SYSTEMIC AND CYBERNETIC ASPECTS

OF

LAND USE

PLANNING

WITH SPECIAL REFERENCE

TO

MINERALS

THE UNIVERSITY OF ASTON IN

BIRMINGHAM

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SUMMARY

The thesis deals with the control of bulk mineral excavation within the framework of Town and Country Planning. The theory used in the work lies within the discipline of Applied Systems Analysis or General Systems Theory.

The thesis attempts a contribution to knowledge in two areas: Firstly it represents a novel application of systems ideas, in applying them to an area of public policy making and control which has not hitherto been the province of such ideas. Secondly it is, so far as is known, the first attempt at considering the land use planning system as a cybernetic system, the main purposes of which are the specification and control of land use.

Part I of the work reviews the body of systems ideas as they are to be applied in the research. A description is given of a model of organisation derived from the work of Beer (1972). Part II discusses and describes the origins and current nature of land use planning, theory and practice, with particular reference to minerals. Part III discusses the fieldwork and defines the nature of the problems under study. Three major sub-systems are identified within the mineral planning system, each consisting of groups of actors, and each expressing a different view of the purpose and problems of minerals planning. These sub-systems are named Authority, Industry, and Voters. Part IV of the thesis examines the statutory aspects of the planning system using the cybernetic model of Chapter Four. In Chapter 19, the formal system is compared with the three-fold classification of Part III and conclusions are drawn about the operation, structures, and effectiveness of the system at the National and County level. The majority of conclusions follow from the major conclusion that the planning system as it operates is not a system to control the progress of development but is a system which sanctions development at its inception, with no effective control thereafter.

KEY INDEX TERMS

MINERAL
PLANNING
SYSTEMS
CYBERNETICS
AGGREGATES

DAVID P BEST
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For RMB

EJB

WEB

and not least

CMG

with thanks to

JCW

WJS

ACKNOWLEDGEMENTS

This thesis is the result of work by many people. It is dedicated particularly to my wife Ros, and my parents without whose support it would not have been begun, least of all completed.

I gladly acknowledge the collaboration of Kevin Molloy in the theoretical work on problems and the cybernetic model which is used here, and the help and support, direct or indirect, of friends and colleagues at Aston, especially John Watt, whose comments have been, as always invaluable.

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CHAPTER 1

INTRODUCTION

1.0 This Chapter explains the history of this piece of research and explains the structure of the thesis. It also gives guidelines as to which chapters are likely to be of particular interest to readers who may have a specific interest, for example in systems theory or in planning history, or in the implications of the research rather than its methods. The requirements of writing a thesis make it difficult to produce a document which is accessible to all those who may have reason to refer to it. It is hoped that the Reading Guide which precedes the Summary of Conclusions in this chapter makes it easier for the interested reader to highlight chapters appropriate to his interests.

One further point is worth making at the outset. This thesis utilises three subject areas in which there may be expected to be relevant literature. These are, Town and Country Planning Theory, and allied Legislation, Systems Theory, and Mineral Extraction and Environmental literature. It did not seem appropriate to gather all this together in a literature review, localised in one chapter of the thesis. The approach which has been adopted instead has been to discuss the literature in the appropriate place as the work develops, resulting in a distributed literature review. All references are documented in the usual way.

1.1 The Purpose of the Study

During the author's time with the Mineral Assessment Unit of the Institute of Geological Sciences, 1974-76, there was much controversy over the effect of mineral working on the environment. Environmentalists and conservationists were very active over the issues of working minerals in National Parks and Areas of Outstanding Natural Beauty. Industry proclaimed itself beleagured by constraints and unable to meet demand. This problem seemed to have emerged very quickly and to be very urgent, and yet, for all the activity and research the problem did not "go away" nor was it "solved".

Work with the Mineral Assessment Unit brought the author into contact with land owners, mineral operators, planning staffs, and occasionally environmentalists. Each group saw the problems, but in a different light. Yet all were involved in a total situation, the result of which was mineral production. At the same time, the author was following the Open University post experience course in System Behaviour, and the concept "System" seemed highly apposite for the consideration of the problems of mineral planning. The further this idea was considered the richer the field it seemed to expose to examination. At that time much of the emphasis was on environmental problems of mineral extraction. Why were these problems? For many years improvements had been occurring, Clean Air Acts, emission and dust control and so on. The obvious part of the system had in fact been improving and yet other elements or sub-systems were expressing increasing disquiet. The

problem was perhaps one of changing attitudes in the public and one of responsiveness in planning. The question then arose, "what is the mechanism by which control of such a system occurs?"

Eventually, an increasing interest in systems ideas, and an increasing preoccupation with mineral planning led the author to resign from the I.G.S. and take up a place on the Systems Analysis course at Aston, with the object of acquiring a sufficient training in Systems ideas to carry out the research reported here.

Initially the thrust of the research was toward the problems of the environmental aspects of quarrying. This emphasis changed however as environmental problems became seen more as symptoms than as causes, though neither word is appropriate. The purpose therefore became to examine control and planning of mineral working to see how it reflects, and responds to, the changing requirements of the social system which, in theory, it serves.

1.2 The Structure of the Thesis

This thesis is arranged in four parts, with Appendices containing supporting material.

Part I: This part is predominantly concerned with differing aspects of Systems Theory. The idea of system, though of some antiquity, has only in the last thirty or so years begun to gain ground as a method applicable to general problem solving. Commonly, computers are thought of when "systems analysis" is mentioned. For this reason,

Chapter 2 very briefly reviews the development of Systems Theory and its use as a tool in this research.

Chapter 3 examines the steps by which the research is conducted, the methodology of the research. One of the prime aims of the study is to place some order, or to discern some pattern, in an area which the literature shows to have been treated by most workers as a group of independant units. The methodology adopted is that of Checkland (1972 etc.) and a considerable discussion of this methodology is contained in Chapter 3.

Chapter 4 contains a description of the analytical model of organisations used in conjunction with the methodology. This is derived from the model of Beer (1972,1979). It is used here purely as an analytical tool, useful in examining the structure and process of Local and National Government, it's theoretical development is discussed elsewhere (Best and Molloy 1980 a,b,c). These three Chapters could have been placed elsewhere in the thesis, however, it was felt better to lay these building blocks at the beginning of the work, than to introduce them at a later stage when the story of the research was unfolding.

Part II: This part of the thesis relates to land use planning. Chapter 5 discusses the origins of Town and Country Planning in England/Wales, the first country to have developed such a system. The chapter traces its evolution from regulations concerned with the control of sanitation and public health, to the emergence in the 1940s of a full scale land use control system.

Chapter 6 describes the current legislative situation as defined by the Town and Country Planning Act 1971. Chapter 7 deals with the emergence, in the late 1960s, of structure planning, and the development of this as a discipline within planning. Chapter 8 places particular emphasis on mineral planning legislation and its development as a distinct legislative area.

Parts I and II are therefore contextual, describing the background within which the particular problems studied are set.

Part III: is the major part of the thesis, it consists of a mapping exercise, and its purpose is to find or to superimpose a workable pattern onto the highly complex set of interrelationships of which the mineral planning system consists. Chapter 9 therefore deals with the boundary problem, and discusses the fieldwork and the process by which a study area was chosen. Case study material is not included in the thesis because all of the material used was subject to some degree of confidentiality, and to present a representative cross section whilst preserving this requirement would have been very difficult; selected material is available however, subject to clearance by the Local Authorities concerned. Chapters 10 and 11 then describe and define the various elements of the system at National and Local level, following which Chapter 12 defines the system as comprising three major subsystems named Industry, Authority and Voters.

'Industry' consists of the mineral operators, their professional bodies and associated groups. 'Authority' is government and governmental agencies at Local and National level. 'Voters' consists of ratepayers, lobbyists and various social groupings.

Chapter 13, introduces the various problem concepts used and discusses the way in which the Root Definition (Checkland 1976) is used in this research. The value of the Root Definition is that it allows the consideration of system purpose from differing points of view. Since the attitude taken here is that problems arise through differing expectations of the same situations by different participants, Root Definitions are very useful. The following three Chapters, 14, 15 and 16 then develop the views of the three subsystems deriving Root Definitions of their own and other subsystems. As much care as possible was taken to involve actors in the development of these definitions, so that although the author's views are obviously present, the definitions reflect the actors' views as closely as possible. These definitions then illuminate the differing perceptions of the three subsystems about the problem area.

In Chapter 17 these views are compared and contrasted to bring out any conflicts which may exist.

The chapters of Part III therefore cover the major analytical part of the thesis, in terms of the people and organisations involved. Chapter 17 concludes with an activity model of the Authority sub-system, which is perceived to be the key controlling subsystem. It therefore in theory, mediates and

reconciles the perceptions and expectations of the other two, being conceptualised as "a....system to specify and control the appropriate use of land."

Part IV consists of two lengthy chapters. Chapter 18 analyses the Authority subsystem as it exists in organisation and statute and argues that it cannot act as a control system in practice in the cybernetic sense, nor does it embody any mechanism to take account of the other two subsystem views in deciding what is appropriate.

Chapter 19 finally synthesises the work of Part III and Part IV to draw conclusions about the operation of the Planning system.

These conclusions are summarised below following the Reading Guide. It is assumed that all readers will digest the Introduction, whatever their interest.

1.3 Reading Guide

The section above has briefly described the content of each chapter. This section suggests patterns of reading for readers having different objectives in approaching the thesis.

1.3.1 Systems and Land Use Interest

For readers familiar with systems theory and interested in Land Use planning, it would probably be appropriate to go straight to Part II Chapter 5 and read to the end of Chapter 8.

They should then go to Chapter 12 and browse fairly quickly through Chapters 13, 14, 15 and 16, reading Chapter 17 in depth before going on to Part IV.

1.3.2 Land Use Planners Interested in the Systems Approach
It is recommended that Town and Country Planners should browse through all chapters of Part I, on systems ideas, and then start detailed reading in Part II at Chapter 8, which deals with Mineral Planning. In Part III Chapters 12-17 are the most pertinent, and Chapters 17, 18 and 19 should be read in depth.

1.3.3 Mineral Operators or Lobbyists
For Industry and Voters, the most germane chapters are probably Chapters 12 onwards, with a reading of earlier parts, particularly Chapters 5 to 8 being reserved for a subsequent reading.

It is difficult to guess at all the purposes which readers may have in approaching this work. Its prime object has been to set out with more structure, one area of public and industrial concern where policy and implementation appear not to match expectation. It reveals many areas where further work is required, not all of which should be academic. It is hoped that those who consult it will find the thesis of interest, and that those who gave their time to contribute to it, will have received something to their benefit.

