferences. It was less obvious why they disagreed. This chapter analyses further the determinants underpinning the conflicting policy stances, and attempts to account for the key areas of policy dissensus that emerged.

In drawing together the main strands of data and analysis presented in the foregoing discussion, this chapter addresses a number of analytic questions that arise from the empirical and conceptual issues pertinent to 'technological decision'



controversy. In (re-)examining the determinants of policy dissensus in the LNG decision dispute, this chapter is concerned with four analytic tasks. First, to establish the significance of competing problem perceptions as determinants for the process and outcome of decision-making. Second, to analyse the main contrasting problem definitions and actor-specific policy perceptions that were at the centre of the LNG dispute. Third, to examine the adequacy, or otherwise, of the politics-of-interest frame for explaining the divergent problem perceptions in empirical context. And fourth, to assess the advance of cultural analysis in accounting for policy behaviour in the LNG decision controversy.

At the heart of this third and final empirical chapter is thus an attempt to address, in the context of a detailed decisional case, the main theme of this study. That is to question the extent that contending problem perceptions in 'technological decision' controversies can be accounted for solely in terms of conflicts of interests among policy actors, and to argue the significant contribution of the cultural bias frame for enhanced understanding of the dynamics and resolution of public policy disputes over controversial technology.

## 2. Key areas of policy dissensus

Analytical accounts of the LNG decision controversy need to identify the variable influence of different policy actors and events in shaping the process and outcome of the dispute. The different interest-criteria and problem definitions adopted by policy actors need to be examined in the context of the dynamics and structural determinants of the decision process. In order to establish the crucial policy actors and events that underpinned the LNG controversy, the decision process will be re-examined therefore by reference to three issues

- (i) policy actions governing the introduction or exclusion of (alternative) policy options;

- (ii) shifts in the decision process, manifest though changing policy arenas and agendas; and
- (iii) the relative significance of policy positions and actions in determining the final outcome of the decision dispute.

Given the detailed description of policy events presented in Chapter 5, these issues can be addressed below in a summarized review of the LNG decision process.

### Introduction and rejection of policy options

During Round A, the Maasvlakte site emerged as the only 'viable' land-based location for a Dutch LNG terminal, as viewed by national government (ICONA) and the applicant Gasunie. In the initial stages of decision-making the various policy actors were not in dispute over the selection of policy options and the major selection criteria. The consensus among the early participants (Ministry of Economic Affairs, Gasunie, Rotterdam Harbour Authority) provided the background to the governmental decision to reject the option of natural gas importation via pipeline. In this context, the emergence of controversy over the LNG decisions can be considered in terms of divergence from this dominant policy perspective (as established in the early stages of the decision-making process).

The governmental view on the (land-based) LNG sites under consideration was not challenged significantly until the end of Round B, with the (re-)introduction of the Eemshaven site into the policy debate.<sup>[1]</sup> This significant shift in the decision process was initiated independently from the national government, signalling a relative reduction of its influence (as compared to its dominant role in structuring the policy process in earlier stages). Under pressure from Groningen local authorities, and against the background of local oppositions to

a Maasvlakte site, the national government accepted the re-emergence of the Eemshaven option into the policy deliberations.

The inclusion of Eemshaven in the formal decision procedures set out by national government presents the most significant single event in redefining the boundaries to the 'official' policy agenda. Whilst the initiative for restarting discussions with Eemshaven Harbour Authority came from Gasunie, the key policy actor that was instrumental in re-introducing the Eemshaven option was the Groningen provincial authority (in collaboration with the harbour authorities).<sup>[2]</sup> The policy actions of Groningen local authorities were crucial in determining the final stages of the LNG decision dispute, and the eventual selection of Eemshaven.

#### Determinants of shifts in the policy process

A more complex and more 'political' picture emerges when the re-introduction of the Eemshaven option is analysed for its underlying determinants. The determining factor behind Gasunie's initial approach to the harbour authorities and Groningen province was the growing concern over the lack of consensus in the Rotterdam area on the acceptability of a Maasvlakte LNG terminal (as favoured by Gasunie). In this respect, conflicts over local approval of a Maasvlakte site were rooted in divergent impact assessments, especially on one overriding dimension: safety. Considerable opposition became apparent - in late 1977 - on the part of Rijnmond Public Authority, Rotterdam City Council, and Zuid-Holland Provincial Council as far as the (expected) health and safety risks were concerned. Additionally, environmentalist organisations expressed increasing concern over the potential risks to the local population.

The lack of consensus on the safety of LNG developments in the Rotterdam area could become especially significant because of the national government's commitment to the timetable stipulated in the Algerian LNG import contract. Given the concern on the part of the national government (and of Gasunie) over the timely approval procedures for the Maasvlakte site, the opposition expressed within the Rijnmond and Zuid-Holland local authorities must be identified as a key factor triggering a crucial shift in the LNG decision process. This conclusion suggests that the policy perspectives of these two institutional actors require further analysis, in particular their contrasting assessments of the safety risks as a determining factor in the LNG controversy.

#### Determinants for final policy outcome

In many ways, the safety dimension seems to have played a limited role in the Cabinet's final policy assessment leading to the preference of Eemshaven over the Maasvlakte options. As indicated earlier, the Cabinet did not refer to the safety criteria in arguing its final choice, placing overriding emphasis on justifications in terms of regional development policy and socioeconomic aspects. The Cabinet judged both the Maasvlakte and Eemshaven site equally acceptable in terms of safety, but did not endorse explicitly the positive view expressed by Groningen authorities. Whilst the Cabinet did not raise fundamental objections to LNG activities on the grounds of the safety risks, it failed to 'resolve' the basic conflicts among policy actors on the issue of acceptable safety levels for LNG developments.

However, from a broader perspective, taking account of the considerable political dimensions in the LNG decision controversy, the contending risk assessments were instrumental

in determining the final policy choice by the Cabinet. The crucial factor was the the divergence among contending local authorities on the conditions for approval. Having reduced the final decision round to a 'contest' between the Maasvlakte and Eemshaven sites, the Cabinet was confronted with two diametrically opposing groups of local government actors. On the one hand Groningen local authorities strongly endorsed a LNG terminal at Eemshaven, supported at provincial and municipal levels, and backed by local Chambers of Commerce and trades unions. In stark contrast to this united front, the Rotterdam local authorities were divided on the issue of approval. In particular Rijnmond Public Authority was strongly opposed to a Maasvlakte LNG reception facility.

Viewed in the context of this difference in local perspective - especially in terms of the risk assesment - the final policy preference by the Cabinet may be seen to be determined largely by political opportunity and imperatives. Indeed, the selection of Eemshaven as a - symbolic - endorsement of the governmental commitment to regional economic support for Groningen, highlights the political considerations involved. However, in accounting for the underlying factors that gave rise to this political context, we are led back to the divergent policy stances of Groningen and Rotterdam local authorities as the key determinant. The conflicting policy views of these groups of local government actors must be identified therefore as the central manifestation of policy dissensus governing the process and outcome of the LNG dispute. Below I assess the extent that the conflicting policy stances of Groningen and Rotterdam participants are underpinned by contending problem definitions, especially in their assessment of the safety risks associated with LNG technology. In this context, the following discussion examines how the LNG decision controversy can be accounted for in relation to the divergent policy perceptions of these two groups of institutional participants.<sup>[4]</sup>

### 3. Divergent problem definitions: Groningen versus Rijnmond

Groningen authorities strongly favoured a local LNG terminal, whilst Rijnmond Public Authority (and to a lesser extent Zuid-Holland Provincial Authority) expressed strong opposition to LNG developments. In this context the dispute between these two groups of local authorities reflect a number of significant features associated with 'technological decision' controversies (as discussed in Chapter 1). The policy disagreements between Groningen and Rijnmond authorities included conflicting stances in respect of three main issues pertinent to such policy controversies: (i) the acceptability of LNG technology, (ii) the interpretation, valuation and utilisation of scientific data, especially in respect of the health and safety risks concerned, and (iii) the definition and evaluation of the (perceived) risks and benefits associated with LNG technology.

The Groningen and Rotterdam local authorities took up contrasting positions on all three counts. Below I seek to establish that these areas of dissensus are embedded in competing problem definitions among the disputants. Table 7.1 summarises the major distinctions in this respect, based on the analysis presented in the previous chapter. At the centre of the dispute were divergent perspectives on the acceptability of LNG activities in the respective regions. The following sections contrast the policy views of the Groningen and Rijnmond authorities, analysing in detail the different problem perceptions and definitional boundaries by which these policy actors operated - as manifest in their political accounts (cf. Chapter 4). The policy stance of Rijnmond Public Authority will be analysed as indicative of the local government opposition to LNG in the Rotterdam area. Given the foregoing analysis, the contending views on safety and risk assessments will continue to serve as a significant focal point.

Table 7.1:  
Local government conflicts on LNG assessment

CONTROVERSIAL ASPECTS	Zuid-Holland Province	Rijnmond Public Authority	Groningen local authorities
[a] Acceptability of LNG	<ul style="list-style-type: none"> <li>* Maasvlakte site "unacceptable" or "unfavourable"</li> <li>* LNG acceptable at Voornedam site/away from populated area</li> </ul>	<ul style="list-style-type: none"> <li>* combined storage and reception/handling of LNG terminal at Maasvlakte "rejected"</li> <li>* LNG reception terminal only acceptable if off-shore</li> </ul>	<ul style="list-style-type: none"> <li>* LNG importation at Eemshaven terminal "completely acceptable"</li> </ul>
[b] Role of scientific data	<ul style="list-style-type: none"> <li>* formal risk analysis used as partial basis for assessment, to ensure 'stand still' principle in cumulative safety risks</li> <li>* qualitative risk data (psychological pressure on local population) complements quantitative data</li> </ul>	<ul style="list-style-type: none"> <li>* technical risk definition rejected</li> <li>* probabilities and consequences to be compared independently</li> <li>* high-consequence hazards merit special attention</li> <li>* assessment of perceived risk to local population complements quantitative risk data</li> </ul>	<ul style="list-style-type: none"> <li>* technical risk analyses data accepted</li> <li>* 'factual' risk data in terms of "probabilities x consequences" utilized to assess safety level</li> </ul>
[c] Risk/benefits assessment	<ul style="list-style-type: none"> <li>* risk compared to other existing activities; apply 'stand still' principle</li> <li>* regional benefits acknowledged, but cannot be negotiated in relation to safety</li> </ul>	<ul style="list-style-type: none"> <li>* acceptable risk level largely to be determined by consequences</li> <li>* impossible to weigh risk/safety against anticipated benefits</li> </ul>	<ul style="list-style-type: none"> <li>* factual risk data determines acceptability re. quantitative norms</li> <li>* anticipated socio-economic benefits far outweigh other considerations, including safety</li> </ul>

Groningen local authorities problem definition

The perceived benefits of a LNG terminal at Eemshaven were framed by the Groningen local authorities predominantly in terms of regional and socioeconomic factors. Especially in comparison to the Maasvlakte site, the Groningen authorities argued that the Eemshaven option had considerable "objective advantages" (Groningen 1978c,56-12; my emphasis). In this perspective, other impact dimensions including safety, were framed as constraints, that should not "inhibit" the siting of a LNG terminal at Eemshaven (Groningen 1978g,10). Given this problem definition, the Groningen authorities attached much importance to the political commitments on the part of national government; siting at Eemshaven was seen as a "unique opportunity" for the Cabinet to "take seriously the socio-economic problematique of [Groningen] province" (Groningen 1978c,56-12).

Groningen authorities conceded that 'tangible' socio-economic benefits in terms of short-term employment generation would be limited. They emphasised, however, the "psychological" effect upon the local economy (Groningen 1978j,16). In any case, they argued that given the higher unemployment level in the Groningen region, employment created by LNG developments would be "relatively and qualitatively of much greater significance to Groningen" than it would be to the Rotterdam area (Groningen 1978h,4). Groningen authorities repeatedly referred to the "objective' advantages of Eemshaven, arguing among other things that national and European investment subsidies available for the Groningen region would off-set the otherwise negative cost effectiveness of Eemshaven in comparison to the Rotterdam sites (Groningen 1978h,3).<sup>[5]</sup>



## Risk assessment

The handling and assessment of the risk and safety dimensions associated with LNG activities reflect the distinctive problem frame adopted by Groningen local authorities. The risk assessment made by Groningen local authorities was largely made in quantitative terms (as presented in the risk analyses carried out by TNO and by the Groningen provincial public works authority; TNO 1978 and Groningen 1978a). Invoking the definition of "probabilities x consequences", Groningen authorities argued that

"...it is possible to make a responsible valuation of the objective risk associated with the importation of LNG". (Groningen 1978j,4; my emphasis)

Groningen authorities considered the safety risks of LNG predominantly in scientific and technical terms, with particular emphasis on the quantitative risk analyses. With reference to the TNO data they played down the possibility of detonation, stressing that the risk analyses were based on over-cautious, "worst case" accidents (Groningen 1978c,56-9; 1978d,56a-6). The Groningen problem perception revealed considerable confidence in the application of science and technology as a means of dealing with the safety aspects of LNG. Even in the "very unlikely" case of detonation (Groningen 1978c,56-9), the authorities concluded the "provisional acceptability" of LNG developments, arguing that "engineering and technology are in rapid development, especially in the field of safety" (Groningen 1978d,56a-6).

A further feature of the policy assessment by Groningen authorities was a bias towards the short and medium term. Evaluation of the safety aspects for example, was based on a relatively low import quota.<sup>[6]</sup> Larger quantities of LNG imports were not foreseen for another 12 years (1990), and by then, the Groningen authorities argued, more technical information would be available to deal with the increased

safety risk. In the words of the authorities, by that time  
 "it may be expected that more will be known about the possibility of detonation of natural gas clouds, in view of the very intensive international research [efforts]". (Groningen 1978j,7)

The conclusion drawn by Groningen authorities, that the safety levels associated with LNG activities at Eemshaven were acceptable, was based on the "objective" risks as defined by 'probabilities x consequences' of accidents, and on an equally technical conceptualization of "environmental norms" (Groningen 1978a,16;). [7] A minimum distance between a LNG terminal and populated areas or industrial activities - given the potential consequences of accidents - was rejected since it did not take account of the (low) probabilities involved (Groningen 1978d,56-7). The issue of perceived risks to the local population was seen as emphasising unduly the effects of LNG potential hazards, and this notion was therefore rejected as a significant factor in its risk evaluation. Groningen authorities acknowledged the "psychological pressure" upon the local population, but judged it to be an irrelevant decision criterion. As to the notion of "experienced risks", they argued that

"this largely psychological factor applies to any industrial establishment at Eemshaven, which is empty at present, and consequently this is an unreal argument in the considerations as to a LNG terminal" (Groningen 1978i,4; my emphasis).[8]

Contrasted with what they saw as "objective" risks, the Groningen authorities used the notion of "subjective" risks as experienced by the local population. Their bias towards the quantitative risk definition and assessment was supported by the assertion that for the subjective risk, "so far no reliable methods of calculation or estimation have been found, which are generally acceptable" (Groningen 1978j,4). Having concluded the acceptability of the "objective" risks associated with LNG, the Groningen authorities assessed the safety dimension against the anticipated "societal benefits" (Groningen 1978j,7). It also

provided the basis for a risk comparison between the Eemshaven and Maasvlakte sites. The Groningen authorities quoted the risk figures presented in the ICONA reports and argued that the safety levels at Eemshaven were at least one order of magnitude lower than at Rotterdam (Groningen 1978j,8).<sup>[9]</sup> Consequently, the Groningen authorities concluded that

"As far as the safety aspects are concerned ..., the research [reports] show that for the siting of a LNG terminal, Eemshaven is completely acceptable and is safer than any other potential location in the Netherlands". (Groningen 1978j,16)

In summary, the Groningen local authorities viewed the LNG terminal as an "opportunity" for stimulating local economic developments, stressing the "objective" benefits in this respect. The Groningen problem definition was characterized by a bias towards the "objective" assessments of regional socioeconomic gains and a quantitative evaluation of the risks. Their perspective was dominated by short and medium terms concerns, and reflected a technocratic confidence in keeping the (long-term) safety risks within acceptable levels.