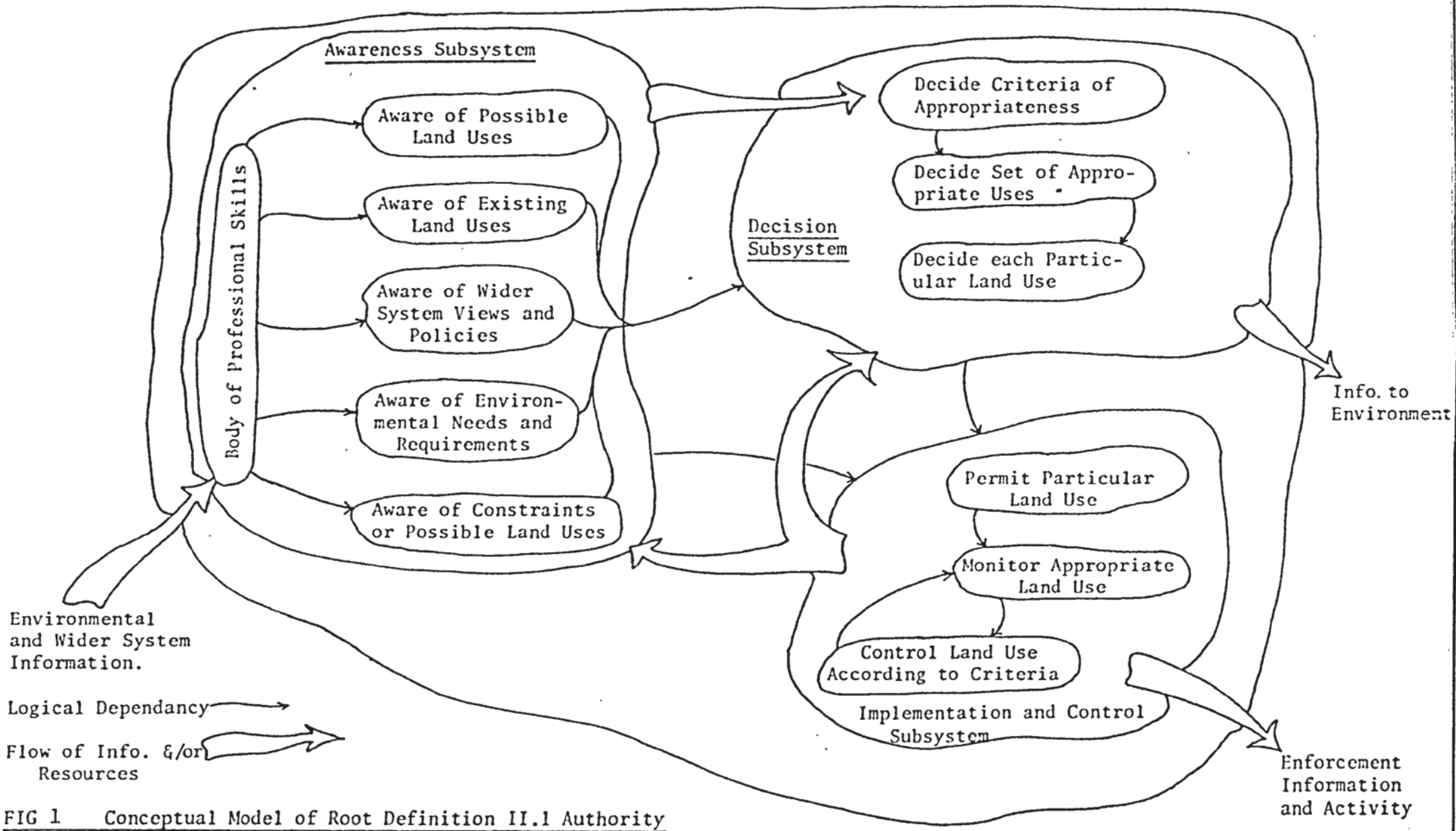

FIG 1 Conceptual Model of Root Definition II.1 Authority

TABLE 1 Relationship of Conclusions to Structure of Chapter 19
(Also Table 19)

Organisational Model Function at National Level	Conceptual Model Activity	Conclusions drawn (see sections of Chapter 19)
Policy and Awareness	Decision Activity 2a some 2b and 2c Dependant upon Awareness Activities 1a-1e	19.2.1 All of this Section, pp Conclusions are set out by conceptual model activity and are inset.
Control Automatic and Executive	Also dependant on Activities 1a-1e and involving	All of Section 19.2 Some conclusions carry forward others are new.
Implementation: therefore in 19.3	This is the County level and discussion occurs	
Policy and Awareness	At the County level. Awareness activities 1a-1e and also some of the Decision Activity Subsystem i.e. 2a and part of 2b and 2c	19.3.1 The Awareness Activities and Conclusions 18.3.2 Decision Activity (Policy at County Level)
Control and Implementation	Control and Implementation Subsystem	Section 19.3.3 and conclusions

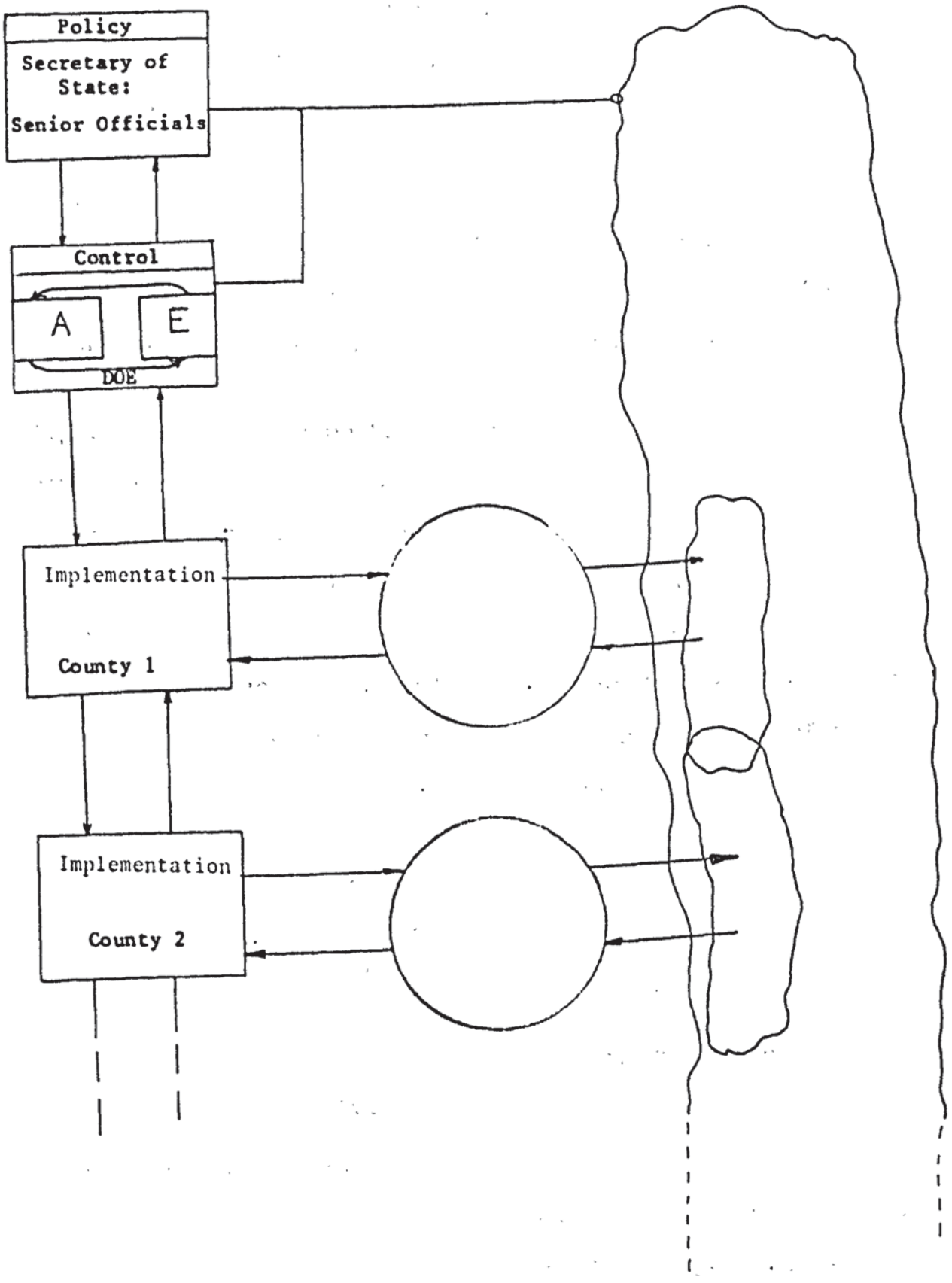

Fig. 2 The Model: Depicting County 1, County 2 etc as Divisions of the National Government

1.4.1 The research hypothesises that the role of planning authorities is to specify and control the appropriate use of land, where appropriateness of any given use (in this case mineral working) may change over time. A major general conclusion is that as presently structured the planning system cannot act in this way.

1.4.2 It is concluded that at present the system is a decision system capable only of deciding whether or not a development should occur and if so under what conditions. These conditions however are fixed at the outset.

1.4.3 Studying the mechanism of decision making it is concluded that, in the majority of areas studied, the authorities attempt a comprehensive description and definition of their areas. This has led to an enormous over-specification, in many cases, of conditions under which developments can occur, with a resulting lack of flexibility to adopt to changing circumstances leading to many of the problems experienced in planning in recent times.

1.4.4 With these conclusions in mind, it is possible to examine the detailed conclusions which relate to the system at different levels.

1.4.5 National Level - Policy Function, Embodying Awareness Activities

(a) The conclusion is drawn that no effective policy function at the National level exists. The Secretary of State is involved in control activities at a lower and inappropriate level of the system.

(b) No effective mechanism exists for reconciling the various conflicting claims on land in an overall policy.

Such a mechanism implies awareness of various types, and detailed conclusions about these are given below.

(a) Awareness of Possible Land Uses

i Where minerals are concerned, an intelligence of possible land use must involve policy bodies in a knowledge of mineral location.

ii The level of detail of this knowledge must be appropriate to the level of the system at which the policy originates.

iii Currently this knowledge is only patchily available and the slowness of gathering it may be due to

(a) excessive detail (as in the Mineral Assessment Unit Reports) or

(b) an unclear perception as to the purpose of the information: viz., is it for Policy, in which case it need be broad and undetailed, or is it for control, in which case more detail may be appropriate.

(b) Awareness of Existing Land Use

Mechanisms for knowledge of existing land-uses which have developed historically, are adequate and need no amendment

(c) Awareness of Wider System Policies and Views

i The Awareness (Intelligence) channels between the environment and the National Policy level are very limited and are scarcely formalised in statute (see Chapter 18).

ii Interrelatedness of other levels of government is poorly developed, and policies arising within one division therefore take little formal account of other policies. The only exception to this found during the research is the requirement in the Green Book to the effect that "particular regard should be paid to the Government's policies on National Parks".

iii Mechanisms whereby the views of the wider population and lobbying groups are taken account of are underdeveloped. Attention should be paid to the development of mechanisms which allow such views to penetrate government without overloading the system.

(d) Awareness of Environmental Needs and Requirements

i The conclusions of 1c apply equally here, since these two areas are closely linked.

ii So far as forecasting is concerned, it is possible that with the advent of sophisticated computer modelling, a more complex model may be appropriate to mirror the linking of government policy with economic activity involving minerals.

(e) Awareness of Constraints

i Awareness of constraints depends on an awareness, discussed above, of what may constitute constraint. This is so closely bound up with other awarenesses that separate conclusions on it without reference to the foregoing would be inappropriate.

ii However, if the National (policy) level is aware of the number of factors involved in 1a - 1c, those which may constrain land use at any given time should be more easily discernible.