#### Rijnmond Public Authority problem definition

Rijnmond Public Authority assessed the LNG siting issue in the context of broader questions of energy planning and environmental implications, with particular emphasis upon the safety risk experienced by the local population. By contrast to the Groningen policy approach, Rijnmond authority framed the LNG issue not as a single independent decision, but saw it in relation to other policy concerns. In this respect, Rijnmond Authority considered wider energy policy issues (e.g. the large-scale storage and use of LPG), questions of environmental pollution and energy conservation (Rijnmond 1977b,25; 1978a,49;).<sup>[10]</sup> Consequently, within the problem definition adopted by Rijnmond Authority the various impacts were assessed in their interrelationship, whereby the policy option of siting

a LNG terminal at Maasvlakte was not seen to provide an appropriate "solution". (Rijnmond 1978a,55). [11]

Whilst Rijnmond Authority acknowledged the potential socioeconomic gains for the region (Rijnmond 1978a,67), it stressed that these could not be properly evaluated without taking into account other impact dimensions. In this respect it emphasised right from the outset, that the safety aspects were to be treated as "an important disadvantage" (Rijnmond 1977b,9). In assessing the risks and anticipated benefits within single frame, Rijnmond Authority concluded that "the economic and other societal benefits" did not "outweigh" the perceived safety risks of a LNG transport/handling facility at Maasvlakte (Rijnmond 1978a,51). In making this comparative assessment, Rijnmond Authority used a risk definition which differed considerably from the quantitative formulations used by the Groningen authorities, emphasising especially the subjective risks as experienced by the local population.

The risk perspective manifest in the policy accounts of Rijnmond Authority rejected the notion of risk as the product of scientifically-determined probabilities and consequences of accidents. Rather, it saw it as more appropriate to assess separately the chances of accidents and the potential effects in making risk comparisons (Rijnmond 1978a, 58, 68). In this context Rijnmond Authority revealed a distinct bias towards emphasising the maximum consequences of hazards (Rijnmond 1978a,67) [12] It related the "high-consequence" nature of LNG activities (as framed by the Authority) to notions of "perceived risks" to which the local population was seen to be "exposed". In the words of the Rijnmond Governors:

"In particular the possibility that an incident involving LNG has large consequences - several thousands of deaths to neighbouring populations - will lead to an increase in psychological-social pressure upon the population [in the Rijnmond region]". (Rijnmond 1978a,66).

In this problem frame, the assessment of risks was not carried out by reference to technical analyses and scientific data. The relevance of scientific evidence was considered limited from the Rijnmond policy perspective. With reference to the contentious issue of LNG detonation, the Authority boldly stated that

"Whereas the discussion about the possibility or not of detonation certainly makes sense from a scientific point of view, it must be questioned whether this discussion makes similar sense in relation to the decision on the importation of LNG". (Rijnmond 1978a,60)

Even in scientific terms, Rijnmond Authority challenged the value of the formal risk analytic data in policy assessment. It asserted that the TNO quantitative risk analyses were based on insufficient data and lack of technical and scientific knowledge about the technology, and that this had led to a degree of "inaccuracy" (Rijnmond 1977b,14).

At the centre of Rijnmond Authority's rejection of the LNG terminal at Maasvlakte was thus its framing of the safety issue in terms of the risks as perceived and experienced by the local population. The broader issue of the overall risks associated with LNG technology was not seen as relevant in evaluating the local acceptability of a Maasvlakte LNG facility. In this respect, the Rijnmond Authority stressed that "as far as the decision over the location is concerned only the risks for the 'neighbouring' population is relevant" (Rijnmond 1978,60; my emphasis). In assessing this subjective risk factor, Rijnmond Authority presented the high consequences of (potential) LNG accidents as an additional source of "danger", leading to increased feelings of "insecurity" among the local populace. In this respect the objections by Rijnmond authority to a LNG terminal at Maasvlakte were supported by the assertion that

"the feelings of threat as a result of such large effects, lead to an increase in the mental burden on the population in [the] area. ... The psychological burden for the Rijnmond population is already greater than in other areas in the Netherlands, because of the presence of environmentally-polluting and particularly dangerous industries in Rijnmond". (Rijnmond 1978a,68)

In the same context, Rijnmond Authority stressed its outright rejection of a nuclear power plant in the area on the grounds of unacceptable safety levels, and highlighted the commitment by national government that siting of both nuclear and LNG facilities at Maasvlakte was ruled out (Rijnmond 1978a, p51).

The concern for the perceived impacts of LNG on the local population, provided the background for the plea by Rijnmond Public Authority for greater local participation in the LNG decision procedures. It regretted that, because of the tight timetable set by the national government, it was unable to consider its policy stance on the basis of an "Environmental Impact Statement" (Rijnmond 1978a,48).<sup>[13]</sup> Greater public involvement in policy deliberations was also seen as a means to enhance the scope for debate, and to enable assessment of the LNG issue "in the broader context of the total energy supply for the future" (Rijnmond 1977c,2).<sup>[14]</sup>

In summary, the conceptualization and evaluation of risk and safety by Rijnmond Public Authority was the major factor underpinning its rejection of a LNG facility at Maasvlakte. Its risk assessment was characterized by a critical view of the scientific and technical risk analyses, emphasising instead the social and psychological "dangers" as "perceived" by the local population. The problem definition adopted in the Rijnmond policy stance placed the LNG siting question in the wider context of future energy supply and environmental concerns, whereby alternatives to large-scale LNG activities in the Rijnmond region were explicitly placed on the policy agenda. Emphasising in particular the local concern over the high number of deaths as a result of a potential LNG accident, Rijnmond authority rejected the Maasvlakte policy option, despite the economic and socioeconomic benefits that were seen for the Rijnmond region.

#### 4. The 'politics-of-interest' explanation

Having established the considerable contrast in policy perceptions between Groningen and Rijnmond local authorities, the key analytic issue is how the different problem definitions and assessments can be accounted for. Why, for example, did the local government actors diverge so markedly about the appropriate bases for formulating and evaluating the safety risks associated with LNG technology? Why did Rijnmond Authority emphasise the subjective "perceptions" by the local population, whereas the Groningen authorities relied predominantly upon the assertedly "objective" and technical appraisal of policy options?

In confronting these questions, the traditional goal-seeking perspective on policy analysis treats competing problem perceptions as stemming from conflicting interests among the disputants in the controversy. As discussed earlier, within the politics-of-interest model, policy actors are expected to select the appropriate reference frames and definitional boundaries that best serve their particular policy objectives. Consequently, the validity of the interest explanation of competing problem definitions depends on the presence of significant divergences in interest-criteria as premises for policy behaviour. The following review (re-)examines some of the arguments and justifications advanced by Groningen and Rijnmond local authorities, in order to assess whether their contending policy perceptions can be accounted for in those terms. I will challenge the 'rational' interest-premised explanation of policy disputes, by arguing that as far as manifest interest-criteria were concerned, these local government actors essentially pursued similar policy goals in the context of the LNG decision controversy.

Interest criteria: comparing policy justifications

In the case of the Rijnmond and Groningen local authorities, the biased perceptions in the assessment of 'risks' and 'benefits' of LNG developments cannot be understood adequately in terms of conflicting interest. The analysis presented in the previous chapter indicates a considerable extent of agreement over the relevant dimensional criteria by which these local government actors argued their conflicting policy preferences. Both could be observed to support their policy stances predominantly by reference to an assessment of the socioeconomic and safety impacts (see Chapter 6, Tables 6.9 and 6.13). The challenge this poses to the adequacy of the politics-of-interest account of contending problem definitions, need to be examined further.<sup>[15]</sup>

Analysis of the empirical terms by which Groningen and Rijnmond authorities argued from dimensional concerns to policy preferences, shows that the difference in dimensional concern was minimal. The manifest interest-criteria advanced by these actors were cast in very similar terms. Both assessed the policy options predominantly by reference to the perceived regional economic benefits, and both made explicit that maintaining the safety risks within acceptable levels was an important policy objective. Whilst the exact form of words may have been different, the proclaimed objectives embedded in the respective policy views were very similar, as the following quotations serve to highlight. Groningen Provincial Governors:

"Though the stimulation of employment is high on the province's list of priorities, this ought not to be achieved, however, at the expense of the ... well-being [of the population]. Included in the notion of well-being are also the prevention or limitation of environmental and concern for safety".  
(Groningen 1978i,3)



A similar link between the dual interests of socioeconomic development and maximizing safety was manifest in the policy view advanced by Rijnmond Governors:

"From [our] perspective, a strict safety regime and a future-oriented structural economic regional policy go hand in hand". (Rijnmond 1978a,69)

The objective of local socioeconomic development was an important selection criterion in the policy formulation by both sets of local authorities. In the case of Groningen local authorities, their policy preference in favour of a LNG facility at Eemshaven was argued by reference to what they called

"... very important interests for the Province and the country in the context of regional economic development [... and] employment." (Groningen 1978,16)

In similar vein, the policy preference of Rijnmond Public Authority in favour of an (off-shore) LNG site near the Rijnmond region was argued in terms of "national and regional economic consideration." (Rijnmond 1978a,69). The Rijnmond and Groningen local authorities both saw it in their interest to establish a LNG terminal in their respective regions. As Groningen Provincial Governors asserted;

"... it is of the greatest interest, that the LNG terminal is located at Eemshaven. Not just because the employment which directly concerns this activity, but because of the psychological effect, which will emanate from a positive decision". (Groningen 1978g:3)

And in the words of Rijnmond Authority:

"In addition [to direct employment and regional industrial advantages], such a widening of the technical-economic infrastructure of the Rijnmond economy, is furthermore of great influence - also psychologically - upon the attraction of this region for new economic activities". (Rijnmond 1978c:68)

Furthermore, in both regions the safety requirements for LNG developments were seen as dominant decision criteria. For Rijnmond Public Authority, the issue of achieving acceptable safety levels became the major determinant underpinning their rejection of the proposed LNG facility at the Maasvlakte sites.

In similar terms, the Groningen authorities indicated that the risk and safety impacts constituted a major decision objective:

"Safety, as well as the prevention of environmental damage, are in fact the boundary conditions that the siting of LNG ought to satisfy, before it can be considered whether the project is acceptable or desirable". (Groningen 1978,4)

In this analysis the policy dissensus between Groningen and Rijnmond authorities cannot be accounted for in terms of their respective 'interest' in regional economic development and in maximizing safety. Underlying the contrasting policy preferences expressed by the two local authorities were contending approaches to the relevant terms and boundaries by which these impact dimensions were to be assessed. While both local government actors saw it in their interest to ensure an "acceptable level" of safety, the real conflict lay not in the basic commitment to maximizing this objective, but rather in the divergent views and interpretation as to what constituted an "acceptable" risk.

The analysis of the interest-criteria manifest in the policy perspectives of Groningen and Rijnmond local authorities therefore indicates that the significant policy conflicts between these actors emerged over the way issues of regional development and of safety should be interpreted, framed and assessed. In other words, we are forced back to square one, namely to the competing problem formulations and policy perceptions by which policy actors operated. Since the 'rational' goal-seeking frame remains committed to explaining divergent problem definitions solely in terms of differences in predetermined policy objectives, the apparent absence of such interest conflicts in the Groningen-Rijnmond case signals the empirical breakdown of the politics-of-interest explanation.

From a traditional interest perspective, it may perhaps be argued that despite this apparent absence of conflicting policy goals, the contrasting preferences by the two local authorities

can be understood in terms of rational goal-seeking behaviour. Such a view invokes differences in 'objective' circumstances within which Groningen and Rijnmond authorities operated, to explain why they 'optimized' their respective goals in different ways. It may be argued, for example, that given the higher level of unemployment in the Groningen region, the expected benefits of LNG were especially significant and therefore provided a 'rational' justification for accepting a LNG facility, notwithstanding the anticipated safety risks. Similarly, proponents of the interest model may argue that the higher levels of 'factual' risk of LNG in the Rotterdam region justified the rejection of a LNG facility at the Maasvlakte sites. This line of argument, however, is at odds with the empirical-reality of the LNG debate, and exposes the circularity of the interest-explanation (as discussed in the first part of this thesis). The foregoing discussion has established the considerable divergence in problem definitions among Groningen and Rijnmond authorities: it identified stark contrast in policy perception over the terms and boundaries for formulating and assessing the anticipated socioeconomic and safety impacts. It is therefore meaningless (and contradictory) to try and account for these divergent frames for policy assessment by reference to "objective" notions of these impacts. To revert to this course would ignore that impact assessments involve both cognitive and evaluative processes, and would fall prey to the inadequacies of the traditional 'dope' model in technological controversy studies (cf. Chapter 1).

As highlighted earlier, what is at stake in the assessment dispute between Groningen and Rijnmond authorities is not just different evaluations of various policy options by reference to pre-existent policy goals, but fundamental disagreements over the appropriate contexts, terms and boundaries by which these options should be identified and appraised. Hence the breakdown of the politics-of-interest explanation is not simply

due to the absence of significant differences in interest-criteria advanced by the two local policy actors, but is also manifest in its inability to account for the different meanings and interpretations that were given to notions of safety and socioeconomic impacts.

Given the premise of the politics-of-interest model, that contending problem definitions (like all other features of policy behaviour) are sustained by conflicting policy goals, the divergent policy stances manifest in the positions of Groningen and Rijnmond authorities fall outside its analytical frame. In rejecting the causal, reductionist interest explanation, I argue that the different policy perceptions of these two local participants to the LNG controversy are to be analysed as cognitive and evaluative features in their own right.

Hence, divergent problem definitions are to be examined as reflecting different socio-cognitive policy orientations, within which goal-setting mechanisms and selection criteria have their appropriate place.

It is here that cultural analysis presents an alternative approach in accounting for the determinants of contending policy perspectives in the LNG decision controversy. As an analytical advance on the politics-of-interest frame, the notion of 'cultural bias' (see Chapter 3) may be employed to re-examine the contrasting policy stances of Rijnmond and Groningen authorities. Whereas the divergence of these local actors presents itself as an 'anomaly' in terms of the politics-of-interest explanation, this key area of policy dissensus may be accounted for in cultural terms. The next sections assess whether different policy stances among contending actors can be understood by reference to different culturally-induced biases in perception and behaviour.

## 5. Rijnmond versus Groningen: contrasting cultural biases

To what extent can the observed pattern of problem formulations and policy justifications of Groningen and Rijnmond authorities be understood by reference to contending culturally-induced policy orientations, or cultural biases? Can the contrasting policy perceptions be accounted for in terms of contending political cultures? I will now attempt to show that the divergent reference frames and definitional boundaries by which these conflicting actors assessed the various policy options and anticipated impacts, correspond to a confrontation of two culturally-induced alliances in the policy arena: one biased towards efficiency concerns typical of hierachical and entrepreneurial cultures, the other biased towards equity and other sectists concerns.

The whole thrust of cultural theory as applied to public policy analysis is that policy debates can be understood with reference to the continual contention between different social contexts and culturally-induced perceptions, which influence the strategic orientation of policy actors. Hence, the analytic reference points are not the (conflicting) 'interests' by which policy actors are assumed to determine their strategies, but the pattern of policy orientations manifest in their behavioural commitments and justifications for that behaviour. The starting point for analysing the LNG decision controversy is thus to examine the manifest policy arena and assess whether policy actors reveal significant features 'typical' of one or another political culture.

Given the discussion in Chapter 3, an appropriate first stage in the cultural analysis of the LNG controversy is to disaggregate the policy arena by identifying the 'positive'

diagonal, along which the hierarchists and entrepreneurs operate. In the LNG decision case the efficiency-biased positive diagonal was taken up by the 'energy planners'; those policy actors who operated largely in terms of 'maximizing' the technological and economic effectiveness and efficiency of gas importation. Hence, included here are the national government, especially as represented by the Ministry of Economic Affairs, and the semi-state industrial applicant Gasunie. In cultural terms, these policy actors can be identified as representing the dominant coalition of pragmatic entrepreneurial activity and orderly hierarchical planning, that perceived the siting of a LNG terminal as an appropriate option, in response to their respective 'energy policy' concerns.

Having placed the positive diagonal on the cultural map of the LNG policy arena, the respective positions of Rijnmond and Groningen local authorities can now be analysed by reference to the national government/Gasunie coalition. Given the opposition by Rijnmond Public Authority to the locations and conditions for a Maasvlakte LNG terminal as proposed by the national government and Gasunie, the cultural frame suggests that Rijnmond Authority was biased towards the 'negative' diagonal. This raises the question as to whether the policy stance and justifications manifest in the views of Rijnmond Authority correspond with a sectist orientation. This hypothesis emerges from cultural theory, since it expects a sectist bias to derive much of its justification from a rejection of the concerns and preferences of the efficiency-dominated positive diagonal (see Chapter 3).<sup>[16]</sup> In contrast to Rijnmond Authority, rather than confronting the Gasunie/national government siting plans head on, the Groningen authorities went out of their way to make the Eemshaven option compatible with the (revealed) preferences and concerns which dominated the policy stance along the positive diagonal.

The view that a LNG terminal at Eemshaven was desirable and

acceptable was virtually a 'pre-condition' for the inclusion of Groningen Authority in the official (governmental) policy process. It was effectively a choice between joining the LNG siting 'contest' on the terms set by the coalition of national energy policy planners or not at all. Given also that Gasunie had initiated the (re)introduction of Eemshaven as a policy option, the favourable response to the siting of a LNG facility suggest that the Groningen authorities reflected a cultural orientation in line with the efficiency-biased positive diagonal.

Whilst this initial cultural assessment of the policy stances of Groningen and Rijnmond local authorities lends support for the cultural hypothesis, their respective policy perceptions and strategies will have to be analysed in detail before the consistency with a cultural account of policy dissensus can be established. Below, I re-examine the different policy perspectives and justifications of these key local policy actors, to establish the extent to which these can be understood in terms of contending cultural biases. Again, their contrasting views on the assessment of the safety impacts associated with LNG technology will serve as a significant focal point in the cultural analysis of the controversy.

#### Rijnmond policy perspective: the sectist bias

The problem definition and policy strategy of Rijnmond Public Authority may be discerned in relation to its particular style of risk-handling. As established earlier, Rijnmond's risk perspective focussed especially upon the perceived dangers to the local population. It turned away from the scientific definition and technical risk analyses as a basis for decision-making, and in arguing its opposition to a Maasvlakte terminal considered the high-consequence nature of potential accidents at the proposed LNG facility as a particularly

salient impact dimension. In these respects the concerns expressed by Rijnmond Authority reflect a distinctive sectist risk portfolio. In the political cultures frame, sectists institutions are seen to follow strategies that reject compromise on the acceptance of risk to the local population, especially if those risks are potentially catastrophic, irreversible and involuntary.

The sectist bias in Rijnmond's policy view is further underscored by its 'absolute' stance, in its moral commitment to local safety. At no point was the Rijnmond Authority willing to depart from its local risk perspective, and to negotiate the safety concerns as part of any trade-off against anticipated benefits (e.g. employment). This approach led to an uncompromising demand for a minimum distance (albeit implicit) between LNG handling activities and local population centres. Rijnmond's views as regards the acceptability of a LNG terminal at Maasvlakte thus reveal a considerable bias towards equity concerns. Their sectist orientation is manifest also in its outright rejection of efficiency-biased considerations of weighing risks against other impact dimensions. A particularly significant feature in Rijnmond Authority's policy stance, was its local orientation. The risks as perceived and experienced by the local population living close to the proposed LNG facility was a salient aspect in its safety assessment. This can be interpreted as showing particular concern for sustaining local consent for its policy actions. Furthermore, in the terms of cultural analysis, it highlights the commitment by Rijnmond Authority towards the 'negative diagonal' that connects the sectist context to the isolated and impotent individuals in the (local) community - the ineffectuals - on whose behalf many sectist groups claim to speak.

The outright rejection of the siting of a nuclear power station in the Rijnmond region further indicates a bias of Rijnmond Authority towards the sectist concerns of avoiding long-term,



high-consequences safety hazards to which the local population was exposed. Cultural analysis stresses that the sort of risks associated with nuclear power are perceived as particularly threatening from a sectist perspective.<sup>[17]</sup> As postulated by cultural theory (see Chapter 3) the sectist bias in policy orientation of Rijnmond Authority was manifest in a range of different aspects of its policy actions and justifications. In this respect, Rijnmond Authority's sceptical stance towards technical risk definitions and its emphasis upon the "psychological burden" are in line with sectist concerns.

The policy strategy followed by the Rijnmond Authority was appropriate to a sectist outlook on local decision-making. In this context, two specific empirical features of its policy stance can be accounted for in terms of a culturally-induced bias towards a sectist pattern of policy behaviour and justification. First, the call for a comprehensive "public participation programme" in local decision-making on LNG, and the desire for an "environmental impact assessment" can be identified as particularly sectist issues. Public participation at a local level is likely to provide a platform for sectist demands; it is to be seen as a sectist 'mechanism' to ensure greater influence in the decision-making process. Institutionalized assessments of the environmental impacts of technological developments focus (local) attention onto these issues, thus emphasising the types of risk that are seen as particularly salient from a sectist perspective. In contrast, from an efficiency-biased viewpoint, participatory procedures, and environmental impact assessments are considered obstacles to effective and timely governmental decision-making.

Secondly, the concern with energy conservation and long-term energy supply is typical of a sectist energy outlook.<sup>[18]</sup> A sectist energy perspective sees resource exhaustion as 'the' essential policy problem. The domination of the long-term over the short-term (which is inherent in such a sectist viewpoint)

was also apparent in Rijnmond's policy position. It saw future national (as well as local) energy planning as the relevant context for debating the LNG siting issue, thus raising the need for a (re)-examination of alternative policy options. The linkages between LNG developments and other energy resources (LPG; nuclear power) as well as to issues of energy conservation, are only appropriate in a cultural perspective that rejects the efficiency-biased gas policy implementation frame.

In summary then, the Rijnmond policy perspective can be adequately understood in terms of a sectist cultural bias. The issues and concerns which it saw as significant, its risk perception and evaluation, its time perspective and the problem definition which it adopted for debating the LNG siting issue were all highly consistent with a sectist policy orientation. The selection of salient issues and the appropriate decision procedures emphasized the local orientation of Rijnmond's policy perspective and the preference for equity-biased commitments and strategies.

Groningen policy perspective: the hierarchical/entrepreneurial bias

The policy perception manifest in the views and justifications advanced by Groningen local authorities was diametrically opposed to the problem definition adopted by Rijnmond Authority. As to risk assessment, where Rijnmond emphasised the subjective risks as experienced by the local population, Groningen authorities focussed on the scientifically-formulated 'factual' risks, and on, what they saw as, 'objective' consequences. Groningen's technocratic outlook, assessed the safety impacts as part of an efficiency trade-off in relation to other relevant concerns, especially the expected socio-economic benefits.

The objectified approach to risk moved the safety issue away from local consideration and equity concerns in the distribution of risks. The scientific basis for risk assessment adopted by Groningen authorities reflect a bias towards hierarchical concerns for order and clarity. The reference to "environmental impact norms" - which were also specified in terms of formal risk calculations - made the issue of acceptability contingent on predetermined standards and pre-conditions for approval. (Cultural theory asserts that precedents are particularly favoured in hierarchical regimes).<sup>[19]</sup> In the LNG case, the calculated risk level was considered to lie between the risk norms of acceptability and rejection. This allowed the risk evaluation to be negotiated, taking account of technical modifications, designed to bring the risks within acceptable levels. Negotiation and compromise as the basis for consent are the hall-marks of efficiency-based strategies shared by the entrepreneurial and hierarchical cultural perspectives.

In cultural terms, these arguments and justifications advanced by Groningen local authorities in favour of a LNG terminal at Eemshaven thus reflect a trade-off typical of the 'positive diagonal'. The equity-based sectist strategy of reducing the (local) risks to zero was rejected out of hand. Groningen local authorities evidently believed that risks simply had to be taken, and that the acceptability of those risks depended on the extent of (economic) benefits which could be expected from LNG activities.

Other manifestations of the bias towards hierarchical and entrepreneurial concerns can be seen in the time perspective adopted by Groningen authorities. On the one hand, the local authorities were concerned with reaping the short-term benefits which were perceived, in terms of employment generation with industrial development. On the other hand, they turned away from the (sectist) long-term concerns, which were seen as

controllable, given their expectation that expertise and information would grow to counter any problems that may arise. The hierarchical bias towards risk management by specialized scientific and technical experts underscores this particular policy perception.

The policy bias of Groningen authorities towards efficiency concerns is further highlighted by the saliency of criteria concerned with regional employment and local socioeconomic developments. Although these issues were advanced as real "objective" advantages, the way the Groningen local authorities framed and assessed the types of 'benefits' (and 'risks') associated with LNG developments can only be understood in relation to their cognitive dimensions. The framing to local LNG developments as an "opportunity", not to be missed, was underpinned by arguments as to the anticipated socioeconomic benefits, as perceived by Groningen local authorities.

The perceptual bias in the policy frame adopted by Groningen local authorities can be illustrated in particular by its interpretation and assessment of (so-called) "psychological" considerations in the LNG debate. In the context of their efficiency-biased entrepreneurial/hierarchical concern for socioeconomic development, the case for an LNG terminal at Eemshaven was argued especially in terms of the "positive psychological effect" upon regional industrial initiatives. By contrast to this assertedly "objective" advantage of Eemshaven, Groningen local authorities rejected entirely the policy relevance of the issue of safety risks as experienced by the local population, in this instance claiming that this "psychological" factor was unrealistic (if not irrational) as decision criterion in respect of the acceptability of LNG (at Eemshaven).

In summary, the endorsement by Groningen authorities of the Eemshaven LNG facility, can be seen to have been framed in terms of the convergence of two lines of argument. On the one

hand the entrepreneurial justification in favour of economic efficiency, based on the belief that meaningful socioeconomic benefits could be expected from LNG developments. And on the other, the hierarchical argument stemming from logical, orderly and visible procedures of (technocratic) planning, as manifest in the references to provincial safety norms and quantitative risk assessments. In this context, the Groningen authorities' problem definition can be contrasted with a sectist outlook. In the terms of cultural analysis, it was entirely consistent with a policy bias in line with the positive diagonal, whereby the experts' measurements of 'factual' risks were valued over the experiences of the local populace, and the perceived future benefits were traded off against the potential for low-probability hazardous consequences of LNG technology.

#### 6. Cultural analysis of policy contexts

In contrasting the policy biases of Groningen and Rijnmond local authorities in cultural terms, their respective perceptual orientations could be attributed to contending culturally-induced premises and strategies consistent with the political cultures model. The cultural analysis has rendered an adequate account of the divergent problem perceptions of these policy actors, while, conversely, conflicting policy views could not be explained in terms of the politics-of-interest. The advance of the cultural explanation can now be developed further.

The cultural framework considers variation in cultural biases to be contingent on a variation of social contexts. At the macro-level of interorganisational conflict, cultural theory expects biases in policy behaviour to be sustained by social contexts that are dominated by corresponding political cultures. In the case of the LNG decision controversy, the asymmetry in cultural orientation between Groningen and

Rijnmond authorities must therefore be examined by reference to their respective 'local cultures'. This section seeks to strengthen support for the cultural account of policy dissensus by assessing in cultural terms the differences in local 'policy context' within which these two actors operated. In particular, I will identify differences in the relative importance of sectist representations and local support in the respective regions, and advance these as significant explanatory factors in accounting for the contrasting culturally-induced policy strategies that were adopted by Rijnmond and Groningen local authorities.

In the cultural model, environmentalist organisations (typically) are considered as one of the prime manifestations of sectism in modern society. Sectist concerns of purity and equality of results are frequently at the heart of environmentalists' demands and strategies.<sup>[20]</sup> The presence of environmentalist groups in the local policy arena, and the extent of popular support for certain environmentalist concerns, therefore serves as appropriate touchstones for the empirical significance of the sectist political culture. (cf. sections 5.2 and 6.5). Given the divergence in policy perceptions between Groningen and Rijnmond local authorities, I wish to establish whether this dissensus can be accounted for in terms of the relative significance of sectist forces as manifest in environmentalist demands and local representations.

Environmentalist groups rejected the land-based LNG sites, at both Maasvlakte and Eemshaven predominantly on the grounds of the anticipated environmental and safety impacts. The distinction between environmentalist opposition in the two local policy deliberations is to be sought in the specific context in which local governmental decision procedures took place. If the cultural explanation of the asymmetry between Groningen and Rijnmond policy biases is valid, we expect significant differences in the respective roles played by

(sectist) environmentalist concerns, popular support and policy demands in the regional social context, and in local government decision-making.

#### Environmentalism and Rijnmond local authority

The role of environmentalist concerns and demands in the local decision process in the Rijnmond region was considerable. The strong institutional (and popular) support for environmentalist and sectist policy strategies was sustained by a number of specific features pertinent to the policy context in which Rijnmond Public Authority operated. In broad terms, these concerned three aspects. First, the high level of public and institutional awareness of the environmental impacts of potentially hazardous industrial developments in a densely-populated region. Secondly, the historical and institutional concern for public participation in decision-making, especially in relation to issues of safety and the local environment. And third, the involvement of environmentalist organisations in local decision-making bodies. In briefly illustrating and arguing these features, I will highlight that in terms of cultural analysis, the Rotterdam/Rijnmond area was embedded in a particularly sectist 'locale'.

As the most extensive petrochemical industrial centre in Western Europe, the Rijnmond region has become one of the leading areas on the Netherlands with significant institutional and popular concern for the measurement and control of environmental pollution. It was the first area, where risk analysis of industrial activities were undertaken, and right from its inception (in 1965) Rijnmond Public Authority considered environmental pollution control and public health issues as one of its main institutional concerns. The creation of a 'Central Environmental Control Service' by the Public

Authority (in 1971) may be seen as indicative of the local awareness of and commitment to environmental issues.<sup>[21]</sup>

Against this background, public awareness of environmental issues among the local population was high. Environmental pollution and industrial safety became major popular concerns in the region. According to a survey (in the early 1970s) no less than one-quarter of the Rijnmond population felt "threatened" by the dangerous consequences of industrial accidents in the Rotterdam Harbour region.<sup>[22]</sup> The significant public concern for environmental and safety issues in the Rijnmond region is manifest in the large number of environmentalist organizations operating in the area, and the extent of other popular support. It has also been reflected in significant involvement of individual environmentalist supporters in local government institutions (e.g. the representative councils of Zuid-Holland Province, Rijnmond Authority and various local municipalities).<sup>[23]</sup>

Given the local concern in representative bodies, and among the population at large, public participation in environmental policy decisions is a significant characteristic of the political context of the local policy actors concerned with Rotterdam. Rijnmond Public Authority showed particular interest in organizing information campaigns over the issue of LNG siting, and in enhancing local involvement in the decision procedures.<sup>[24]</sup> The emphasis upon local participation in LNG decision-making at Rijnmond had the effect of establishing and strengthening the role of environmentalist demands and involvement. This fact lends support for the cultural hypothesis that increased local participation in a sectist locale is likely to result in growing concern for such (sectist) issues as environmental impacts and the safety risks associated with technological developments.<sup>[25]</sup> The submissions made on behalf of environmentalist organisations in the context of the 'public hearings' of LNG siting in the Rijnmond region, provide cases in point.<sup>[26]</sup>



The strength of sectist support and local demands, as manifest in an environmentalist presence, had important political dimensions, in particular to sustain the necessary local consent for decision-making institutions and procedures. The important role assigned to environmentalist concerns was reflected in the inclusion of representatives of environmentalist organizations in official advisory bodies in the Rijnmond/Zuid-Holland area.<sup>[27]</sup> In this context, both the provincial and regional environmental advisory councils expressed strong concerns over the safety impact on a LNG terminal at Maasvlakte, stressing in particular the sectist issue of high-consequences of potential catastrophic accidents.<sup>[28]</sup> In similar vein, a sectist bias can also be discerned in the policy views of local political parties represented in Rijnmond and Zuid-Holland Councils; they argued their opposition to a reception/handling facility at Maasvlakte predominantly in terms of the risks to which the local residents would be exposed.<sup>[29]</sup>

In summary, the relationship between environmentalist concerns and local government decision-making on an LNG facility at Maasvlakte was particularly strong - especially in Rijnmond Public Authority. The extent of scope for sectist demands and involvement in the Rijnmond/Zuid-Holland policy context emerges from a number of significant local features, as summarised below.