1.4.6 Decision of Policy at National Level

The activities involved in deciding policy given the awarenesses detailed above involves at least the following activities; note that the set is not exclusive or exhaustive.

(a) Decision as to Criteria of Appropriateness

At national level this decision activity could be included in Policy, since policy activity consists of deciding guidelines for action. Other decision activities however, fall only partially to be executed by the national level, properly being the province of individual County Authorities.

i General criteria currently exist infrequently. Where they do exist they are usually based on past practice and are not formulated explicitly

ii In many instances criteria are specific to a particular instance, either at National or County level.

(b) Decisions as to the Set of Appropriate Uses

i Currently specification of use considered appropriate by the Government does occur in New Town and Development areas.

ii In mineral planning it is advisable that only a preference for area (County or Region) is expressed, any greater level of detail being the responsibility of the Counties.

(c) Decisions as to Specific Land Use

i At the first level of recursion, specific use of land is not a Policy decision, and this activity is not therefore appropriate.

1.4.7 At the National level, implementation and control, the domain of the third activity system is not a policy function and is not considered as such.

1.4.8 Control at the National Level

This refers to system two in the organisational model, and concerns principally an awareness of various factors, mainly as for policy (above) and the implementation and control of Policy. To a very large extent the conclusions drawn about awareness apply also here, and nothing further is said at this point.

(a) Decide Particular Land Use

i Currently, this control is an activity of the central authority due to legislative and organisational structure.

ii It should be a truly exceptional activity resulting from an inability of divisions (Counties) to resolve the issue.

iii It will become an exceptional activity only when clear Policy exists at National level, disaggregated to Counties in an unequivocal way.

(b) Permit a Particular Land Use

Again at the National level the extent to which this is allowed must be carefully regulated, in order that it does not take over the function of the Counties. Conclusions here are not separated from conclusions on monitoring and control.

i From the description of National level functions earlier in the thesis, and from the above discussion, it is concluded that there is no effective control at National level in the sense implied by a cybernetic approach.

ii Control which does exist consists of the piecemeal determination of particular applications for planning permission which are referred to the Secretary of State.

iii This latter conclusion reinforces the conclusion of the earlier section that Policy has collapsed into the Control function, with the result that Policy is effectively non-existent, whilst Control is faulty.

iv Overall the conclusions of this level of recursion imply quite far reaching change in the structure of the planning machine as well as in its process.

v These changes concern departmental structure within DoE and legislative changes concerning public and industrial involvement in planning.

1.4.9 Functions and Activities at County Level

The County level acts as the implementation arm of the National government and all the functions discussed at national level exist at this level also.

(a) Awareness of Possible Land Uses

i Due to the advent of Structure Planning in 1974 there is probably a highly detailed picture in general of potential land uses in counties.

ii Despite this, in mineral planning the knowledge of quality and extent of deposits varies widely and there is no obvious attempt at consistency or uniformity.

iii Although Structure Plans are submitted to the Secretary of State by statutory requirement, as the description in Part II showed, as confirmed by Part IV there is nothing either in practice or legislation to indicate the use of this data base by National Government in wider planning of land use, or indeed to show that this immense volume of data is utilised by National Government at all.

(b) Awareness of Existing Land Uses

Through maps, planning registers and so on, a comprehensive knowledge of existing uses exist.

(c) Awareness of Wider System Views and Policies

This is an area where very much needs to be done; currently consultation and communication vary very widely in their effectiveness, and both formally and informally, mechanisms for improvement are needed.

i The most significant element of this awareness in the Counties would be awareness of the metasystem policy or at least that segment of it required for its own use.

ii This crucial element is missing, resulting in the possibility of very high autonomy for any one Local Planning Authority.

iii This autonomy is further increased by the lack of any explicit mechanism whereby LPAs can talk to each other. The existing requirement to consult varies widely in its effectiveness.

(d) Awareness of Environmental Needs and Requirements

i The lack of policy guidance from the National level, resulting in possibly very high autonomy for a strong Local Authority, is further compounded by a weak formal requirement for environmental awareness at the policy level (i.e. broad or Structure Planning).

ii If successful criteria for policy at County level are to be arrived at, then a well developed awareness is vital to complement policy received from above (when it exists).

iii Such awareness should be fostered by mechanisms involving the three elements (Voters, Industry and Authority), in more or less continuous debate, which again is not catered for by the current formal system.

iv The current public involvement excercises may have failed because they do not recognise the existence of different groupings within the environment. The existing methods of polls and questionnaires, though they attempt to sample, and therefore reduce variety, do so indiscriminately without recognising divisions within the environment.

(e) Awareness of Constraints on Land Use

i Within a nationally defined policy for a given County, constraints will be subject to change in the same way as needs and requirements of land use discussed previously.

ii This implies that discussion or derivation of constraints will also need to be done on a continuous ("interactive") basis, whether they are constraints on County policy or on control of specific working.

1.4.10. Policy in the Decision Activity System

As with the National level, the first two decision activities are ascribed as Policy functions whilst the third falls to Implementation and Control.

(b) Decisions on Appropriate Set of Possible Uses

i Mechanisms for this policy making are possible under existing legislation, which merely states that the public shall be given the opportunity to make representations, but does not currently occur in the Counties studied.

ii If Structure Planning could be made a process by which, at frequent intervals, a set of criteria was made in public, there might be a keener public awareness of, and involvement in, planning the use of land as a process.

1.4.11 Control and Implementation

Both these activities fall within the County Planning Department, whilst Policy is exercised by a Committee of Elected Members.

i Earlier in the thesis the development control mechanism was characterised as one of decision, but not control. Viewed as a function embodying the activity system of the conceptual model, and as being a division of the county authority (itself a division of National Government) the mineral planning section contains awareness decision and control activities.

ii This being so, it is responsible for controlling a specific mineral working within criteria and conditions derived from countywide criteria, which will have been determined by the Authority in conjunction with Industry and the Voters.

iii Hence the initial planning consent becomes, not an inflexible specification (as at present), but an initial framework which may change through time as criteria of land use change through debate between the three groups, and with changing social and economic conditions.

iv This implies procedural changes in the framing of planning consents, which would involve tripartite discussion at an early stage and

which would be far more of a contract between Authority, Voters and Industry over a particular quarry, than one group giving a second group permission, as happens at present.

PART I

PREFACE

This part of the thesis is contextual it describes the justification for the use of Systems Theory in the research and the history, very briefly,of systems ideas as they have been applied to social problems.

Chapter 3 describes the steps of the research or the methodology which is used, that developed by Peter Checkland of Lancaster University. Chapter 4 describes the model of organisations which is used with this methodology, a model based on cybernetic concepts, and modified from the work of Beer (1972,1979).

Readers familiar with systems ideas, or more interested in the planning aspects of the thesis may choose to go directly to Part II.

CHAPTER 2

THE USE OF SYSTEMS THEORY IN RESEARCH INTO MINERAL PLANNING

2.1 Introduction

The research described in this thesis concerns a set of problems in an area of public debate. The problems involve mechanisms for making decisions about the working of minerals which affect large numbers of people, in their work and in their living environment. They may also affect the commercial viability of certain companies. As well as this, through the mineral working which may result from them, the decisions have a marked effect on the physical characteristics and appearance of our surroundings. They are, without exception, decisions of priority and conflict resolution, and, except in rare cases, the issues they address are very largely non-quantifiable. Hence each decision may be described as a system of interlocking elements. Yet each mineral working is itself a system, comprising many interleaved variables, for example social, physical, environmental, economic and, probably, political dimensions. Social variables for example concern the location of the quarry, employment effects, and its effects on the community, for example the safety of children. Physical effects are the most obvious, the creation of a large hole of dubious worth, economic effects overlap the social ones in concerning the local community, but are also macro in extent, concerning the wider community; for example is it cheaper (in whatever sense) to obtain the material from here or from somewhere else. Political dimensions are present because the decisions are made by political stake

holders, and are thus influenced by the complete range of political issues

The research is about the way in which decisions are made as to whether or not to allow mineral working in a particular location to occur, and if so what conditions of control it should be subject to. The decisions involve highly complex judgements about commercial factors of demand, marketability etc., technical factors such as the suitability of the material for its purposes; transport, access, and working methods; and amenity factors of restoration, after-use etc.

Additionally, there are complex social and political factors. Among these are considerations such as the local community's attitude to the mineral working, which will affect the attitude of the local councillor when he considers the application: his judgement may not therefore be based on purely "objective" grounds. Even this statement shows the extent of the complexity of the problem, since it is open to debate whether a councillor should consider "the wider issues" or whether he should represent only his constituents.

When contemplating research in this subject area, an approach was needed which was capable of reflecting the different pressure groupings, the many levels of decision making and the enormous complexity of the situation. No merit was seen in adopting a landscape or architectural studies approach, since this would have omitted the social elements. Alternatively a legalist approach via only planning law and local government might have missed exactly those nuances of behaviour which arise precisely because of the complexity of the system under consideration.

It was therefore felt to be useful to consider the situation as being one concerning "system", that is a complex set of elements in interaction oriented toward various purposes. Eventually the problem was defined as one of controlling complex systems toward some goal which was itself a compromise between the goals of several systems together forming society or the community. In systems terms, problems of control are usually equated with cybernetic problems, and so as well as the more simple concepts of General System Theory, a few of the fundamental concepts of cybernetics are used, both in diagnosis and in the conclusions which are reached.

The remainder of this chapter reviews very briefly the history of systems theory and provides a context for the two main strands of system theory which form the backbone of this work.

2.2 System Theory

As Checkland (1976) has pointed out, the term "System" covers usages which vary from empty verbiage (as in shelf-system, to describe adjustable book shelves) to the highly specific (as in control-system engineering, in chemical process plant). The history of the concept should help to give a framework of meaning within which the use of the term in this study can be appreciated.

As von Bertalanffy (1968) points out the history of the concept of "system" is long and goes back, beyond the "natural philosophy" of Leibnitz, to the mystic medicine of Paracelsus, and to the school of the medieval Arabic scholar Ibn Khaldoun (1332-1406) who had a concept of

history as a series of linked cultural entities or systems. Equally, in modern science, the work of Kohler (1924) on the idea of gestalten (or wholes) in physics, later extended by Perls into phychology (the subsequently well known "Gestalt school") heralded the re-emergence of the concept. This was formally introduced by von Bertalanffy, eventually in 1948, though hinted at before the war in his "Theoretische Biologie" (1932).

In philosophy, the equivalent concept is that of holism, the protagonists of which maintain that explanation may be given only in terms which are irreducibly macroscopic to the individual (Dray, W.H.). The organismic view, which may be considered as ancillary to the holist position, implies that societies are self-regulating and self-maintaining (Dray 1964). System theory, as formalised by von Bertalanffy (vs.), generalises these principles to "system" in general. Hence to quote von Bertalanffy:

> "..... we can ask for principles applying to systems in general, irrespective of whether they are of a physical, biological or even sociological nature. If we pose this question and conveniently define the concept of system, we find that models, principles and laws exist which apply to generalised systems irrespective of their particular kind, elements and the "forces" involved". (von Bertalanffy, 1968 p.32)

Simultaneous discoveries in the history of science are not altogether unusual, the more well known cases are those of Leibnitz and Newton in the development of the Calculus, and of Darwin and Spenser in the development of the theory of natural selection. The parallel situation in contemporary science, social science, and technology has given rise to

the body of approaches and techniques unified by General Systems Theory. Von Bertalanffy quotes a letter from the economist K. Boulding in 1953 which summed up the situation:

> "I seem to have come to much the same conclusion as you have reached, though approaching it from the direction of economics and the social sciences rather than from biology - that there is a body of what I have been calling "general empirical theory" of "general system theory" in your excellent terminology, which is of wide application in many different disciplines. I am sure that there are many people all over the world who have come to essentially the same position that we have, but we are widely scattered and do not know each other, so difficult is it to cross the boundarys of the discipline". (Boulding quoted in von Bertalanffy ibid.)