- a. There was a particularly strong social basis for environmental concern among the local population in the Rijnmond region, in the context of high industrial development, high population density, and of social and environmental factors in the area;
- b. public participation was encouraged by local government institutions and their decision procedures, and (especially on the part of Rijnmond Public Authority) greater public awareness was promoted as to the environmental and safety consequences of industrial and technological activities in the region;

- c. environmentalist groups were 'integrated' to a high degree in the formal and informal policy-making bodies, which acknowledged and amplified the significance of environmental demands as a basis for mustering local consent for authoritative decisions; and
- d. in the specific case of LNG (and contingent on the above factors), the sectist bias was present in considerable force and its effectiveness was reflected in the central role of environmental and safety concerns in local decision-making - at public hearings, representative councils, and Governing boards at all levels (especially within Rijnmond Public Authority.

These factors vindicate the conclusion that the apparent sectist policy bias in the problem definition and preferences of Rijnmond Authority, can be accounted for in terms of the strength of sectist support and concerns, and the commitments which sustain a sectist political culture in the Rijnmond locality.

#### Environmentalism and Groningen local authorities

The policy context in Groningen province presents a stark contrast with the significant sectist influence in the Rijnmond region. The relative weakness of environmentalist support, the limited demands for direct forms of public participation, and the greater distance between environmentalist groups and local decision authorities all mitigated against an effective sectist force in the Groningen LNG decision process. In examining the policy context in the Groningen province it must be acknowledged that the economic and physical realities of this region are significantly different from those in the prosperous Rijnmond region. By contrast to Rotterdam as the biggest harbour complex in the world, Groningen represents one of the least developed regions in the Netherlands.<sup>[30]</sup> Groningen Province is far less densely populated than other Dutch provinces: one-quarter of the average of Zuid-Holland, and one-eighths of that of the Rijnmond region).<sup>[31]</sup> The

unemployment rate in the Groningen province was 50% higher than the national average (1977 figures). (Groningen 1978i) Against this background, it may be argued that it is to be expected that the local population is more concerned with industrial development and employment generation than with health and safety. However, 'objective' measures of unemployment and environmental safety impacts are not necessarily the crucial determinants for the selection of policy preferences. Given the uncertainty and disagreement over the quantification and assessment of the various consequences involved, the important issue is what determines the meaning and significance that is attached to these impact dimensions. It is this question which the cultural analysis seeks to address (and which the politics-of-interest model is unable to answer).

The limited popular concern for environmentalism underscores that the Groningen policy context was detrimental to effective demand and influence of sectist issues such as local safety and environmental disruption. In this respect local concerns enhanced rather than challenged the dominance of efficiency-biased concerns for (entrepreneurial) commercial enterprise and (hierarchical) regional employment planning. A significant local feature was the absence of a strong and effective social basis for environmentalist activities and demands, especially those concerned with environmental issues stemming from industrial and technological developments.

In contrast to Rijnmond, environmentalism in the Groningen region was more oriented towards conservation issues and the protection of natural assets, than towards hazards and pollution due to industrial developments per se. A particularly relevant case in point is the environmentalist organisation for the protection of the Waddenzee, concerned with safeguarding the waters and shallows off the northern

provinces of the Netherlands, including Groningen.<sup>[32]</sup> The Waddenzee Association serves to highlight first that in Groningen province local support for environmentalist issues was limited and, secondly, that the types of environmentalist demands that were seen as relevant in the Groningen region are not altogether representative of sectist concerns for equity and local health and safety. (In the context of the LNG decision controversy it is significant that the Waddenzee Association was the initiator of the Noordzee working group collective, and continued to work in close collaboration with the Noordzee and Eemshaven in opposing the LNG siting plans).<sup>[33]</sup>

The concern of the Waddenzee Association (which largely it shared with the Noordzee and Eemsmond groups) was not so much to act against industrially and technologically produced environmental and health hazards to the local population, but to protect the natural environment itself. It was nature as a scarce resource that was seen as under threat (e.g. by industrial pollution) rather than human safety and local health per se.<sup>[34]</sup> In this context, the Waddenzee Association concentrated its environmentalist strategies largely upon responding to specific 'threats' to the natural environment and organizing ad-hoc political actions, playing a rather limited role in the planning of local environmental policies in the northern provinces.<sup>[35]</sup>

The environmentalist objectives advanced by the Waddenzee organisation received much greater support from environmentalists in the prosperous Western regions of the Netherlands<sup>[36]</sup> than from the local population. This situation highlights a weak local constituency for environmentalist concerns in the northern provinces. Local support, especially in relation to decision-making was slim, since it "failed to translate its objectives into the interests [pursued by] influential groups of the local population."<sup>[37]</sup> Although the

Waddenzee Association was concerned with a regional environmental issue, only a small proportion of its 35,000 membership was drawn from the local population in Groningen and Friesland Provinces. In the words of Tellegen:

"A weak point [of the Waddenzee organization] remains the small support among the local population of the islands and coastal areas around the Wadden Sea. There, the Waddenzee Association is often considered to be an elitist group that is opposed to local economic interests." [39]

In terms of cultural analysis, this vindicates the view that the relative lack of local support effectively precluded a significant sectist bias in effective policy demands and local decision-making institutions. [40] The weak social basis for environmental concern in Groningen helps to account for the virtual absence of a significant sectist force in local decision procedures on LNG siting. The limited role assigned to public participation in the LNG siting debate by local governmental actors further highlights this point. [41]

The relative weakness of the local participatory force in the Groningen LNG decision procedures, and the limited involvement of environmentalist representatives in policy deliberation [42] was underpinned by a hierarchical, "top-down" approach in the policy actions of Groningen authorities. [43] There was a lack of serious attention to local environmentalist concerns on the part of Groningen authorities, which highlights that environmentalist demands were not considered as a significant political challenge to local consent. The need for sustaining local support make local government authorities prone to outside pressure, only in so far it is seen as a significant threat to the erosion of their authoritative decision-making role and credibility.

The concerns and 'interest' expressed by Groningen local authorities may now be understood in their proper social and cultural context. In the case of the LNG siting controversy,

the 'real' threat to local consent was not seen in the potential dangers to environmental health and safety risks, but rather in the failure to halt economic decline and further unemployment. The salience of these efficiency-biased economic issues in decision-making by Groningen authorities could only emerge within a social and cultural 'soil' which lacked significant ("locally-grown") sectist forces. Consequently, the Groningen Provincial government did not consider the (potential) withdrawal of consent by those concerned with environmentalist issues as a credible challenge to its local base of authority. In this context, it can be understood that environmentalists failed to gain effective influence in provincial decision procedures.

The relative impotence of environmentalist groups in the Groningen LNG policy deliberations was further highlighted by the (relatively) limited personal involvement by local council members and governors in environmentalist activities - which was one of the characteristic features of the Rijnmond regional scene. The dominant cultural orientation reflected by Groningen local authorities was thus underpinned by two inter-related factors, the weak sectist presence among the local community, and the limited involvement and influence of environmentalists in authoritative decision-making bodies.

In the case of LNG policy-making, a number of specific factors interacted with these cultural contextual features in Groningen. First, the prevailing problem definition adopted by national energy planners, could be established as a premise for the (re)introduction of Eemshaven as a recognized policy option in the LNG debate. Given this starting point, environmentalist and sectist representations were too weak to draw the provincial authorities away from the efficiency-biased considerations which underpinned their (initial) interest in a LNG terminal at Eemshaven.

Secondly - and perhaps more significantly - the late introduction of the Eemshaven option meant that environmentalist groups had been concerned mainly with opposing the Maasvlakte sites.<sup>[44]</sup> Consequently, the environmental and safety objections made by environmentalist organisations emerged in the context of the policy frame set by national government: a straight choice between Eemshaven and Maasvlakte sites. Cast in these terms, even the environmentalist objectors could not but acknowledge that the Eemshaven site was considerably safer than the Rijnmond area given the much lower population density.<sup>[45]</sup> They need not refer to the technical risk analyses, that had concluded that at Eemshaven the consequences of potential LNG accidents would be lower by a factor 10 to 100. In a straight 'contest' between Eemshaven and Maasvlakte, the sectist concern to limit the potential dangers to local communities would clearly favour the less populated location in Groningen province.

The local context within which the Eemshaven LNG site was assessed thus showed a credible sectist force to be minimal. Even the sectist concern for local health and safety was no challenge to the hierarchical and entrepreneurial considerations that dominated the policy stance of Groningen authorities. By imposing a comparative frame (and in accepting the need for a LNG terminal) the Groningen local authorities could in fact muster the safety argument in support of its case for the Eemshaven site.

From a broader perspective, the failure of environmentalist demands to gain effective public and institutional support in Groningen, must be seen in terms of the relative weakness of a sectist political culture as manifest in the local context and in the accompanying institutional style of decision-making. This cultural comparison of political contexts in which the local authorities operated, can account for the asymmetry in the Rijnmond and Groningen policy arenas by reference to

contending political cultures. In this respect the mediating function of local government, of striking a balance between those political cultures that are (seen as) pertinent to political consent, took on two fundamentally different forms in the two localities.

At Rijnmond (and in Zuid-Holland Province), local government had to strike a complex three cornered balance between the considerable sectist forces and the demands for entrepreneurial and hierarchical efficiency. At Groningen, by contrast the minimal sectist representation - among the local population and in politics - posed no credible threat to local consent, and so the authorities could settle for a two-cornered trade-off along the unproblematic positive diagonal, that had dominated the policy deliberations right from the start.

#### 7. Explaining the LNG decision dispute: the cultural advance

A major advance of the cultural analysis of public decision controversy, is that we are no longer trapped within the interest model which aggregates the disputants solely in terms of their policy preferences. In placing these preferences in their proper context, the cultural model has come to terms with the justifications advanced by conflicting policy actors, and is able to account for competing problem definitions within the same analytic frame. Having established the advance of the cultural account over the politics-of-interest, in explaining the manifest policy perceptions of local government actors in the LNG decision dispute, the empirical pattern of policy dissensus can be examined in terms of culturally-induced policy biases.

The cultural analysis of the asymmetry between the policy perspectives of Rijnmond and Groningen authorities has



highlighted the need to go beyond the level of conflicting institutional interests and objectives, in order to understand differences in choice criteria, justifications and problem definitions. Whilst a detailed examination of the various institutional and social contexts underpinning policy actors' cannot be carried out here, it is possible to analyse in broad terms the conflicting positions and arguments in the LNG policy arena along cultural lines. In particular, the major contribution of the cultural frame can be shown to lie in its ability to account for the saliency of selection criteria and policy justifications, and to relate these to the particular culturally-induced policy perceptions pertinent to the conflicting actors in the LNG siting dispute.

#### The LNG decision controversy in cultural terms

By conceptualizing the policy arena in terms of contending political cultures, the different policy perspectives that actors adopt can be identified in terms of the various cultural biases that go with each of these political cultures. In this context both the problem perceptions and policy commitments of participants in the LNG decision debate may be classified into distinctive culturally-induced policy orientations. In the case of the LNG siting controversy, the efficiency-biases perspective of national energy planning represented a combination of entrepreneurial and hierarchical policy biases. This 'positive diagonal' in the policy arena dominated the process and outcome of the LNG debate. The distinctive hierarchical/entrepreneurial policy perception by which this diagonal is defined and sustained, may serve therefore as an analytic reference point for assessing along cultural lines the contending policy stances in the LNG dispute.

As argued earlier, the positive diagonal in the LNG policy arena was taken up by the majority of national government

departments and the industrial applicant Gasunie. The institutional links between national government (especially the Economics Ministry) and the semi-state gas company highlighted the stability and dominance of this coalition of entrepreneurial and hierarchical viewpoints. In line with the political cultures model, these policy actors shared a distinct perspective on the LNG policy issue. Their common problem definition was characterized by a distinctive trade-off of policy concerns, and reflected a high degree of consensus on key aspects of the policy controversy, which can be summarised as follows<sup>[46]</sup>

- a. the LNG siting issue was an energy policy implementation problem; the need for LNG importation and a Dutch terminal was not in dispute;
- b. the contractual commitment to honour the Algerian LNG import plans was accepted as a boundary condition for the LNG siting process, thus resulting in a significant timing imperative;
- c. from the viewpoint of national policy-making appraisal of the safety aspects only seen as meaningful in terms of "factual" risks (i.e. probabilities x consequences);
- d. the view that the acceptability of risk can be determined by weighing (factual) risks against expected benefits, and/or relative to other accepted risk activities in society; and
- e. the risks involved in transport and handling of LNG and in the siting of a LNG terminal were considered acceptable.

Within the cultural analysis, perception of the LNG siting 'problem' and of the evaluative basis for 'resolving' it, reflect a culturally-consistent assessment of policy impacts and concerns. The narrow confines of energy policy implementation, the concern with the national/industrial advantages of a Dutch LNG terminal, the reliance on scientific data and technical expertise, the use of 'objective' risk measures, the trade-off between safety and anticipated benefits, and the acceptability of the safety risks associated with LNG, all confirm a policy bias in line with the efficiency-concerns of entrepreneurial and hierarchical cultures.

This entrepreneurial/hierarchical policy orientation in the LNG controversy can be contrasted with a sectist policy bias, in opposition to the prevailing assessment frame of national energy planners. In cultural terms, a sectist policy stance is associated with those participants who questioned the need for LNG importation and argued in favour of postponement of the final decision beyond the deadline stipulated in the Algerian LNG contract. A sectist risk assessment is particularly concerned with the equitable distribution of LNG risks, especially as experienced by the local population. Here policy actors reveal a bias towards the evaluation of safety levels in terms of the consequences of potential LNG accidents and, hence, they are likely to judge the risks associated with a land-based LNG to be unacceptable.<sup>[47]</sup>

The juxtaposition of sectist demands and entrepreneurial/hierarchical concerns enables one to understand - in conceptual terms - the divergent policy perceptions that underpinned conflicting preferences of disputants in the LNG decision case.<sup>[48]</sup> The disaggregation of the policy stances in the LNG decision controversy is summarised in Table 7.2, below. By reference to the foregoing discussion, the analysis is based on the following features of policy perspectives: (i) the framing of the issue, (ii) the import contract as a boundary condition (iii) the risk definition, (iv) the evaluative basis for risk assessment, and (v) the acceptability of LNG risks.<sup>[49]</sup>

<p><i>dominant bias:</i>  <u>HIERARCHICAL</u> /  <u>ENTREPRENEURIAL</u></p>	<p><i>dominant bias:</i>  <u>SECTIST</u></p>
<ul style="list-style-type: none"> <li>● National government (ICONA majority)</li> <li>● Cabinet</li> <li>● Gasunie</li> <li>● Rotterdam City<sup>+</sup></li> <li>● Groningen local authorities</li> <li>● Parliament (majority)</li> </ul>	<ul style="list-style-type: none"> <li>● ICONA minority (Health &amp; Environment Ministry)</li> <li>● Zuid-Holland Province<sup>++</sup></li> <li>● Rijnmond Public Authority</li> <li>● Environmentalist groups</li> </ul>
<p><i>Notes:</i> <sup>+</sup>To some extent the Rotterdam policy view had 'sectist' concerns, as illustrated especially by the condition of the absence of a nuclear power plant in the area.</p> <p><sup>++</sup>The provincial governors shifted their position at the very last moment as far as the acceptability of one of the Maasvlakte LNG sites was concerned. By and large their problem definition (esp. the "stand-still" principle in regional safety) was more characteristic of a 'sectist' perspective.</p>	

Table 7.2:

Contrasting political cultures in the LNG policy arena

At the level of political preferences, this cultural analysis of the LNG dispute appears at first sight to add little to the traditional adversary interest-model; it contrasts opponents and proponents of a Dutch LNG terminal (at respective sites). Its significant analytical advance, however, lies in rendering an explanatory account of these conflicting policy stances. The cultural disaggregation of the policy arena comes to terms with the social and cognitive processes by which policy actors select a particular policy preference over another. By contrast to the politics-of-interest model, the cultural frame is able to examine why policy actors perceived it in "their

interest" to accept or reject particular policy impacts and policy outcomes.