In its application to ill-defined problems, systems theory is essentially interdisciplinary in approach. These problems are those which Checkland dubs problems of "soft systems", that is systems which are defined more or less arbitrarily depending on the purpose of the researcher; systems which are "I-referenced" (Pask 1979) as opposed to hard systems (chemical plant, power stations etc.) which are entirely objective or "it-referenced" (Pask (v.s).) Such soft systems are normally human activity systems (Checkland 1972) or systems comprising people, their values and beliefs, their purposes and their artefacts (Popper's World 3 items (Popper 1972)). Studies of such systems are therefore observer-referenced and may draw on many different disciplines.

The usual examples of "people coming to essentially the same position" are cited in relation to the emergence of the concepts of probabilism and relativity in systems of events in modern physics, particularly in the work of Heinsenberg and Neils Bohr. These notions supplanted Newtonian mechanistic physics, whilst

at the same time, but independently, the organismic approach emerged in biology (exemplified by Bertalanffy's Theoretische Biologie). Ackoff (1972) traces a similar emergence over the period heralded by World War II, citing the emergence of semiotics, communication theory (Shannon 1949) and the cybernetics of Wiener (1948). He characterises what he refers to as "three age-shattering ideas", namely those of:

(a) Systems

(b) Expansionism (contrasted with Reductionism)

(c) Objective teleology

(a) System as a concept is essentially similar to that of von Bertalanffy outlined above; it implies a whole or set of interrelated entities which cannot be taken apart without loss of their essential characteristics. A significant feature of this approach is that it involves a functional or contextual appraisal, that is an approach to the system in terms of its role and function in the larger whole of which it forms a part.

(b) The second idea, expansionism, is in express opposition to reductionism. It asserts that the ideal of ultimate understanding can be approached but never attained, and that approaching it depends on understanding larger and more inclusive wholes.

This theory was developed by E.A. Singer (1959 post.) and is similar in many respects to the probabilistic philosophy of Einsteinian or Heisenbergian physics and to the idea of Sommerhoff (1950), that of directive correlation. In all these

cases effects are held to be non-deterministic; an event may be necessary for a product but is not ipso facto sufficient for it. This led to what Ackoff refers to (c) as Objective teleology, by which choice, function and purpose may be operationally defined and observed. He summarises this paradigm as focusing on three major systemic problems, namely the design and management of systems to serve their own purposes (self-control), the purposes of their purposeful partsand of the larger systems of which they are part (humanisation and environmentalisation respectively).

2.3 Cybernetics

Cybernetics, as a branch of General System Theory has developed since the publication, in 1948, of Wiener's seminal book. The work itself is said to be derived from the Greek term κυβερνητης or 'gubernates' meaning steersman (of a boat) and hence regulator, governor, or controller. The word is first said to have been used by Ampere, the French scientist in about 1833. Zeleny (1979) describes the works of Trentowski (1843), Bogdanov (1922) and Smuts (1926) which he states to make explicit use of cybernetics and system theoretic ideas.

The use of concepts of control which are transdisciplinary, and which are as applicable to human organisations as to engineering systems, has grown since the inception of cybernetics by Wiener in 1948, and is often spoken of as being the only sub-discipline within General System Theory (GST) although this is far from being the case, as pointed out by von Bertalanffy (1968 p.15).

The research described here is typical of the three problems described by Ackoff, namely those of self-maintenance, humanisation and environmentalisation. As an example we may specify the achievement of the planning system's own goals, and its organisation to those aims, firstly in control of the developments desired by individuals within it (humanisation), and secondly in its service in this role to the Society at large (environmentalisation).

Essentially, the research deals with the control of, and communication within, the physical environment, in society by a sub-set of that society, and the resolution by it of conflicts between other sub-sets of the community. It is felt that this complexity alone justifies the use of the systems approach as a research tool, for as Klir has said:

> "..... the interest of general systems research lies in developing methodological capabilities for solving systems problems in their natural form with no simplifying assumptions at all, or if unsuitable only such simplifying assumptions as make the problem manageable, distort it as little as possible, and which are integrated as part of the solution with an indication of the incompleteness they imply". (Klir 1978 in Sharif and Adubhan eds.)

As General System Theory has developed, numerous methodologies (by which is usually meant a methodical approach) have also developed, some of which are more Operational Research oriented (e.g. Tate 1974); Sasieni and Ackoff 1958) and others which are more systems based (e.g. Klir 1969; Churchman 1976); additionally there are techniques, such as Forrester's systems dynamics (also extended by Coyle 1978), various simulation languages and so on. Two of the more recent techniques or approaches in the UK are those of Beer

(1972, 1979 a and b) and Checkland (1972, 1976, 1979 a and b etc.). Of the latter two, one is an approach to problem solving, the other a model of organisation. As with the samples given above the theories of Checkland and Beer have arisen more or less independently, and there is no formal link between them.

The research reported here is broadly based around Checkland's work and uses also a modified version of the organisational model of Stafford Beer. The role of the modified Beer model in the Checkland Method has been examined from the philosophical level, using the work of Bhaskar (1975) and Harré (1970 and 1972). Preliminary findings of this work, which is peripheral to the main thrust of this thesis, have been reported by the author and a collaborator in a recent paper (Best and Molloy 1980d), and are outlined briefly below.

The modification of the Beer model, the results of which are described in the next chapter, has also been fully described elsewhere (Best and Molloy 1980a, b and c). The modification to Beer occurred as a result of practical difficulties experienced in the application of the original 5 system model. In reworking the model, an assumption has been that the use of the human nervous system as an analogy for the function of social organisations is valid. The role of analogy in science is a central one, and is not dealt with here. Among cyberneticians Pask has written at length on the role of analogy in a formal sense (1975, 1976, 1978), and among contemporary philosophers of science both Bhaskar and Harré deal with the topic. The reader is referred to

those authors for a full treatment. The three papers referred to above describe in detail the way in which the model used here was derived, and the model itself is described in detail below, for as remarked by many and summarised by Cavallo (1979):

> "To many empiricists and experimentalists,..... it seems somehow ingenuous or dishonest to acquire information about systems through general arguments.... the crucial thing is the manner in which models are generated".

It is maintained that the modification used here if Beer's model is a more convenient and useful one than that presented in Brain of the Firm. The concept of viability developed by Beer is not used in this research, because it was not felt to be necessary in the type of analysis which is being used. The model is used in conjunction with Checkland's methodology though the two are not necessarily complementary in every problem situation.

The developments reviewed above are now embodied in a general corpus of knowledge known as the Systems Approach. This approach has been adopted here because the interdisciplinary nature of the problem tackled here, and the very poorly defined nature of the elements comprising the problem area seemed to demand such an approach. Other techniques, for example the Repertory Grid technique of Kelly (1955, 1970) or the use of sociologically based techniques using questionnaires may have yielded equally or perhaps more interesting results. They might not have been able to incorporate organisational aspects or the structure of groups of actors however.

CHAPTER 3

METHODOLOGY

3.1 Since 1969 Peter Checkland, working at the Department of Systems at the University of Lancaster, has originated and refined a methodology for tackling "soft" problems in the real world. By this is meant unbounded problems, or problems which cannot be isolated in the laboratory. Customarily they are dynamic in nature, so that the problem may change as the analysis proceeds, particularly if the study continues over a long period. Almost exclusively the category of soft problems lies in the area of human activity systems. These are defined by Checkland as:

> "..... systems in which objectives are hard to define; decision taking is uncertain, measures of performance are at best qualitative, and human behaviour is irrational".

The methodology has been expounded in several papers (Checkland, P.B. 1972, 1975, 1976, Collins, J.H. 1976) and particular aspects dealt with in detail in the period of its development (Checkland and Smyth, 1976, Checkland, 1979a, 1979b, Prevost, 1976).

The methodology is particularly appropriate to this research for a number of reasons. Firstly, it recognises the difficulties of defining, and then solving, problems in "unbounded" situations. The research attempted here is concerned with a very large area of public concern, namely the process of making decisions about the use of land. Hence the situations which give rise to unease and concern have many dimensions, all of them interrelated. This makes

the isolation of any one dimension of the situation not only very difficult, but also, except at a circumscribed operational level, of very limited value. Thus the first stage of the methodology, the problem situation unstructured, consists in the recognition of the set of subject matter to be dealt with, and the ordering of this into a structured problem situation in stage two. (The methodology is illustrated in Figure 3).

Secondly, the research is concerned with an area where agreement is reached essentially by negotiation between parties who possess different value systems and attitudes to the subject; this is expressly recognised by the derivation by the analyst of Root Definitions of systems considered relevant to the problem. Each of these embodies a particular Weltanschauung[1] or "world view", which therefore provides the scope to examine the effects which different approaches or outlooks will have on the problem.

Thirdly, at the stage of the methodology during which Conceptual Models are developed, there is an opportunity to utilise other systems thinking inputs. In this study the presence of a strong element of structure to the system and the need to understand this necessitates an approach which can enable analysis of these structural elements in systematic terms but with emphasis on function rather than structure. This input in provided by the work of Beer.

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[1] Weltanschauung. As with many such terms, the German has no exact English equivalent. "World view" is nearest; it should be taken to imply a total framework within which world events are seen and oriented

Finally, in the last stage of the methodology the results of its application are expressed as "feasible desired changes". This is particularly important in this type of research project where the subject is a real world situation within which problems are continuously evolving and where solutions to them are constrained and bound by what is feasible and economic at least as much by what is theoretically desirable.

All stages of the method are to a greater or lesser extent repeatable, and some, for example those of problem structuring and the formation of root definitions will be iterated more than once. It should be appreciated that this thesis describes the retrospective view of this process, and thus to a large extent description of the intermediate stages is omitted except where some particularly salient point emerged.

The methodology is summarised schematically in Figure 3. It consists of seven main stages.

3.2 The first of these is "The problem situation: Unstructured". This stage is firmly situated in the real world and consists of the set of events and characters involved in and associated with the problem or set of problems discerned by, or referred to, the analyst.

In this study stage one embodies all literature, information, factors and personnel involved in mineral planning and land use, the working material of the project. There must always be some doubt as to how much of this material is actually described in the document describing the application of the

methodology, since stage one of the methodology must also include the tools (theoretical and otherwise) of the research. In fact, in this thesis part I is mainly contextual and contains descriptive material, which, in methodological terms, falls within cloud 1.

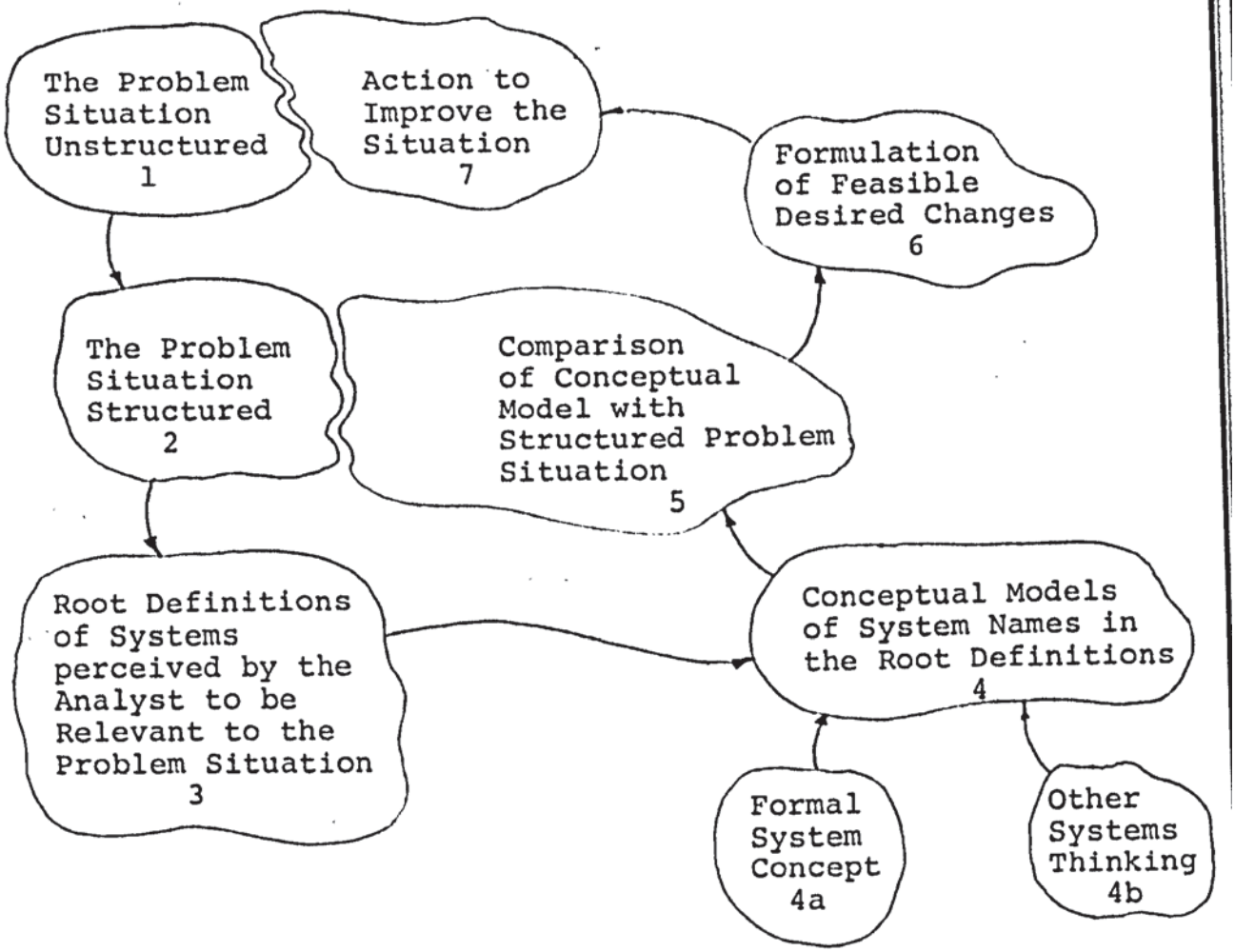

Figure 3 The Checkland Methodology in Summary
(Reproduced from Checkland 1975)

Stage two of the diagram is the area where the problem situation is analysed or structured. The process of problem structuring is highly complex, and has recently begun to attract the attention of researchers (e.g. Woolley and Pidd 1978a and 1978b) At a pragmatic level this stage consists of discerning or imposing

some order on the situation under study. Part III of the thesis records this process; again it is a stage of the methodology which may be repreated and consequently the record here is indicative of the process but records mainly the end result.

3.3 The third cloud is that labelled "Root Definition of relevant systems). This is a crucial element of the methodology. Checkland and Smyth (1976), in a paper entitled "The Structure of Root Definitions" defined a Root Definition as

> "the careful formulation of concise verbal descriptions of systems <u>believed by the analyst</u> to be relevant to the problem situation within which he is working".

It must be emphasised that the key words here are "careful", "concise", and "believed ..... to be relevant". Checkland and Smyth give definite guidelines as to the precise grammatical form of Root Definitions; they should embody in particular six elements usually described in the order of their mnemonic, CATWOE (see Table 2).

The Weltanschauung is rarely, if ever, explicit in an RD, but forms a vital part of it as the key to the point of view from which the Root Definition is formed. The assembly of a Root Definition in these terms characterises a system (defines a system) which is subsequently conceptually modelled and fitted to the real world situation as part of the search for feasible and desired changes (Step 6).

The Root Definition is a statement of <u>what</u> the named system is for, or what it does. The T element describes this "doing" element in as insightful a way as possible. This is an

important point, but discussion of it is postponed until after the rest of the methodology has been described.

Element	Amplification
1. Customer (C)	Client (of the activity), beneficiary, victim, the sub-system affected by the main Activities. The indirect object of the main activity verb.
2. Actors (A)	The agents who carry out, or cause to be carried out, the transformation process(es) or activities of the system.
3. Transform (T)	The core of the RD. A Transformation process carried out by the system, assumed to include the direct object of the main activity verbs.
4. Weltanschauung (W)	The (often unquestioned) outlook or taken for granted framework, which makes this RD a meaningful (and relevant) one.
5. Owner (O)	Ownership of the system, control, concern, or sponsorship, a wider system which may discourse about the system.
6. Environment (E) and wider system constraints	Environmental impositions. Perhaps interactions with wider systems other than that included in 5 above, these wider systems being taken as given.

Table 2 Root Definition Elements; Modified from Smyth and Checkland (1976)

Part III of the thesis is devoted to the derivation of Root Definitions, and it is worthwhile to explore the approach adopted in the light of the more usual use of the methodology.

In the domain of the study three major groups were identified, as mentioned earlier. These each subsumed a number of groups and organisations, and each therefore represented a complex system. Similarly the purpose of each is highly complex and may be viewed from several angles (each embodying a particular Weltanschauung). Because the problems under study were constantly developing and because the author was not retained (i.e. owned) by any of the groups, the concept of RD was used as a structuring device in dialogues with actors and owners in the problem situation in each of the three groups. For each there are therefore three RDs, one derived by the owner/actors for each of the other two groups, with the assistance of the author, and one "objective" Root Definition derived solely by the author. So far as is known, this is a novel use of the RD concept.

It is open to the criticism that the RDs may have been in some way "manipulated" to give the view required for or by the analysis. This danger was appreciated at an early stage, and, particularly since those involved in the problems were involved also in the derivation of RDs, it is felt that the pitfall was avoided. Indeed on occasions where a word was not immediately evident and the definition faltered, suggestions by the analyst were rejected by problem actors or owners,

as being unsuitable. RDs derived solely by the analyst are invariably the result of several distillations and are as nearly bias-free as a subjective process can be.

3.4 The fourth step is that of Conceptual Modelling (see Checkland 1979b). The conceptual model embodies, in a way which indicates logical connectivity:

> "the minimum number of verbs necessary for the system to be that named and concisely described in the Root Definition". (Checkland v.s.)

The Root Definition and Conceptual Model taken together constitute the most important steps of a methodology which Checkland has referred to as being

> "a learning system used by the analyst to explore and take action in the situation perceived as a problematic." (Checkland v.s.)

The conceptual model is not, however, a model of the "real" world, but is a model of the system named by the Root Definition. This is because the real world is believed by Checkland to be of too great a complexity to be modelled.

A diagram illustrating the general case of a conceptual model is given over the page.

A recent paper has summarised the thinking of the author and his collaborator on the nature of the Root Definition - Conceptual Model pair (Molloy, K.J. and Best, D.P. 1980e). This paper uses the distinction drawn by Harré (1970) between models which are sentential and those which are iconic. Sentential models, which consist entirely of sentences, sets of sentences or formal (logical) statements, are only descriptive of that which they model. Iconic models on the

other hand embody an explanation of that which is modelled at whatever level. The reader is referred to that paper for a full treatment of this idea. The main point made here is that developed by Checkland, the emphasis of both Root Definition and Conceptual model is sentential. Consequently, in the way in which the methodology would normally be used, there need not emerge any explanatory element of the behaviour of the systems causing the problems under study. Harré maintains that a theory consists of a picture-statement complex consisting of both descriptive (sentential) and explanatory (iconic) elements).

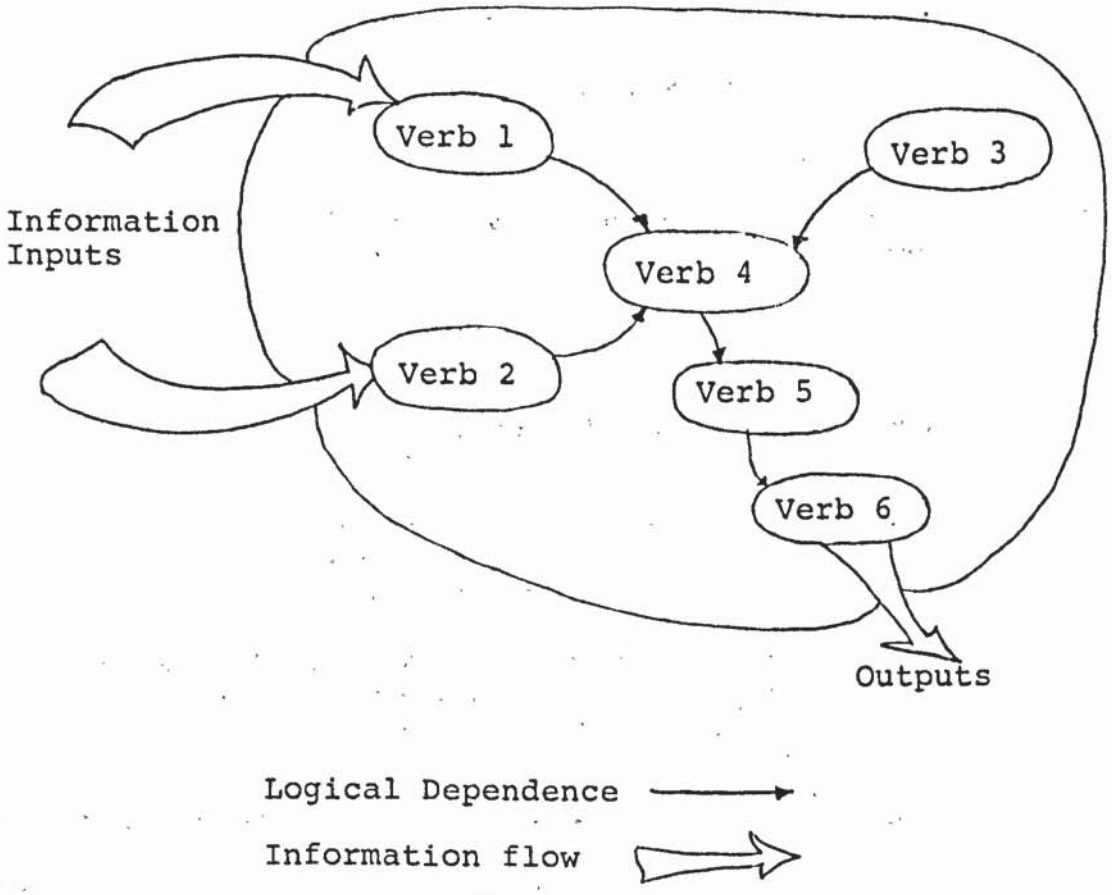

Figure 4 An Illustration of the general case of human activity system (After Checkland 1979b slightly modified)

As the diagram of the methodology shows, the conceptual model stage allows two subsidiary inputs, one being the formal system concept, the other being the admission of "other systems thinking".