### The cultural selection of interests

The politics-of-interest model is unable to explain the pattern of interest-criteria by which policy actors select and justified their preferences in the LNG decision dispute. As a goal-seeking model, it fails to get at the process by which one group of policy actors accepted the desirability of LNG technology and the siting of an import terminal, whereas another group saw it as an unacceptable threat to health and safety. Underpinning the interest model is the premise that policy actors - as 'rational' agents - must have had an interest in either supporting or opposing the LNG developments. Clearly, this is no more than a re-iteration of the assumptions upholding this (vacuous) argument (see Chapter 2). Consequently as an analytical basis for explaining the assessment criteria and justifications it fails to explain anything at all(!).

By contrast, the cultural juxtaposition of policy biases in the LNG dispute can come to terms with the interest criteria and justifications that gain saliency within a particular perceptual policy frame. It enables understanding of the goal-setting mechanisms by which political actors operate. The cultural model expects those policy actors that are biased towards a sectist problem definition to make a distinctive sectist selection of justificatory criteria in support of their preferences. More generally, policy actors will argue their case in terms that are consistent with their cultural orientation. In this context, the policy stances of conflicting policy actors in the LNG decision case, can be shown to reflect a cultural consistency in their problem

bounds, impact assessments, policy preferences and their justifications. The cultural selection of interests, as justifications for the assessment and evaluation of policy options, is highlighted in particular by the manifest risk portfolios pertinent to the conflicting participants in the LNG decision dispute. Using Table 7.2, we can contrast the risk assessments of the proponents of LNG technology - the coalition of policy actors reflecting hierarchicial/ entrepreneurial problem definitions - with that of the objectors, biased towards a sectist problem perception.

Cultural theory asserts that risk is never just risk, but always "risk for" (cf. Chapter 3). Since the risks are the sanctions and rewards associated with different culturally-induced policy strategies, their assessment is contingent on the particular perceptual problem frame. In cultural terms, policy biases towards either a sectist or a hierarchical/entrepreneurial perspective provide the key to understanding the kinds of risks on which policy actors judged the acceptability of the LNG developments.

Contrasting the opposing policy actors in cultural terms (see Table 7.2) reveals the culture-bound nature of risk assessments in an empirical setting. On the one hand the efficiency-biased entrepreneurial/hierarchical proponents, who perceived it as inevitable - even necessary - that risks were taken, in order to secure the anticipated economic benefits associated with LNG activities. By contrast, the sectist-biased opponents associated unacceptable dangers with any risks which ran counter to their equity-concerns. Hence they focussed their counter-arguments especially on those high-consequence safety risks of LNG that were seen to fall so unfairly upon the local populace. In positioning policy actors on the cultural map, the cultural analysis of the LNG decision controversy established how difference in culturally-induced policy bias led them to home in on different strands of interest claims and justifications.

More specifically (and by reference to the foregoing analysis), policy actors biased towards the positive diagonal can be seen to have focussed predominantly upon the perceived economic need for a LNG terminal. The expected benefits for the national and/or local economy were paramount in their justifications, whilst the safety risks involved were either seen as a "necessary price to pay," or were discounted against the expected economic gains and strategic (energy policy) advantages. Viewed from this perceptual vantage point an LNG terminal could be considered an "efficient" and appropriate policy option. The real 'threat' here was not the associated safety risks, but failure to respond to capitalize on the "opportunity" to improve economic and socioeconomic conditions. The policy assessments and justifications manifest in the policy stances of ICONA, Groningen local authorities and Gasunie (as discussed above) highlight in particular the consistency of this cultural account with empirical policy behaviour.<sup>[50]</sup>

By contrast to these proponents of siting of a LNG facility, a sectist policy perception in the LNG case, saw the 'threat' in predominantly in non-economic terms. Here the justification in support of a critical (or oppositional) stance emphasised the perceived dangers associated with the LNG technology. Much weight in the selection criteria of opponents was placed upon the safety risks of LNG as experienced by the (local) population. In this context, the expected magnitude of the potential numbers of casualties (in case of major accidents) were considered unacceptable, whatever 'benefits' LNG developments would bring about. Consequently, it was seen as inappropriate to suggest that the potential economic and socioeconomic gains could somehow be traded off against the safety concerns. Hence the policy evaluation of those who shared this sectist problem frame did not rank economic considerations as particularly salient criteria. The policy

perspectives of Rijnmond Public Authority and environmentalist organisations (as analysed earlier) lend unequivocal support for this cultural account of the LNG decision dispute.

### Cultural analysis of policy determinants

The cultural analysis of the LNG decision controversy can come to terms with empirical policy behaviour in areas where the traditional interest model is clearly deficient. In this respect - for example - the significant shift in policy stance by the Dutch Cabinet at the end of the decision process can not be explained adequately in terms of goal-maximizing behaviour as predicted by the rational-interest model. The implication of the political determinants prompting this last-minute move in favour of the Eemshaven site, can only be understood by reference to the culturally-dependent process of goal-setting. The political cultures frames is able to give an adequate account of why the Cabinet in the end parted company with many of its official advisory bodies (notably ICONA) who had argued the 'rational' case for a Maasvlakte LNG site.

The divergence between the final Cabinet policy view of the Cabinet and of the departmental advisors - who argued the selection of Maasvlakte on energy policy and economic grounds - must be sought in the political nature of public decision-making. In interpreting this political dimension of the LNG dispute in the context of contending political cultures, the analytic strength of the cultural explanation can be vindicated further. The advisors' concern for national issues and an 'objective' policy assessment led them to leave out two important political aspects, that in the end decided it all. They had not concerned themselves with the issue of local acceptability of LNG in relation to the perceived safety risks, and they steered away from the question of the political importance that local policy actors attached to the siting of a LNG terminal in their respective regions.



By contrast, the Cabinet had to take account of the policy views expressed at the level of local government in order to ensure (eventual) approval of the siting of a Dutch LNG facility. Since 'successful' policy-making in such a setting is achieved by mustering support and convincing justifications for the decision, the issue of local consent was of paramount importance. Given this, the local concern for safety in the Rijnmond region, as contrasted with the local demand for socioeconomic development in Groningen, provided for an uneven choice. Small wonder, that when the Cabinet was faced by the consensual coalition of pro-LNG local authorities in Groningen and the dissensual local government around Rotterdam, it saw no other option than to go for the Eemshaven site and diverge from its official national advisors.

Rather than taking for granted the political consideration that led the Cabinet to shift its policy preference (and the accompanying justifications) in favour of Eemshaven, the asymmetry between the Cabinet and its policy advisors can be understood by reference to the cultural implications that go with the shift from national to local policy contexts. Interpreted within the political cultures frame, the national policy justifications advanced by central government advisors were dominated by efficiency-biased arguments, thus aligning themselves with the positive diagonal. In concluding that their balanced assessment of impacts and options [51] led to a preference for the Maasvlakte site, and by justifying this preference in terms of economic and energy policy concerns, they were in fact striking a complacent two-cornered balance between hierarchical and entrepreneurial demands. Official advisors such as ICONA were effectively turning away from involving local sectist concerns in their consent-seeking deliberations. [52]

The Cabinet, by contrast, were drawn firmly into a three-

cornered battle, having to take account of sectist conditions for approval, and address the equity-focussed concerns emanating from the respective local regimes. In bowing to the strength of sectist voices around Rotterdam, the Cabinet acknowledged in effect that in the presence of critical, locally-supported sectist-biased policy demands, consent for its decisions could not be achieved without diverging to some extent from the complacent entrepreneurial/hierarchical position taken up by its national civil servant advisors. This analysis of the LNG controversy highlights once again that the process and outcome of this case of 'technological decision-making' was really determined by the conflicting policy perceptions of the local authorities involved.

As stressed earlier, the cultural perspective on the LNG decision dispute has successfully moved empirical policy analysis beyond the level of conflicting preferences. The cultural account of the selection of policy justifications in support of policy actors' manifest preferences, has highlighted the inadequacy of the traditional 'dope' model of policy-making. At the level of interest-criteria and justifications, the rational politics-of-interest model takes for granted that policy actors will call on every conceivable argument which can be construed as supporting their particular policy goals and preferences. In this respect the justifications advanced by the Cabinet arguing their final choice of Eemshaven present an insightful 'anomaly' within the rational-interest perspective. The ability of the cultural interpretation to account for the selection of justificatory criteria manifest in this case can be cited here as further support for the superior analytic power of the political cultures frame. The rational goal-seeking account of the final selection of Eemshaven, would expect the Cabinet to embrace every possible criterion which could be cited in support for this late shift in policy preference. The politics-of-interest

model therefore, is unable to account for the fact that the Cabinet - in the event - chose not to make any use of the strong justification that in terms of the 'factual' accident risks at the two sites, Eemshaven was considerably safer. Instead, the Cabinet decided to emphasise the broader regional economic consequences - which were in many ways more in contention - in support of its final choice.

Cultural analysis, by contrast, is able to furnish an adequate account of the rejection of the safety argument by the Cabinet, and the dominant emphasis upon perceived socioeconomic prospects. The problem definition adopted by national government was biased towards a hierarchical/ entrepreneurial policy perception. Hence, it had moved away from the safety dimension per se as a dominant selection criterion, and had stressed other impact dimensions in its policy arguments and commitments. The Cabinet had refused to endorse the Groningen local authorities' view that the safety risks at Eemshaven were below a specific level of acceptability; nor had it involved itself directly with the opponents of the Maasvlakte site, who claimed that the risks there were unacceptably high (to the local population).

In the course of the LNG policy process, culminating in its final decision point, the Cabinet's policy perception and associated strategy led them to play down the safety issue as a controversial aspect in itself, comparing instead LNG risks with other "socially acceptable" risks, or balance the risks against the perceived benefits associated with LNG. Analysed within its proper cultural context, the 'inability' of the Cabinet to embrace safety arguments in justifying its decision can be understood, given its policy-bias 'along' the positive diagonal. Having been 'out-maneuvered' by the sectist demands at the local level, its final decision could only be justified in terms of the efficiency-biased criteria of a governmental regime that had come to define the LNG policy issue in

entrepreneurial/hierarchical terms. Having been forced by the "realpolitik" of local consent to part with its national advisors, the Cabinet could not be seen to espouse the sectist risk arguments, which fell outside its culturally-induced line of vision. Since the Cabinet could not revert to the economic and energy policy justifications used by its advisors, because they pointed in the opposite direction, it had to pin everything on the rather weak socioeconomic arguments to justify its preference for the Eemshaven site.

#### The cultural account of the LNG decision controversy

In summary then, this chapter has applied the notion of cultural bias to a detailed empirical case of 'technological' decision controversy. In explaining the determinants of the process and outcome of the LNG dispute by reference to contending political cultures in the policy arena, it has identified and amplified the significant advance of cultural analysis over the traditional politics-of-interest model. This chapter has analysed in detail the competing problem definitions as reflected in the manifest policy stances of the various disputants to the debate, and has advanced these as basic manifestations of both "issue dissensus" and "process dissensus". It has accounted successfully for the emergence and 'resolution' of the LNG decision controversy by invoking divergent culturally-induced biases in institutional perception and strategy (as conceptualised by the cultural theory discussed in Chapter 3).

The cultural analysis of the LNG decision dispute has highlighted the inadequacy of the rational-interest perspective on political controversy, in the context of two significant circumstances. First, this chapter has showed the analytical limits of the politics-of-interest frame in empirical situations where conflicting problem definitions among policy

actors cannot be correlated with conflicting interest-criteria. In doing so, it has highlighted the cognitive dimensions that impinge on the assessment of 'technological impacts' and their evaluation. In particular, the cultural account of the LNG decision controversy has vindicated the conclusion that disagreements over the 'risks' and 'benefits' associated with LNG technology, cannot be considered simply as conflicting evaluations of 'objective' consequences, but rather that they reflect competing socio-cognitive boundaries and interpretative frames embedded in the (dominant) political cultures of policy actors.

Secondly, this chapter has demonstrated the inability of the traditional goal-seeking model of politics to understand the process by which policy actors come to see particular interest-criteria as more salient than others. It has successfully accounted for the selection of interests as commitments for behaviour, in terms of cultural biases in perception by which policy actors operated, and which led them to give credence to certain arguments and to neglect others. Whereas in significant empirical instances, rational pursuit of predetermined policy preferences failed to explain policy behaviour in the context of the LNG decisions dispute, the cultural analysis of policy justifications has been able to come to terms with the manifest pattern of justifications by which policy actors argued their respective policy stances.

In the context of the LNG decision controversy, the application of the cultural bias model has confirmed therefore a number of basic deficiencies in the rational-interest perspective on policy analysis. This chapter has shown empirically that as an explanatory frame, the politics-of-interest model has failed at five crucial points. First, it has led to a circular argument in trying to account for the manifest interest-criteria of policy actors. Second, it has treated competing impact assessments as conflicting evaluations of 'objective' consequences, rather than as contending socio-cognitive problem

frames. Third, it has been incapable of handling divergent problem definitions of the LNG decisions in the absence of conflicting interest-criteria. Fourth, by failing to acknowledge that public policy-making involves ensuring public consent, it has ignored the social contexts in which the LNG policy actors operated. And fifth, by neglecting culturally-induced determinants for policy orientation, it has been unable to explain the selection process by which policy actors gave credence to particular interest-criteria and justifications and rejected others.

The application of the cultural approach to the empirical analysis of the decision controversy over LNG technology in the Netherlands, has established how conflicting policy stances can be examined successfully by bringing the contending interest-criteria, policy perceptions and policy contexts within a single conceptual frame. In doing so, this chapter has highlighted the strength and relative superiority of cultural analysis, in accounting for the political and social determinants of public decision controversies over technology and its impacts. The next chapter examines the broader implications of this analysis for conceptual issues and further research.