Checkland defines a formal system as follows:

"S is a formal system if and only if

(i) S has an objective, a mission, a definition of a final desirable state, or an ongoing purpose.

(ii) S has some measure of performance.

(iii) S has sub-components which are themselves systems with objective (with objectives, measures of performance sub-systems, etc.).

(iv) S has sub-components which interact, which show a degree of connectivity such that effects and actions can be transmitted through the system.

(v) S exists in wider systems and/or environments with which it interacts (inputs and outputs). Boundaries are defined by the area within which the decision takers (vii) can cause action to be taken.

(vi) S has resources, both physical and, through the human components, abstract.

(vii) S contains a decision taker and a decision taking process (action is caused to be taken - which requires information flows via (iv)).

(viii) S has some guarantee of continuity, is not ephemeral, and will recover stability after disturbance (long run stability).

This list should not be taken to imply comprehensivity as Checkland himself makes clear:

"The emphasis has been on usability rather than sophistication, but obviously anyone may guide and validate a conceptualisation by means of whatever systems concepts he finds helpful - I am thinking of material like Ackoff's compendium of system concepts (Ackoff 1974) or Beer's cybernetic model of an organisation based on an analogy with the human nervous system".

These latter inputs qualify as "other systems thinking". The formal system concept is considered to be also predominately sentential and of limited value. It has not been used in this research. "Other systems thinking" provided an opportunity to import, ready made, systems models which themselves embody explanatory power, thereby contributing the iconic element.

As mentioned previously, the model used here is a modified version of the Beer model. At one level this is also only descriptive, but it also embodies cybernetic mechanisms (e.g. variety, homeostasis, etc.) which may also be explanatory in function.

It is not impossible to generate an explanatory model by successively more detailed sentential models, since even descriptive models are to a certain extent explanatory of the level immediately above the level described. Hence at a superficial level an explanation of how business success is achieved may be by good control and regulation; few people would accept this as being an explanation of the mechanism of success. Rather than develop successively more detailed levels of the type of conceptual model described by Checkland therefore, only first level versions are introduced, following which, in Part IV the cybernetic model is employed to examine mechanism and structure in the systems named by the RDs.

3.5 The next cloud summarised in Figure 3 is that of the comparison of the Conceptual Model with the analysed real world situation. This comparison is of significance from several viewpoints.

Firstly it is the stage at which a return is made from the theoretical domain to the real world domain. The 'theory about the problem situation', formed of Root Definition and Conceptual Model, is applied back to the situation from which the RD is derived. Providing the RD is a meaningful one (within an explicit set of criteria of what is "meaningful") the size of the difference between conceptual model and the problem situation as analysed is taken as a measure of the magnitude of changes which may be needed to "solve" the problem, or more correctly, to improve the problem situation.

Checkland is at pains to emphasise (1976 p. 80. 1979b, p.68) that the methodology (RDs and Conceptual Models in particular) is a use of systems concepts to "orchestrate the debate between the different interpretations to which any human activity system is subject" (1976) or again,

> "they are not models of a part of the real world, for the simple reason <u>that there is no unique account</u>* which tells us what some real world human activity <u>is</u>* ..... It cannot be over emphasised that conceptual models are simply models which will help to orchestrate a debate in the real world". (1976b)

This outlook lends additional emphasis to the view of problems as mismatches of expectations of actors in the situations christened Problem Situations. We may consider the object of modifying systems defined within the context of the Checkland methodology (i.e. implementation of feasible desired changes) as being to reduce dissonance between the expectations of actors and their attainments.

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* author's own emphasis

Within a cybernetic context one would expect this to involve the design of feedback loops and facilitatory networks.

3.6 The final two stages are those of defining feasible desirable changes, and then of taking action in the real world to improve the problem situation.

The thesis concludes with statements about feasible and desired changes which could be made in the mineral planning sphere. To effect these changes however, was outside the authority or the jurisdiction of the author. Any effect from the research (which has had an effect) on the situation would have occurred in discussion, over two years with decision takers, and problem owners, and it is difficult if not impossible for the author to assess that effect. At the most it must count as "structuring a debate in the real world".

CHAPTER 4

THE CYBERNETIC MODEL OF ORGANISATIONS

4.1 Introduction

Chapter 2 described the methodological framework within which this research has been conducted. Paragraph 2.4 named the role of the cybernetic model as being to provide an explanatory tool for the organisations involved in the system named by the Root Definition of Part III. The best known cybernetic model of organisation is probably that described by Beer (1972), consisting of five functions, namely Operation: Co-ordination; Control; Intelligence and Policy: each of these functions is linked by a homeostatic loop and a variety balance exists between the various components. (See Fig. 5)

As originally developed by Beer, the model claimed to be the model of any viable system. The concept of viability is not used in this research. The revised model was found to be pragmatically easier to work with than the original, and the concept of viability was not felt to be necessary at the level of analysis used.

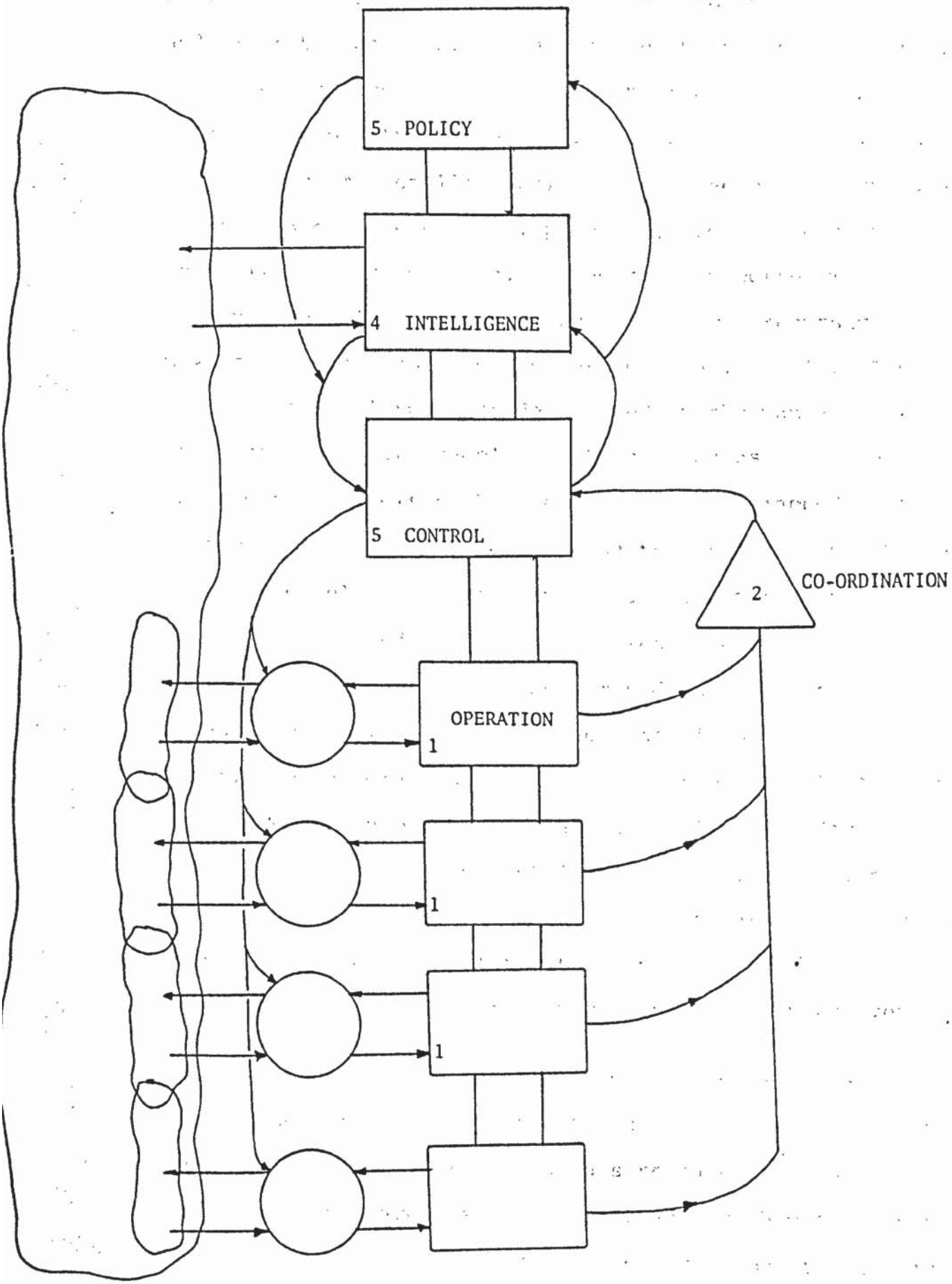
4.2 The Revised Model, and Differences from Beer

At approximately the same stage in research into widely different subject areas, the author and a colleague (K.J. Molloy), both attempting to use Beer's work in the analysis of complex organisations, found themselves to be experiencing similar difficulties. This was particularly the case in respect of Beer's system 2, co-ordination, and 4, intelligence. These difficulties resulted in a

fundamental re-examination of Beer's work going back, as far as was possible, to first principles. This occupied both the author and his co-worker fully for about seven months, a total of some fourteen man-months work. The result was, firstly, an unpublished working paper circulated within the ORSA Group of Aston University and, latterly, three papers in the University of Aston, Management Centre Working Paper Series (Best, D.P. and Molloy, K.J. 1980 a, b, and c). Of these three papers, the first deals with the difficulties encountered in using Beer's original model; the second deals, in considerable depth, with the neurophysiological considerations and derives a functional model of the human nervous system. The third paper derives, from the previous paper's model, a generalised model of function in organisations, using basic cybernetic theory. For the complete treatment of this work, the reader is referred to the three papers referred to above. Although the work is summarised below, the modified model is used in the research reported here as a tool, substantially without further comment.

As mentioned above, the difficulties were experienced with the nature and operation of system 2, co-ordination, and system 4, intelligence. System 4 is discussed first. In Beer's original conception (see Fig. 5) system 4 functions as an information and data gathering centre which receives and orders data, formulates interpretations, and transmits such results to the two meta-functions of Policy and Control, as appropriate. In recent work (Beer 1979) Beer argues that the continuous nature of forecasting and judging the

Fig. 5 The Viable System Model (reproduced from Beer 1979)



environment in its complexity necessitates (and Beer uses the term in a logical sense) a distinct system 4. In earlier work he bases this proposition on the structure, and distribution of function, in the human nervous system. In the experience of the authors in organisations and neurophysiology this is not the only interpretation. In the nervous system, intelligence, in the sense of sensory data ordered into pattern (heat, pleasure, light, sound etc.) is a distributed function. Although only cortex may use it, or although only reflex muscles (at a lower recursive level) may use it, it maps into the system at all levels. Also, its mapping is largely predetermined by the manner in which it is sensed; for example sights and sounds are already ordered to some extent by the time they are mapped into the particular parts of the cortex due to the nature of the sense organs themselves. Similarly at both the meta-level and the lower level of individual organs, sense data depends for its form on the evolutionarily determined nature of the sensing organ. Secondly, because of the innately high variety of the brain, the integration of information from individual muscles, or muscle action occurs into all brain levels. For these reasons the treatment of intelligence (i.e. awareness-knowledge about internal and external states) is treated in the modified model used here as a distributed function, which itself determines, in part the Weltanschauung of the perceiver.

This treatment of the Intelligence function seems also to fit more closely into organisational reality. Thus, although a Board of directors, or, as in this research a Local Planning Committee, may have a strategy derived for them from among a vast number of alternatives prepared by corporate planning or

planning staffs, they (the policy makers) are also in receipt of information from the same environment, although perhaps not the same information. This can, and frequently does, alter their decision. The same will be true of those responsible for controlling the execution of those decisions. Although, as Beer maintains (1979, p. 228), it may be desirable for policy makers and executives to gather or receive information on their environments from a well regulated and localised system four, this does not occur in biological systems, though it may be possible in social systems. One of the concomitants of regarding system four as a distributed function is that it implies that the same information may flow in different parts of a system, some of which may not only not need it, but to which it is positively misleading, and about which there will exist many different Weltanschauungen.

The second modification concerns system two in Beer's model, Co-ordination. The basis of the modification was a concern with the logical adequacy of the explanation given in Beer (1972). Again, an examination of the neurophysiological base of the model revealed that, although it may be convenient to localise it in a diagram, it is not in fact a function which is different, except in degree, to two others which already exist within the model. In consequence, although the function can be criticised on logical grounds (Best and Molloy 1980a) it is dispensed with here on the basis of neurophysiology, and behavioural observations. As Beer described it (1972, 1979), co-ordination is undertaken toward the goal of ensuring congruence between divisions, and to ensure that adequate communication occurs between them and control (system 3).

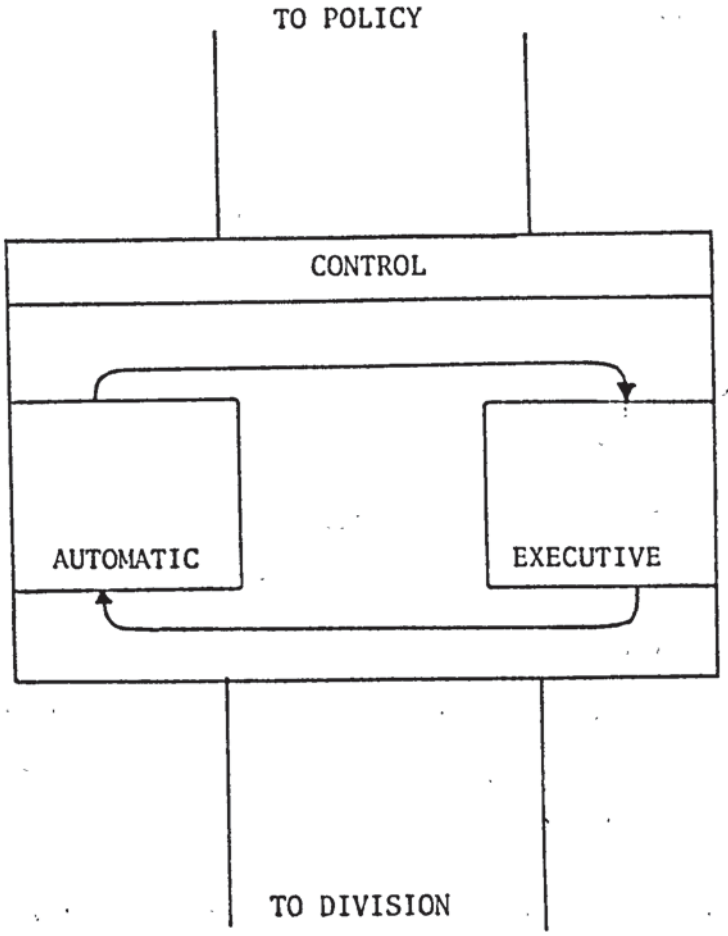


Fig. 6 System 2, Control, in the Revised Model

The only further significant difference is in the control element (see Fig. 6). This is divided into both automatic and executive elements. This division requires some explanation. The automatic element corresponds in the biological model to the system of control most often referred to as autonomic, but includes the organisational equivalent of endocrine (hormonal) control. It works more or less independently of, but in the service of, the executive element. In organisations it corresponds to the rules and regulations, the standing orders, and procedures. It may also

govern protocol, and mandatory notifications (minutes, circulars etc.), but it will also govern the way in which the executive can act, though its own patterns will have been laid in by the executive at some point in the past.

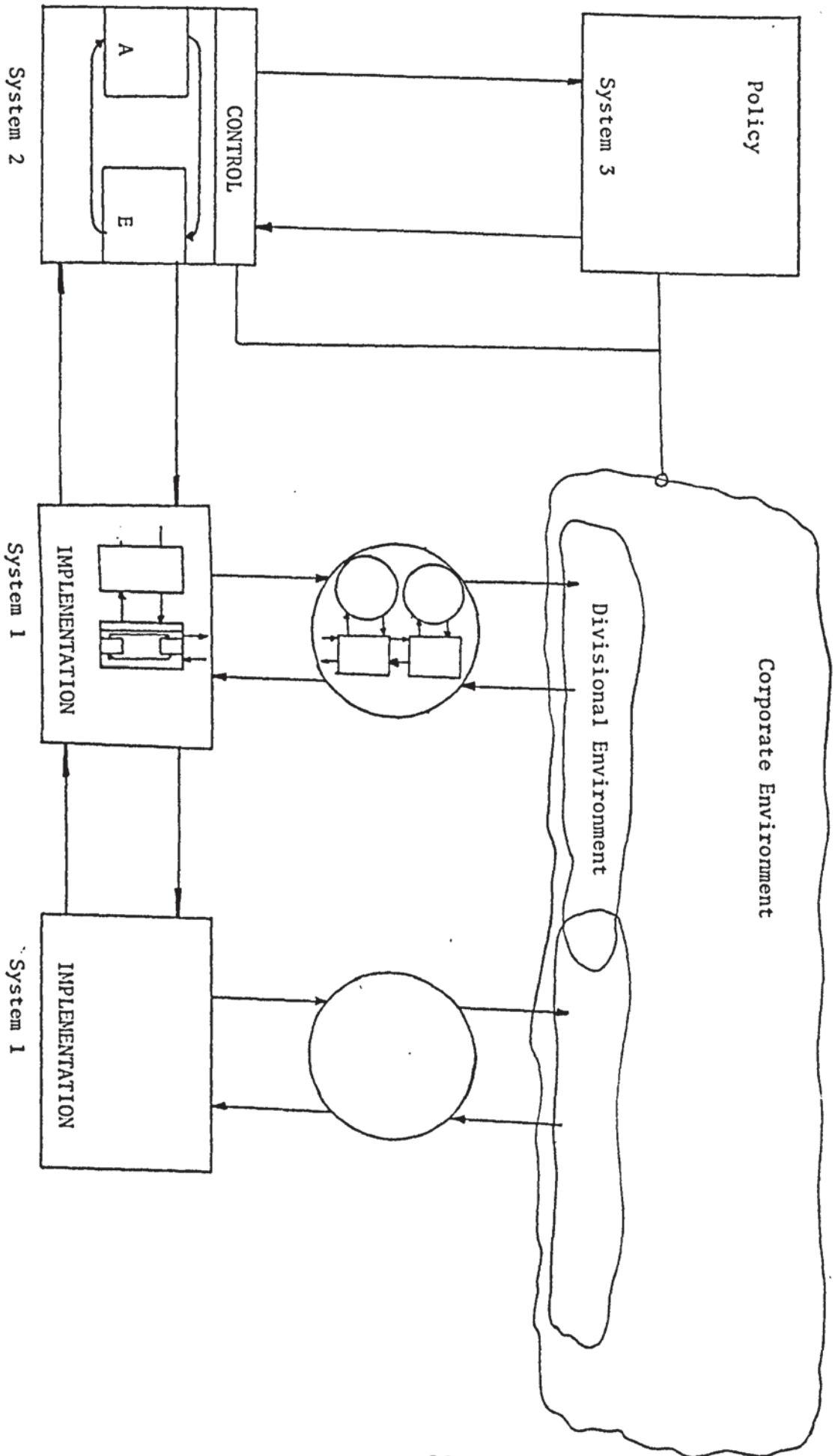
It is important to note that the roles of these two aspects of system two are mutually conditioning to a certain extent. This is easily illustrated by a biological example. If I take a (policy) decision to run everywhere, the executive control of system two is responsible for instructing this to occur via systems one (2 legs, lungs, etc.) and is likely to set a speed. The automatic element will ensure that metaboli rate, blood pressure etc., are sufficient for this. However, the capability of the automatic system to do this depends to a large extent on the past performance on the executive in executing the policy. In turn the success of the executive in setting a certain speed depends on the ability (pre-instructed or conditioned) of the automatic (biologically, autonomic) system to increase blood pressure and metabolism in accord with this instruction.

This mutually conditioning aspect is shown diagrammatically in Fig. 6. The same convention is maintained through the rest of the thesis. The former, Automatic control, specifies the ground rules of the system, the Standing Orders, the procedures, regulations and administrative mechanisms by which and through which the Executive element operates. This is responsible for initiating/terminating procedures, making line decisions and, in short, any decision not covered by the autonomy of the system one.

Within the nervous system communication is ensured by the multiplicity of collateral communication, which ensures that adequate "knowledge" of body states is widespread across the system. Any further "co-ordination" at brain level is achieved by detailed control at all levels, based on comprehensive feedback systems. Pathogenic failures of co-ordination as is the case in symptoms of ataxia, or in other diseases of the nervous system, are generally due to breakdown in nervous transmission between different organs and the brain, or different areas of the brain.

Similarly, in the research reported here, failures of co-ordination on examination were either a failure of communication between officers at the same level or an inadequately defined and controlled state from the level above. Although Beer (1979) admits that this is a valid interpretation is is not one which he adopts. It is doubted here whether the creation of a separate "co-ordination" function (or office) would improve either of these two symptoms in organisations. Failure of co-ordination, it is argued, is either a failure of managers to talk to each other, or a failure by those controlling them to adequately define their respective autonomies, and thereafter to control them towards the goals defined. This makes co-ordination far more an attitude which can be taught or inculcated and far less a function which must be performed. There are certainly organisational structures which will facilitate such communication but it is extremely improbable that such structures alone would ensure it.

Fig. 7 The Revised Model of Organisation Showing One Division with a Second Level of Recursion



The revised model is drawn in full in Fig. 7. It consists then, of three discrete functional subsystems, these are:

1. a variable number of subsystems one, or operating divisions;
2. a control subsystem, including a mixture of automatic and executive elements;
3. a policy subsystem.