## Chapter 7

## NOTES &amp; REFERENCES

1. Other options such as the use of a foreign LNG terminal, or the so-called "pipeline" option were never seriously re-introduced on the official policy agenda.
2. Gasunie remained, in any case, committed to the Maasvlakte site as its (first) preference.
3. The absence of agreed terms for defining the risk of LNG activities (e.g. as "probabilites x consequences", as used by TNO) provided the background for growing concern over the "perceived" risk levels to local residents. In this respect, much attention was paid to the consequences (rather than probabilities) of potential hazards.
4. In most of the following discussion and analysis, the policy stance of Rijnmond Public Authority is taken as indicative of the local government opposition to LNG siting, insofar as the Rotterdam region is concerned.
5. The 'objective' evidence on unemployment as presented by the Groningen local authorities was the argument that the employment generated by LNG activities represented 2.7% of the total unemployment figure in the Province of Groningen, and only 0.3% of the total unemployed in the Rijnmond region. (Groningen 1978i,2).
6. Groningen's risk assessment was based on imports of 12 billion m<sup>3</sup> LNG per year; the authorities asserted that doubts about the safety would only arise above this import quota.
7. The Groningen authorities used the probabilities/consequences relationship in it risk assessment, which they argued were concerned with "group risk" (sic).
8. The translation of the Dutch word "irreëel" is somewhat ambiguous; it strictly means "unrealistic", but in particular contexts it may have connotations of "unreal", "imaginary", or even "irrational".
9. With reference to the ICONA/TNO safety figures, Groningen authorities concluded that "the figures [of the risk to the local population] for Eemshaven are ... smaller than those for Maasvlakte by a factor 10 to even 100". (Groningen 1978j,8). The different figures related to the degree to which Eemshaven Harbour was fully operational.
10. E.g. in response to written 'objections' to the LNG siting plans the Rijnmond Governors stated that "... the importation of LNG should not deter us to continue to aim our policies towards energy conservation and towards techniques and processes resulting in the improvement of the environment" (Rijnmond 1978a,49).

11. By framing the LNG "problem" differently, Rijnmond Authority endorsed the view expressed by the regional environmental council (Regionale Raad voor het Milieubeheer) that "in view of the expected developments concerning the expansion of LNG and LPG imports and associated subsidiary activities... [Maasvlakte locations A and B] in any case do not provide a solution" (RRM, Report on LNG, dated 17 May 1978; reproduced in Rijnmond 1978 as 'Bijlage 2'). In similar vein, Rijnmond argued the need to take into account that "the importation of LNG enables the decision about the application of nuclear energy in electricity supply to be postponed, thus making more time available to search for alternative energy sources". (Rijnmond 1978b,25).
12. At the centre of Rijnmond's case were the anticipated maximum consequences of potential LNG hazards; it believed that "insufficient weight" had been given by the government to a comparison of "the average number of deaths among the local population in case of a serious incident" (Rijnmond 1978a,67). In this context the issue of a minimum distance between a passing LNG tanker and a populated area (in this case Hoek van Holland) was a major factor underpinning Rijnmond Authority's view that LNG transport to Maasvlakte was unacceptable (Rijnmond 1978a,50/68). In the words of the Rijnmond Governors, "the essence of the view of the board of Governors is that [LNG] ships should keep adequate distance" (Rijnmond 1978f,6, Governor Rijnmond, A. van Dijk).
13. Such an assessment (in Dutch, a "milieu-effect-rapport" or MER) which was called for by a number of local environmentalist groups, would certainly have included extensive appraisal of the risk and safety issues. It was seen as a comprehensive quantitative and qualitative assessment and would have advanced further the scope for (local) public participation. MER is seen in the Netherlands as a significant mechanism for achieving greater public participation in formulating environmental policies. (cf. Wetenschappelijke Raad voor het Regeringsbeleid, Beleidsgerichte Toekomstverkenning, Deel 2, Een verruiming van perspectief, WRR Rapport 25/1983 (Den Haag, Staatsuitgeverij, 1983).
14. Rijnmond Authority considered an active "public participation campaign". The public participation plans ("inspraakprocedure") as initially proposed was never really implemented; it would have given considerable attention to the issue of the "perceived risk" as experienced to the local population. In this respect one of the proposals made by the environmental department of Rijnmond Public Authority argued in reference to the LNG local decision-making:  
 "Feelings of unsafeness are already considerable in the Rijnmond regions, and in the case of a possible addition of a new potential source of danger, the population ought to be involved in the process of decision-making right from the start, in order that they are not faced... by a 'fait-a-compli' at a later stage". (Rijnmond 1977c,2).



15. In particular, since it may be argued that the notion of dimensional criteria is no more than a convenient category constructed by the policy analyst, we have to go back to the empirical accounts themselves, and analyse the wording and terms in which the various manifest interest-criteria were cast.
16. The juxtaposition of hierarchical/entrepreneurial versus sectist policy actors in the LNG policy debate is in line with the disaggregation of the policy arena in terms of the "technological-economic" versus the "social-cultural" system as used by D.J. van Houten, J.T.J.M. van der Linden and E. Snel, in Industriële activiteiten - Besluitvorming en effectenonderzoek (Amsterdam: Kobra, 1983), esp. Ch5. This descriptive frame is based, however, on contrasting opponents and proponents of a LNG terminal (as a technological-economic solution). Whilst competing 'problem definitions' are mentioned, these are attributed predominantly to the conflicting goals and interests of respective actors (p.43), thus ignoring socio-cognitive factors and reflecting the dominant analytical frame.
17. See M. Thompson "Postscript: A Cultural Basis for Comparison", in H.C. Kunreuther, J. Linnerooth et al, Risk Analysis and Decision Processes - The Siting of Liquefied Energy Gas Facilities in Four Countries (Berlin: Springer-Verlag, 1983) p.232-262.; M. Douglas and A. Wildavsky, Risk and Culture - an Essay on the Selection of Technological and Environmental Dangers (Berkeley: University of California Press, 1982) esp ch VII.
18. Cf. M. Thompson, "Among the energy tribes: the anthropology of the current policy debate" (IIASA WP-82-59) International Institute for Applied Systems Analysis, Laxenburg, Austria, 1982. See also M. Thompson, "Among the Energy Tribes: A cultural framework for the analysis and design of energy policy", Policy Sciences 17 (1984) 321-339.
19. Cf. Thompson 1983, op.cit. (note 17), p.242.
20. Cf. Douglas and Wildavsky 1982, op.cit (note 17). Of course, not all environmentalist organisations will be biased towards sectist concerns and behaviour.
21. The environmental service, Dienst Centraal Milieubeheer Rijnmond was set up in December 1971. In 1977-78 it had about 160 full-time employees. An average of 1000 complaints about noise or air pollution are received monthly by telephone from the local population in the Rijnmond regions (1971077) average) ("Milieubeheer Rijnmond", information sheet Rijnmond Public Authority 1978, R37/6113-78). The Environmental Service monitors pollution levels on a continuous basis and registers local complaints via a special "complaints telephone" (klachtentelefoon).

22. Geïntegreerd Milieu-onderzoek, interim rapport, Openbaar Lichaam Rijnmond, March 1974. Cited in C.J.B. Boender, "Acute Milieuverandering", in P.Ester (red), Sociale Aspecten van het Milieuvraagstuk (Assen: van Gorcum 1979) pp. 94-106.
23. Personal communication, H. Boerma, Vereniging tegen Milieubederf in en om het Nieuwe-Waterweggebied, Vlaardingen.
24. In addition to the formally-required 'public hearings', the three Zuid-Holland/Rotterdam local authorities organised a number of public information meetings and discussions in late 1977 and the first half of 1978. Among the officially invited speakers were representatives of environmentalist organisations. e.g. Meeting held at Hoek van Holland, 28 February 1978; attended by H. Boerma, representing "Vereniging Milieudefensie". This meeting was organized by Hoek of Holland municipal authorities (within the City of Rotterdam local government boundaries). Also meetings were held on 2 and 3 May 1978, respectively at Oostvoorne and Hoek van Holland (attended by H. Boerma, speaker representative of "Natuur en Milieu" national environmentalist organization). The public information effort by Rijnmond/Rotterdam local authorities further involved 'brochures' which were said to have been "widely distributed among the local population" (Rijnmond 1978a, 44). The information brochure published jointly by three local authorities concerned with the Maasvlakte sites (Zuid-Holland 1978a) included discussion of the risk as "perceived" by the local population.
25. Cf. Thompson 1983, op.cit. (note 17).
26. About half the speakers at the LNG 'public hearing' represented environmentalist organisations; the discussion was heavily dominated by environmental and safety issues. In similar vein, a significant 75% of the (40) groups and individuals submitting written 'objections' to the local authorities rejected a Maasvlakte LNG terminal on the ground of safety, arguing that the additional risks in the Rijnmond region was unacceptable. (Rijnmond 1978a,44).
27. The regional council for environmental control (Regionale Raad voor het Milieubeheer Rijnmond); and the provincial council for environmental health (Provinciale Raad voor de Milieuhygiene).
28. Provinciale Raad voor de Milieuhygiene, Zuid-Holland (provincial council for environmental health, see Zuid-Holland 1978b: section 11). Regionale Raad voor het Milieubeheer Rijnmond (regional council for environmental control Rijnmond; see Rijnmond 1978a appendix 2).
29. For details see Rijnmond 1978b, Rijnmond 1978c, and Zuid-Holland 1978c.

30. Groningen Province had been singled out by successive national governments for regional support and selective industrial development aid.
31. CBS 1978, Table B9. Rural space in Groningen province is not the scarce resource it is in the Rijnmond regions, where approximately one million people live in an area one-quarter the size of Groningen province.
32. "Landelijke Vereniging tot Behoud van de Waddenzee". See D Eisma, "Van Waddenzee naar Noordzee", in E. Tellegen & J Willems (red), Milieu-aktie in Nederland (Amsterdam: de Trommel/Milieudefensie) 1978), pp. 24-35.
33. Natuur en Milieu 1977-1978, Verslag van de werkzaamheden van de Stichting Natuur en Milieu over de jaren 1977 en 1978, ('s-Graveland: Stichting Natuur en Milieu, 1979). As to the institutional relationship between the Waddenzee Association and the Noordzee and Eemsmond working groups, it may be noted that the first detailed brochure by the Noordzee Working group on the subject of LNG siting (Noordzee 1978) was specifically published "also on behalf of the Landelijke Vereniging tot Behoud van de Waddenzee". Another example is that a member of the board of the Waddenzee organisation also acted as representative of the Noordzee working group (cf. Eisma 1978:35 and a letter on LNG from the Noordzee working group to Parliament, dated 4 October 1978). The aims of the Waddenzee organization and the working group Eemsmond had much in common (see Natuur en Milieu 1978/9. As further indication of the degree of collaboration between the Waddenzee organization and the two working groups: the first letter addressed to the Cabinet on LNG siting, was signed by the Noordzee working group "also on behalf" of the two other environmentalist organizations (letter from Werkgroep Noordzee, Harlingen, 3 March 1978, ref VH/MT.78234).
34. "The North Sea and its uses - an environmental approach" (Harlingen: Netherlands North Sea Working Group, 1979); I. Wildenberg, "Macht, milieubeheer en de Waddenvereniging" (Leiden, 1983); Eisma 1978, op.cit. (note 32).
35. E Tellegen, "Milieu en maatschappijveranderingen" in Tellegen & Willems (red) 1978, op.cit. (note 32), pp. 160-171; Wildenberg 1983, op.cit. (note 34) p31.
36. Their concern has been described as being the destruction of 'their' recreational spots of natural beauty offered on and around the Frisian Islands. Wildenberg 1983, ibid. p33.
37. E Tellegen, "Oude en nieuwe milieuorganisaties", in P Ester (red) 1979. op.cit. (note 22) pp.152-168.

38. W. J. Vaartjes, "Een onderzoek naar het ledenbestand van de Landelijke Vereniging tot behoud van de Waddenzee", (Sociologisch Instituut, Leiden, Rijksuniversiteit, 1977) quoted in Tellegen 1979 (1577) A figure of 12% (of the national membership) from Groningen and Friesland is mentioned in K. von Moltke & N. Visser, Die Rolle der Umweltschutzverbände im politischen Entscheidungsprozess der Niederlande (Berlin: Erich Schmidt Verlag, 1982).
39. E. Tellegen, "The Environmental Movement in the Netherlands", in T.O'Riordan and R.K. Turner (eds), Progress in Resource Management and Environmental Planning, Vol. 3 (Chichester: John Wiley, 1981). p.9
40. Cf. Thompson 1983, op.cit (note 17).
41. In the Groningen Province, local 'participation' was limited to the statutory 'public hearing'. The Provincial Governors brushed aside criticism on the issue of limited public involvement by stating that "whenever possible" policy documents on LNG had been "made available to the media and to environmentalist organizations" (Groningen 1978j,4).
42. The 'public hearing' on LNG in Groningen was dominated by local authority representatives at municipal and provincial levels; only one environmentalist representative attended (Eemsmond Working Group); Noordzee Working Group submitted a written 'objection' to the meeting. (Groningen 1978k).
43. It is significant that in all major discussion meetings on LNG, with the national government and Parliament, the Provincial delegation was led by the highest appointed official, the Royal Commissioner of the province. At the level of local councils in Groningen there was apparent consensus on this 'negotiation strategy' vis-a-vis national decision-making deliberations.
44. When environmentalist organisations first became involved with the LNG policy debate, Maasvlakte was considered the only viable land-based LNG site (according to national government). When the Eemshaven site was (re-)introduced, environmentalist objectors had to rely significantly upon resources and people from environmentalist groups concerned with the Maasvlakte sites (personal communication H Boerma, see note 23). This highlights further the relative weakness of environmentalist support and strength in the Groningen region.
45. A report by the state land-use planning committee RPC (Rijks Planologische Commissie) indicated that the population density around the Maasvlakte site (as used by TNO in its risk analysis) was approximately 1000 inhabitants per km<sup>2</sup>, as compared to a figure of 140 inhabitants/km<sup>2</sup> for the area around Eemshaven. (Bijlage 7 in ICONA 1978b, p.7).

46. The empirical basis for this and subsequent analysis can be found in Chapter 6, and earlier discussion in this chapter.
47. The Rijnmond Authority policy perception provides a significant exemplary case.
48. Included in the sectist orientation here are those policy actors who judged the risks of LNG as being "too uncertain" to warrant their acceptability (at the time of the LNG decision process).
49. Since factors (a) and (b) are not of direct relevance to the policy perspectives of local government actors, they are excluded as a basis for assessing their cultural orientation.
50. ICONA strongly argued in terms of the hierarchical/entrepreneurial concerns of economic cost-effectiveness and efficient energy policy implementation. This 'positive diagonal' perception of the LNG issue, and the associated selection of interest-criteria, was most pronounced in the case of Gasunie: its argumentation was virtually exclusively in terms of economic and energy policy considerations, that saw a Dutch LNG terminal as a "necessity"; it was simply "assumed" that the safety would be brought to an acceptable level. (See Chapter 6, section 4).
51. See for example ICONA 1978b, 3-5. This and subsequent discussion on national government advisors refers predominantly to ICONA.
52. The only ministerial department which took the sectist demands seriously, the Public Health and Environment Ministry, had also the most to lose in consent from their 'natural' constituents in the social arena, namely the environmentalist groups (which are to a considerable degree 'integrated' in the department's advisory structure on environmental policy-making).

## CHAPTER 8

"The rational model works best when the decision to be reached benefits everybody. In fact, the model only works well when everybody benefits or nobody cares".

- D. Olsen and W.F.R. Freudenburg<sup>[1]</sup>

"[We need to] treat cultural categories as cognitive containers in which social interests are defined and classified, argued, negotiated and fought out".

- M. Douglas<sup>[2]</sup>

CONCLUSIONS: THE CULTURAL ANALYSIS OF TECHNOLOGICAL  
POLICY CONTROVERSY

1. Introduction

This thesis has been concerned with examining the nature of public decision controversies over technology. It has attempted to contribute to the theoretical and empirical understanding of such policy disputes in respect of three main areas:

1. Analysing the validity of the prevailing conceptual perspectives on policy dissensus in public decision analysis, especially the politics-of-interest frame that dominates research on so-called technological decision controversies;
2. Analysing in detail the process and outcome of public decision-making over technology in an empirical setting, by examining the determinants of the policy controversy on the potential siting of a large-scale liquefied gas facility in the Netherlands.

3. Developing and presenting a detailed application of cultural theory to public policy analysis, using the notion of contending cultural biases in institutional perception and strategy to account for divergent policy stances in (dissensual) decision processes generally, and in relation to the assessment of technological developments in particular.

This chapter summarizes the central argument and main findings of this thesis, and assesses the major implications for theoretical and conceptual analysis. It elaborates on the unifying theme in this study, arguing the extent to which cultural analysis is a significant advance on the politics-of-interest perspective, in coming to terms with the social and political determinants of so-called technological decision controversies. The focus in this concluding chapter is three-fold. First, I review the theoretical and conceptual issues addressed in this thesis, arguing the case for a cultural perspective in public policy analysis and technological decision studies. Secondly, I examine the main conclusions that can be drawn from my theoretical and empirical research in relation to the analysis and conceptual understanding of public decision disputes over technology. And thirdly, I discuss some of the broader implications of cultural analysis for our understanding of technology as a social process, and suggest the relevant focus for future research that flows from this perspective on politics and controversial technology.

## 2. Theoretical and conceptual issues

The theoretical and conceptual issues addressed in this thesis emerged from an analysis of the traditional interest perspective on politics, through which technological decision

controversies have predominantly been examined. In this respect, I have argued the advance of cultural theory by confronting the policy analytic shortcomings of the politics-of-interest frame. My theoretical critique of the rational interest model can be summarized therefore by reference to five crucial points of failure.

First, I have criticized the interest-premise for its exclusive concern with goal-seeking, and its disregard for goal-setting. Second, I have established the circularity of the interest explanation, attributing it to the causal link it establishes between policy goals and behaviour. Third, I have shown how it has ignored entirely the need for (moral) justification in public policy-making. Fourth, I have argued that the individualist fallacy - on which the rational choice model of politics is based - has divorced rationality in decision-making from the social contexts within which political actors operate. And fifth, I have attacked the failure of the politics-of-interest model to incorporate into policy analysis contending institutional perceptions. Let me elaborate on these issues and subsequently examine how the application of cultural theory to policy analysis has been able to come to terms with these deficiencies.

This thesis has highlighted that theoretical research on policy analysis, and the empirical literature concerned with technological decision disputes, are premised predominantly on the assumption of 'rational' goal-seeking behaviour by policy actors. In Chapter 2, I outlined that in this perspective, the pre-existence of interests is taken as a self-evident starting point for analysis. Policy dissensus in this conceptualization is reduced to the level of conflicting goals and competing means in order to achieve (or optimize) those goals. Both theoretically and empirically, this study has argued that the selection of goals and actors' commitments to certain 'rules of closure' in policy-making cannot be adequately understood in these narrow conceptual terms.



The decision controversy on LNG developments in the Netherlands demonstrated the seriousness of this analytic deficiency. The foregoing empirical analysis established that the diametrically-opposed policy stances of participants to the LNG debate (especially of the local government actors) could not be explained satisfactorily by reference to the 'rational' pursuit of (self-expressed) goals and interests.

The failure of the politics-of-interest model in theoretical and empirical analysis has been highlighted further by the circular argument it sets up. It has been unable to understand the process by which policy actors come to decide which courses of action and preferences are 'in their best interest'. Since the rational politics model is essentially a goal-seeking model, it is unable to deal with the selection of interests (see below).

Central to my challenge to the politics-of-interest perspective on policy analysis has been a rejection of the causal link between value stances of policy actors and other manifestations of their behaviour. In the context of the LNG case study, I have stressed the interdependence of evaluative criteria for choice and the various problem bounds and assessment modes by which policy actors argued their respective preferences. The analysis of the LNG decision controversy thus demonstrated that the notion of independently-formulated 'interests' as causes for policy assessment and choice is fundamentally ill-conceived. By examining policy objectives as self-expressed reasons for choice, I could draw attention to a significant shortcoming of the politics-of-interest perspective: its failure to address adequately the issue of policy justification as a crucial factor in boundary-setting and closure in social decision behaviour. In this respect, a major finding of this study is that the dominant interest-model of policy dissensus (including disputes over technology) has

failed to acknowledge sufficiently that policy decisions have to be justified by arguments that are (a) seen as credible, and (b) able to command moral consent.

These requirements of credibility and consent arise out of the social character of public decision processes. In this respect, this study has argued the inappropriateness and failure of the traditional rational decision model in the analysis of social choice, and has attributed them largely to its commitment to the 'individualist fallacy'. The rejection of this premise in the study of policy controversy, as argued in this thesis, had two major implications for the conceptual and theoretical analysis of public decision disputes. First, it enables us - at least in principle - to take explicit account of the social contexts within which policy actors operate, and opens up the possibility of relating divergent policy commitments to social factors in rationality and decision-making. Secondly, in abandoning the notion that cognitive factors are merely individual-psychological inputs in choice behaviour, and by treating them as cultural attributes, the rejection of the 'individualist fallacy' enables institutional perceptions to be incorporated into analysis, and to advance these as the potential determinants for conflicting policy stances.

#### The traditional perspective in technological decision studies

This critique of the traditional politics-of-interest model may appear to develop a general perspective on policy analysis, with little direct connection with specific public decision disputes over technology. Yet, the same fundamental deficiencies and misconceptions inherent in the rational interest model prevail in most of the literature on decision controversy. Moreover, in examining the conceptual terms by which such socio-technical disputes may be understood, the

arguments presented in this thesis highlight the need to dissolve controversial issues associated with technology back into their political and social contexts.

The first part of this study has identified the serious shortcomings of the traditional literature on technological decision-making. It has established the prevalence of the 'dope' model in the analysis of policy disputes over science and technology, and has helped to highlight the fundamental flaw in the rational-interest perspective that underpins it. The central features of my challenge to the dominant analytic 'paradigm' on technological decision studies mirror, therefore, the deficiencies of the positivist-inspired voluntaristic rational choice model.

Conceptually, my critique as developed in this study, can be captured in three main misconceptions. First, the linear relationship that is set up between values and facts - between ends and means, between political evaluation and 'factual' impacts. Second, the causal analytic frame - underpinned by the rational choice model - that reduces policy conflicts over problem definitions, impact assessments, and the interpretation and use of scientific evidence all to the single level of competing value stances. And third, the contradictory argument that considers uncertainty and ambiguity in 'objective' factual data as a determinant for political controversy.

In the traditional approach, policy disputes over the impacts associated with technology have been analysed by focusing unduly on the value conflicts involved. In the process, technologies have been construed as passive resources, to be understood solely in relation to the political ends to which they are put. Given especially the a-theoretical status of much of the literature on technological decision controversies, the serious implications of these misconceived premises were particularly manifest in the context of empirical analysis.

In summary, five basic deficiencies have been identified in decisional case studies on technological disputes. First, the descriptive - rather than explanatory - two-party adversarial frame that classifies competing policy actors as proponents and opponents of a technology according to their preferences. Second, the assumption that the notion of technological impacts is unproblematic in political terms: the expectation that opponents simply focus on low benefits and high risks, whereas the proponents stress the high benefits and limited risks. Third, the assumption that divergent problem definitions (if examined at all) can be explained simply as manifestations of conflicting political value stances impinging on the technology. Fourth, the inadequate attention to the analysis of institutional perceptions (of policy issues and of technology). And fifth, the failure to acknowledge that the distinctions that are made by policy actors between 'factual' and value dimensions in empirical disputes, are features integral to policy controversy and hence need to be analysed as such.

### 3. The advance of the political cultures frame in policy analysis

This study has argued the case for a cultural perspective on political analysis to overcome the deficiencies in the rational interest frame for the analysis of policy controversy. The essential concepts employed in cultural theory are derived from recent literature on cultural anthropology and the sociology of perception. My distinct contribution lies in the further development and detailed application of these cultural concepts to public policy analysis. Furthermore, this thesis has sought to demonstrate that the cultural model - developed from basic concepts in sociological theory - represents a significant

contribution to the study of technological decision-making, especially given the paucity of systematic, theory-based analytic approaches in the existing literature (see Chapter 1). Before turning to the significant contributions of cultural analysis to the empirical study of public decision controversies, let me briefly review the conceptual advance of cultural theory in addressing the failures of the politics-of-interest model.

At the heart of the cultural theory of politics lies the proposition that rationality and policy behaviour are context-dependent. To understand different manifestations of bounded rationality and competing policy commitments, we must look at the relationship between social actors and their institutional environments. By arguing that not all conjunctions between social environment and cultural bias are socially viable, cultural theory has furnished a typology of social contexts. This cultural typology has enabled me to demonstrate how contending policy orientations can be examined against a basic scheme that links different social contexts to distinctive culturally-induced biases in institutional perception and behaviour.

Since the notion of contending cultural biases conceptualizes differences in social environment, institutional perception and policy behaviour within a single frame, the cultural perspective on policy-making has been able to come to terms with the main deficiencies in the traditional politics-of-interest model. First, it provides a goal-setting model of policy behaviour, accounting for both policy selection and justification by reference to distinctive political cultures. Second, it avoids the circularity of boundary-setting and goal-maximization, making problem definitions and interest-criteria contingent on the culturally-induced biases in perception and behaviour. Third, it can deal with the social nature of policy processes by

defining political cultures by reference to a typology of social contexts, based on a classification of environmental constraints upon individuals as social entities. And fourth, in conceptualizing differences in the moral commitments by which policy actors reason and legitimize their strategies, it can come to terms with the idea that rationality in policy-making is itself culturally-dependent.

Based on these conceptual advances this study has argued the theoretical and empirical case for applying the political cultures frame to public decision analysis. Whereas previous research has to some extent acknowledged the potential of cultural theory for understanding policy processes, the conceptual issues involved in a cultural perspective on political and decision theory hitherto had not been analysed systematically. In terms of empirical policy research, this thesis has presented a first detailed application of the political cultures framework to the analysis of policy dissensus in an extensive case study of public decision-making.

A major contribution in my application of the notion of contending political cultures to policy disputes, has been the detailed analysis of competing problem definitions (Chapter 6). This study has shown both the theoretical advantage and empirical feasibility of moving away from the analysis of policy conflict in terms of political preferences per se. By juxtaposing conflicting policy stances in terms of culturally-induced policy orientations, this thesis has rejected the reductionist classification of 'opponents' and 'proponents' in the policy debate. Rather than classifying policy participants simply in terms of their manifest preferences, the notion of political cultures has enabled the policy arena to be analysed and disaggregated according to the justificatory criteria and assessment frames that underlie various policy preferences.

Furthermore, by integrating the cognitive and social factors

that inform the problem definitions of (conflicting) actors, the cultural analysis carried out in this thesis, has been able to discern different insitutional perceptions. These socio-cognitive divergences among policy actors were particularly evident in the formulation and evaluation of the perceived 'impacts' of various policy options. In this respect this study has further highlighted that conflicting policy assessments cannot be understood simply in terms of different values impinging upon independently-formulated 'factual' consequences. As demonstrated empirically in the case of the LNG decision controversy, what was at stake were basic differences in interpretation and salience that were given to the various 'risks' and 'benefits' as perceived by different policy actors. In analytical terms, the empirical dispute over LNG developments has underscored that the divergence of social perceptions in framing and assessing the policy issue is to be considered as a fundamental area of policy dissensus.

In analysing different interest-criteria as divergent justifications for policy choice, the application of the political cultures frame has emphasised the cultural process through which actors grant credibility to and social support for particular policy stances. By examining the political accounts of participants in those terms, the LNG decisional case study has demonstrated empirically the considerable strength of the cultural frame, in accounting for the manifest selection of interest-criteria by contending policy actors. In particular, the analysis of the asymmetry between Groningen and Rijnmond policy perspectives emphasised that the different policy assessments (e.g. of the employment and safety dimensions associated with LNG development) could not be explained by reference to the 'objective' regional impacts (see Chapter 7). Rather, it could be shown that policy dissensus was rooted in divergent social environments, within which particular cultural perceptions could become prevalent.

My application of the political cultural model has elucidated the significance of social contexts in policy-making, not as some kind of residual category, but as an essential link between public policy demands and the social bases for consent. By highlighting the cultural dependency of consent and legitimacy, the political cultures frame has been employed to account for the kinds of policy demands that emerged as credible criteria for choice. In this respect, the roles played by environmentalist groups in the local decision procedures on LNG signing, illustrated the strength of the cultural model in understanding the relative influence of their distinctive demands upon decision-making institutions.

My empirical application of cultural theory to policy analysis has thus enhanced the notion of contending political cultures in the policy arena. In the cultural analysis, policy formulation is conceptualized as a continual process of social negotiation at both intra-organisational and inter-institutional levels. In this analytic frame, competing policy perspectives, interpretations and choice criteria are constantly put to the crucial test of social viability. Building on this perspective, my empirical analysis of the LNG policy dispute has amplified the social dynamics of public decision-making in cultural terms. The LNG case study has vindicated the cultural account of policy choice, demonstrating that the manifest pattern of selective interest-criteria and preferences did not arise simply from a context-free, 'rational' appraisal of policy demands and 'objective' circumstances. Rather, the conflicting policy stances of disputants could (only) be understood in terms of socially-induced cultural biases in their perception of 'the' policy issues and of the 'appropriateness' of various policy 'solutions'.

In the context of the LNG decision case, I have analysed in detail the extent of the environmentalist presence in different



localities, as a way of further corroborating, the cultural perspective on policy analysis. I have argued how the regional differences were to be understood not as self-evident factors in the decision dispute, but as an integral manifestation of contending ideal-type political cultures and their distinctive concerns and policy demands. The cultural framework thus enabled examination of both the salience of environmentalist arguments, and the interpretive meanings that were attached to environmentalists' (and other sectist) concerns, from a single analytic perspective.

In summary, the key conceptual contribution to political analysis as presented in this thesis, concerns my detailed elaboration on and application of cultural theory to the study of public decision processes. The foregoing chapters, have argued how cultural analysis furnishes an adequate basis for identifying and understanding the social perceptions through which policy actors relate to decision problems and to each other. My analysis has tried to argue the significant theoretical and empirical advance of the political cultures frame in policy analysis - in its ability to address the socio-cognitive determinants of public decision disputes, and to place interest-politics in its proper cultural context.

#### 4. Cultural analysis of technological decision controversies

In applying the cultural perspective on public policy analysis, this study has argued how the notion of cultural bias enables one to identify and examine controversial 'technological decisions'. It has emphasised the need and feasibility to analyse the social and cognitive determinants of technological decision disputes from a single perspective, and has developed the political cultures frame to account for competing assessments of scientific and technical developments in the context of policy controversy.

At a general level, this thesis has argued the need to reject the narrow interpretation of the "politicisation" of scientific and technical knowledge. In emphasising the interrelationship between the cognitive and social domains, my cultural perspective on politics can be applied successfully to analyse competing interpretive frames as well as conflicting value stances as interrelated features in 'technological' policy disputes. In asserting that social actors construct both their perceptual boundaries and strategic preferences in the course of policy behaviour, it can account for different assessments by reference to contending political cultures. As compared to most of the literature on technological decision controversies, a qualitative distinction in my empirical analysis has been the abandonment of the traditional 'dope' model. This study has shown the need to shift the analytic focus away from policy preferences of conflicting institutional actors per se, and towards a categorisation of policy stances in terms of the (divergent) problem definitions and interest-criteria underpinning preferred policy strategies.

In the context of the LNG decision dispute, my empirical analysis could show that the pattern of divergent problem definitions by policy participants could not be explained in terms of conflicting (or shifting) interest concerns (Chapter 7). In confronting and rectifying this failure, the analytic strength of the political cultures frame was established by its account of the social and political factors that gave rise to divergent problem perceptions - both in terms of the framing of the 'technological' policy issue, and in respect of the various socio-cognitive conceptions of 'risks' and 'benefits'.

The socio-cognitive (i.e. cultural) account of the LNG decision controversy analysed in detail the various (dimensional) 'impact' concerns as manifest in the respective policy perspectives, whilst in the same breath examining basic

differences in the interpretive frames by which policy actors 'related' to these issues. The empirical research on the LNG as presented in this thesis has thus provided significant support for the cultural hypothesis, by demonstrating how the salience and ranking of different evaluative criteria and justifications can (only) be understood by making them contingent on the institutional perceptions that accompany and in many ways define policy behaviour.

### Cultural bias and the assessment of technology

Central to the political cultures model is the idea of distinctive cultural biases in both policy perceptions and behaviour, thus emphasising the link between cognitive boundaries in assessment and policy evaluations. In developing the cultural perspective on public decision-making and by building on the cultural theory of risk perception, this study has applied the notion of contending political cultures to issues of 'technology assessment'.

The theoretical exposition of cultural analysis (Chapter 3) and its empirical application (in Chapter 7), has attempted to show how conflicting assessments of (LNG) technology are immersed in culturally-induced meanings and interpretive frames that define policy actors' perceptions of 'risks' and 'benefits'. The empirical analysis of the LNG decision dispute has vindicated the theoretical case (argued in Chapter 1) that we need to reject the simplistic conceptualisation of impact dissensus, as determined by different independently-formulated evaluative stances that are made to bear upon the unequivocally-defined consequences of technological options. The cultural analysis of technological decision disputes emphasises that culturally-induced policy perceptions will be at work in every potential

area of policy dissensus: the options that are included, the conception of 'technological' impacts, the definitions of 'risks' and 'benefits', as well as the selection of relevant evaluative criteria for choice.

My treatment of contending problem definitions in cultural terms has underscored the need for, and empirical feasibility of, analysing the social and cognitive dimensions of technological decision disputes in their appropriate interrelationship. In my empirical research, the analysis of conflicting policy assessments of LNG technology (especially in my discussion of Groningen and Rijnmond local government viewpoints) clearly bore out that it is meaningless (and futile) to try and compare evaluations of 'impacts' without examining at the same time the cognitive boundaries and interpretations that were adopted. Conversely - and equally significant - the local perceptions of 'risks' and 'benefits' could not be understood adequately without incorporating into analysis the social-political contexts within which particular cognitive stances could gain prevalence over others.

The cultural analysis of technological decision-making thus indicates that conflicting policy stances that make for controversy are essentially concerned with competing institutional commitments of policy actors that embody the socio-cognitive definitions of both the nature of the 'technological' issues, and of the boundaries to 'the' decision problem being addressed. From this perspective we can see how the cultural approach is able to avoid the inadequate - and contradictory - notion of "technical uncertainty" that prevails in the traditional analytic 'paradigm' in technological decision studies (see Chapter 1). Framed in cultural terms, 'technical' uncertainty and ambiguity can no longer be treated only as an empirical deficit in 'factual' data about technology and its impacts. Nor can it be invoked any longer as a causal determinant for policy conflicts. Rather the 'technical'

dimensions of decision controversy, and the uncertainties associated with it, are nested in the contending institutional perceptions and rationalities by which policy actors operate.

Given especially the absence of comparative empirical analysis in this thesis, it is important to emphasise that its theoretical and empirical conclusions vis-a-vis the need for a cultural perspective on technological decision controversis may be corroborated by recent work on scientific and technical disputes. In particular, it has been argued that the emergence of different scientific positions needs to be analysed in the context of institutional conceptualizations, and by reference to social and cognitive commitments of policy actors.<sup>[3]</sup> My analysis - both conceptually and in my case research - is entirely consistent with the conclusion (reached by Wynne, for example), that the analytic focus in technological controversy studies requires a shift "from technical uncertainties towards the institutional patterns generating those technical uncertainties and their associated problem definitions".<sup>[4]</sup>

In the Dutch LNG decision case, the issue of factual uncertainty and ambiguity of data - e.g. the dispute over the detonation potential of LNG - played perhaps a less prominent role than in some other policy disputes (e.g. those concerned with regulatory issues of science-related hazards). However, this conclusion is an empirical outcome of the controversy, that can only be understood by reference to the socio-cognitive dynamics, which govern the emergence and salience of such issues. In this respect, the cultural analysis of technological decision disputes as carried out in this study may be vindicated by recent work in controversy research, such as that of Rip, who has asserted that

"... the socio-cognitive dynamics of a controversy makes it impossible to speak of areas of [factual] uncertainty that leave room for different interpretations that are guided by the differing values and interests of the parties in the controversy. [...] And the controversy is often not

about the interpretation of a give area of uncertainty, but about which areas are to be considered certain and which areas of uncertainty are sufficiently irrelevant to remain uncertain." [5]

The contribution of the cultural perspective on technological decision is that the notion of distinctive cultural biases in institutional commitments enables us to map these socio-cognitive dynamics. In this respect, it is important to draw attention to the distinction (as recent analysts have made) between 'technical uncertainty' (in terms of ignorance of deterministic phenomena that are in principle knowable but that, at present, make for incomplete knowledge) and what may be called 'socially-constructed' or 'structural' uncertainty. My analysis has been mostly concerned with this latter type of uncertainty over technology, concerned with genuine indeterminacy because no consensus can be reached on the dimensions of the technological system, given the divergences in social and cultural settings of those actors that try to define the system. [6] From this perspective, it is no longer necessary - nor fruitful - to attribute expert disagreement to divergent value stances, as does the dominant approach to scientific and technological disputes (see Chapter 1).

My cultural analysis of public decision controversy over technology, has thus been able to underscore the view (as advanced for example by Wynne) that the uncertainties and ambiguities surrounding controversial 'technological' issues are dominated by social-institutional pluralism, creating different problem definitions and conceptualizations. [7] In this context, an important contribution of this study has been to demonstrate the significant theoretical and empirical potential of the political cultures frame in the analysis of technological decision disputes, by allowing systematic examination of this cultural pluralism, in relation to divergent policy stances among institutional actors. In particular, the analytic advance of the cultural approach stems from its ability to come to terms with the institutional

perceptions on technological uncertainty and risks and, in the same conceptual frame, to account for conflicting political value stances and policy justifications.

### Technological decisions redefined

This study extends the current state of understanding of public decision disputes related to scientific and technological developments in its treatment of institutional choice and perceptual bias in policy-making, and in the assessment of 'technological' impacts. By placing the whole debate on technology assessment and boundary-setting in decision-making in the context of contending political cultures, it has emphasised the need to abandon the "single-problem" assumption that has prevailed in the analysis of such policy controversies. In examining the existing literature on technological decision disputes (Chapter 1) I have developed the argument for a "multiple-problem" approach in analysis and for examining the socio-cognitive dimensions of conflicting policy definitions. By employing cultural theory, this study has established the conceptual terms for categorizing contending problem definitions among policy actors. Having demonstrated the presence of culturally-induced divergences in the way 'technological' issues are conceptualized and framed, we can now understand why any conceptual definition of 'technology as separated from social-political contexts is inherently problematic.

The cultural analysis of controversial 'technological' decision making has drawn attention to the fact that the rationalist treatment of competing technology assessment - as independently-formulated value stances impinging on factual impacts - mirrors fundamentally the same misconceptions that were identified in the politics-of-interest model for policy analysis. The application of political cultures as presented in this study has helped to demonstrate how 'closure' in both

technology assessment and political choice can be understood in terms of contending culturally-induced orientations. Institutional biases among policy actors can be identified in the way social choices and political interests are defined, whilst at the same time they can be seen to structure the (socio-)cognitive boundaries that are set to 'technological' issues, technical uncertainty and the perceived 'impacts'.

By viewing 'technology' and 'politics' from a single cultural perspective, the theoretical and empirical analysis of this study has made it possible to understand more precisely the 'nature' of so-called technological decision controversies. We can now redefine these policy disputes, such as the debate over LNG technology in the Netherlands, as belonging to a class of public policy-making that involves issues of science and technology whose boundaries and uncertainties embody contending socio-cognitive policy definitions. Immersed in these competing problem definitions are divergent constructions and interpretations of 'scientific' and 'technical' data, as well fundamentally conflicting institutionalized commitments to different values and strategies.<sup>[8]</sup>

##### 5. Technological decisions: implications for further research

A significant conclusion that emerges from applying the cultural analysis of politics to issues of technology is that the context-dependency of rationality is reflected as much in the way we view the nature of politics as it is in the conceptions we adopt of science and technology. The theoretical and empirical components of this study have emphasised the serious conceptual deficiency of traditional studies on political choice and on technology assessment. In this respect, the policy analysis of technological decision controversies presented here may be seen as an elaboration on



and vindication of those limited number of studies that have come to recognize explicitly that

"principles and reasons for scientific judgements can formally, fully and precisely specified, so the same perspective expresses a faith in our ability and need to specify our goals and values precisely and formally".[9]

This thesis has been an attempt to establish that these narrow assumptions in the traditional 'paradigm' of technological decision studies cannot stand up to critical analysis. In theoretical and empirical terms I have tried to show that in policy analysis 'means' and 'ends' cannot be conceptually separated in social decision situations. More particularly, with respect to technological decision disputes, that the definitions of 'technological' options and their political evaluation cannot be disentangled in institutional choice. By the same token, this study has sought to demonstrate how any definition that is adopted of the 'factual' risks and benefits associated with a technology is structurally-rooted in socially-induced commitments that constrain the perception and appraisal of technology by institutional actors.

In embracing this analytic perspective, the findings emerging from this study highlight the need to treat technology as a social process, and not as a neutral physical entity. The argument presented in this study emphasises that political controversies concerned with issues of 'technology' require analysis of the social and cognitive dimensions of policy disputes. Hence it has developed and applied the case for a cultural analysis of public decision processes, within which controversial features of technology can be posited and explained. Given the conceptual link between knowledge and value disputes, a significant conclusion is that concepts and manifestations of technology themselves require a cultural frame for analysis. In other words, by arguing that political decision disputes over technology can only be adequately

understood from a cultural perspective, this study has drawn attention to the other side of the same coin: that technology - and its inescapable socio-political contexts on which it depends - is itself in urgent need of analysis in cultural terms.

Whereas the main concern in this study has been to advance public policy analysis in relation to 'technological decision' controversies, its main line of argument adds up to considerable support for a cultural analysis of technology as a socio-political process. In this, the foregoing discussion underscores the importance of those (few) analysts who have stressed the importance of recognizing the social character of technology, and who have begun to analyse technological developments and their implementation as fundamentally institutional and organisational-cultural processes.<sup>[10]</sup> A truly cultural perspective on technological developments, however has not been achieved as yet. It is against this background that future (policy) research into technological decision controversies is to be formulated and designed.

#### Research implications

Although one must be cautious in generalizing from the findings of a single case study, the cultural account of the empirical pattern of policy behaviour in the LNG decision dispute has corroborated the main features of the political cultures approach to the analysis of 'technological' policy controversy. Given the scope of this study, there are two main interrelated areas where further theoretical and empirical analysis is required to augment the arguments presented here. First, the political cultures frame itself needs to be enhanced in order to explain the emergence (or otherwise) of decision controversies over technology in terms of the socio-cognitive concepts it employs. Second, the cultural perspective on

divergent technology assessments in the context of decision-making need to be developed by conceptualising scientific and technological developments in basic cultural (dynamic) terms.

At the conceptual level, this study has emphasised that the cultural analysis of public policy processes can only 'work' if the cultural bias framework is applied both at the macro-level of political cultures in the policy arena (my dominant concern), and the intra-organisational (meso)-level of institutional actors that collectively make up and sustain that arena. Whereas cultural theory has furnished a basic classificatory scheme by which distinctive cultural orientations in institutional behaviour and perception can be recognised, a number of essential concepts need to be further examined in theory, as well as in a variety of empirical policy contexts. In particular, the social dynamics and contextual conditions that underpin the social viability and credibility of one or another cultural bias need to be systematically analysed. This requires further research both at the intra-institutional level, (building on recent work in the sociology of perception)<sup>[11]</sup> and at the level of the inter-institutional arena, where public policy processes are traditionally observed.

As to the further development of (grid/group-type) cultural analysis, the social dynamics that link public policy processes (which was my main concern) to organisational processes need to be further examined. In this respect, it may be rightly posited, for example, that my cultural account of environmentalism would have benefited from detailed research into the strategies and concerns within the various environmentalist organisations. Cultural analysis at this intra-institutional level could have corroborated the cultural interpretation of environmentalism in the LNG decision context, but this went beyond the scope of this study. Nonetheless, it must be recognised that the notion of a dominant cultural bias

in institutional policy orientation, ultimately requires the dynamic contention between biases within organisations to be analysed further - both theoretically and empirically. -

Although attempts have been made to apply the grid/group cultural frame at this (intra-organisational) level of analysis, the conceptual terms for inquiring into the underlying cultural dynamics remain underdeveloped.<sup>[12]</sup> The key question here is the process by which a dominant cultural bias is able to establish itself within an institution. At the micro-level, this implies the need to inquire further into the social determinants for 'migration' of individuals from one social context to another. As far as public policy analysis is concerned, it is important to highlight that the conceptual linkages between inter-institutional dynamics in the policy arena (as was the focus in this study) and the organisational processes by which distinct institutional actors exist and operate, constitute the next logical step in the further development of the political cultures frame.

The detailed case study presented here lends considerable support for the cultural hypothesis, that controversial policy issues, such as LNG technology, need to be examined in relation to the fluid mix of political cultures in which the on-going decision process unfolds. At this level of policy regimes,<sup>[13]</sup> however not enough is yet known about the dynamic determinants underpinning particular coalitions of political cultures in the policy arena. The cultural analysis of policy-making will have to be enhanced by examining in cultural terms the processes of coalition-building and inter-institutional negotiation among policy actors. Furthermore, given the importance of social context in the cultural perspective on policy conflict, the issues of public support and social consent will have to be further examined, since they are crucial in determining the credibility and legitimacy of decision-making institutions.

A major contribution of the cultural analysis of technological decision disputes has been to draw attention to the socio-cognitive factors in the way policy actors relate to 'technology'. In this respect, this study has emphasised that controversies over the assessment of technology can only be meaningfully analysed by examining the socio-political context in which technology is conceptualised and appraised. From this perspective, future research on technological decision disputes needs to abandon the dominant tendency in analysis to start from the 'technological' system at the centre of the debate, and add social perceptions and institutional interpretations as contextual features to the controversy. Cultural analyses requires us to define the 'technological' issues according to the various socio-cognitive conceptualisations by policy actors rather than the other way around.

In this perspective, the cultural analysis of technological decision controversies implies the need to extend the "multiple problem" approach to social conceptions of technology. More significantly, it means a conceptual integration of the domains of 'technology' and 'politics' in examining the socio-cognitive determinants of so-called technological decision disputes. In this respect, this study has highlighted that in the cultural perspective there is no fundamental difference in analysing the 'technological' dimensions of politics - which has been the dominant concern of this study - and the socio-political dimensions of technology.

Cultural analysis has helped to strengthen the view that the 'uncertainty' in policy decisions involving "technology assessment" is not merely technical, but that it is structurally related to the various socio-cognitive problem definitions it embodies. The "multiple-problem" approach to technological decision controversy means that it is not 'the' policy problem that contains uncertainty, but the socially-induced uncertainties - and taken for granted meanings - that

contain the problem. From this cultural viewpoint, disputes over 'technological impacts' and their policy assessment need to be analysed as reflecting policy problems and technological issues with contradictory institutional certainties.<sup>[14]</sup> It is towards these culturally-induced certainties about the 'nature' of policy issues and 'conceptions' of technology that we need to direct further research into so-called technological decision-making. In this respect, a crucial challenge for future theoretical and empirical analysis is to examine further the social viability of particular institutional realities about 'technological policy' issues, and to investigate the socio-cultural settings and conditions that make for controversy over the interpretative frames through which these issues are defined and handled.

In linking the cultural analysis of public decision disputes to a socio-cognitive perspective on technology assessment, I have come full circle. By arguing the essential cultural terms required for an understanding of the political and social processes in which public decision controversies over technology are fought out, this study has vindicated the view that conceptions and manifestations of 'technology' can only be meaningfully analysed as integral features of the same socio-cultural process through which policy-making is defined and enacted. This study has focused on the cultural analysis of public policy disputes. What we need now is to develop a cultural theory of technology.

## Chapter 8

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EMPIRICAL DATA BASE - CASE STUDY LNG DECISION-MAKING

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