All subsystems receive information from the environment for various purposes, and information flows between all divisions and the met-system (subsystems 2 and 3) though not necessarily through each division. In practice, each division takes off what is needed and no more.

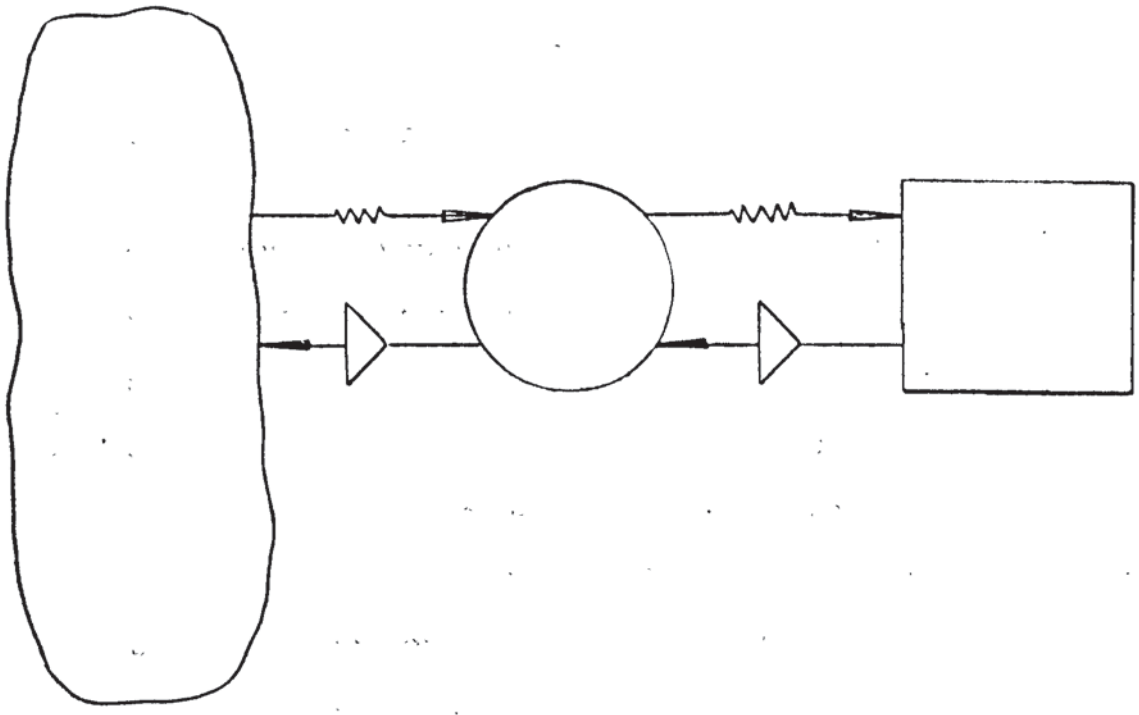
4.3 Variety and Information

The accompanying figure (Fig. 8) shows the variety relationships between one division and its relevant environment. Variety is used in the sense of Ashby (1958). The so-called Law of Requisite Variety, put at its simplest, states that "only variety can absorb variety". For a system controlled by its management, the implication of this statement is that both sides of the variety equation must be balanced; in other words, the number of states which the system may adopt (vs) must be equalled by a corresponding number of states adopted by its management (Vm).

viz

$$Vm = Vs \_\_\_\_\_ I$$

Equally for a controlled system in balance with its environment (of variety Ve) the system must be able to



A and B are loops within and between which a state of homeostasis exists

Fig. 8 To Illustrate Variety Balance between Management Organisation and Environment

embody requisite variety, or in short must be able to "cope with the complexity" of its environment.

viz $Vm = Vs = Ve$ _____ II

In fact however $Vm \quad Vs \quad Ve$ _____ III

Equation III represents the actual state of affairs since the environment of a system, whether the system is a commercial enterprise or a County Planning Authority, will possess a far higher variety than the system itself, and the same will be true of the system with respect to its management. If equation II is to be true therefore, Vm must be some function (f) of Vs such that (f) Vm = Vs and Vs must be some function of Ve such that (f) Vs = Ve. These functions may be considered as filters or amplifiers which filter environmental complexity, thus having the effect of amplifying the ability of the system to cope with environmental complexity.

4.4 System One

System one is characterised as the operation, and may be a factory, a division or, in the case of this research, a County Minerals Planning section, in which case the whole diagram (systems 1, 2 and 3 and their respective environments) represents the County Planning Department in interaction with its community. The criteria of definition of the sub-system are that they are autonomous within the intention of the whole system; that it is controlled in a day to day (executive) sense by system two and that its behaviour is not inimical to the functions of other subsystems. The model

is based on recursive logic, that is, if the subsystem were examined it would display the same three systems functions, similarly interrelated, which are shown in the systems as a whole. Hence if a square were to be drawn around systems 2 and 3 and a circle around both systems 1 they would bear the same relationship to a wider system as the sub-subsystem labelled 1a and 1b bear to their wider system. System one then, is the element of the system which does, it is this system which fulfils the purpose of the overall system with respect to that area of activity.

4.5 System 2

System two has two components named 'automatic' and 'executive'. An example of automatic system 2 control at the national level would be an Act of Parliament, constructed in accordance with received statute and precedent. An act once on the Statute book acts as a controlling framework which operates as if it were preordained.

The executive element of system two is, as the name implies, concerned with the continuous day-to-day management and control of systems one, in accordance with policy received from system 3. It is responsible for the disaggregation of goals and policies and the control of systems one within this unfolding. It receives intelligence from the overall environment in the same way that the managements of the subsystem receive intelligence from their respective relevant environments. Equally, system two may, by some device (for example working parties, P.R. exercises etc.), increase or amplify the intelligence which it receives.

The term variety is used to denote the level and amount of information (different states of affairs) flowing and affected in this way. Filters, such as working parties, thus reduce variety by structuring the amount of information on which decisions are made. The manner of this structuring and reduction is, however, determined by system two itself. It conditions its own perceptions of the information reaching it. This is an important distinction between the revised model and that of Beer, as discussed above.

4.6 System 3 - Policy

The Policy function receives information from two directions, firstly from the corporate environment in a way similar to system two, and also through the activity of its own members as professionals in their field. Secondly it receives information from system two itself. System two feeds back information to the Policy function as a result of which policy, and hence directives to system two, may be changed. Policy directives will also be altered as a result of the environmental feedback. It is likely that policy changes would more often result from external changes than from changes in systems one, through this is by no means necessarily the case. In the case of a political party for example, it is difficult to see, as in the case of the British Labour Party, whether policy change is more often caused by external forces or by pressures from the membership, i.e.: internally.

The mechanism of policy making is highly significant, though outside the scope of this research. Particularly in government, the problems of policy making in very high variety, dynamic, situations, often with a history of conflicting

goals, would be a fruitful area for cybernetic or systems oriented research.

4.7 Diagrammatic Convention

The diagram representing the model uses only four components.

(a) Rectangle

(b) Circle

(c) Arrow

(d) Cloud

(a) Rectangles indicate a management of metasystem function, dependent on labelling.

(b) Circles represent operations, which, in the recursive logic of the diagram, may contain divisions (or systems one).

(c) Arrows represent flow of information and/or resources and may signify information of any type (e.g. commands, or notifications or requests etc.) Axiomatic to the model is that homeostasis exists between any two functions linked by information flow. The acceptable limits of homeostasis at any time will be a function of the historical or evolutionary development of the system (its ontogeny) but will be given at any one time).

(d) Cloud indicates the total environment of the system.

4.8 Summary

The model described briefly above is a modified version of that developed by Beer (1972, 1979). It is used here as a tool, but its development and the research leading to it is

described elsewhere (Best and Molloy 1980 a, b, c), and it has been described above.

The model differs from that of Beer in not having separate functions for Co-ordination or Intelligence (Beer's System 2 and 4). Its role in this research is as a diagnostic and structuring tool for the formal statutory part of the planning system, and its use in this way in Part IV is described in section 3.5 of Chapter 3. The use of the model in this way appears logically valid though arbitrary.

PART II

LAND USE PLANNING

PREFACE

This part of the thesis is the second contextual part, consisting of a discussion and description of those areas of land use planning relevant to the research. Chapter 5 describes the origins of planning. Chapter 6 details the state of planning law following the Act of 1971, whilst Chapter 7 consists of a discussion of the theory and practice of Structure Planning considered from the systems viewpoint. Chapter 8 then deals with mineral planning as it has emerged over recent years and the peculiarities of mineral planning as distinct from urban planning.

CHAPTER 5

ORIGINS OF PLANNING

5.1 Introduction

The rapid expansion of urban centres following the Industrial Revolution, had resulted, by the early nineteenth century, in terrible conditions of housing and sanitation especially in centres such as Birmingham, Manchester and the textile and mining areas of the north of England. At this time local government was limited to the County Boroughs, which were in the main municipalities. The origin of planning lay in a pragmatic need by these authorities to improve the standards of hygiene and public health in their areas. The Public Health Act of 1875, the first of its kind in the world, consolidated powers to enable local authority to ensure adequate space standards and frontages as well as adequate sewerage provision. Further legislation in 1879[1], 1890[2] and 1809[3] enabled authorities to secure the clearance of slums (for reasons of health or to protect the common good), and to build labourers' housing where this was considered necessary. The original provision of sanitary planning thus applied only to urban areas. Land use outside these areas was entirely unregulated by the State. It was only with the creation, in 1888 and 1894 of County Councils, and Urban District Councils respectively,

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1 Artisans and Labourers Dwelling Improvement Acts 1875 and 1879

2 Housing of Working Classes Act 1890

3 Housing and Town Planning etc. Act 1909

that the network of local government was extended to cover the whole county. Even then however extension of planning powers did not immediately occur.

The first Planning Act proper is considered to have been the Housing, Town Planning Act 1909, which affected only suburban land (land in the course of development or about to be developed). This authorised the preparation by local councils of planning schemes with the object of ensuring

> "that in future, land in the vicinity of towns shall be developed in such a way as to secure proper sanitary conditions, amenity and convenience in connection with the laying out of the land itself and any neighbouring land." (Act of1909 in Telling 1973)

The advent of "amenity and convenience" as provision of legislation enabled a far greater flexibility in the control exercised by a local authority, since the ill-defined meaning of both these terms allowed, and continues to allow, a wide latitude of interpretation.

For this thesis it is significant that at this stage and for some time afterwards the only planning law relates specifically to building development, not to mineral working or related development.

In the Act of 1932[1] Local Authorities were enabled to prepare planning schemes for all land in England and Wales whether suburban or not. Also, the powers of Interim Control, allowed the exercise of planning control over an area whilst

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[1] Town and Country Planning Act 1932

the Development Plan required by the 1932 Act was in preparation. This phase of land use legislation was completed in 1943 by the Town and Country Planning (Interim Development) Act 1943 which provided that all land in England and Wales should be subject to Interim powers whether or not the local authority had decided to prepare a planning scheme.

During, and more particularly following, the 1939-45 War, the increasing mobility of the industrial population and the decreasing dependance of industry on being close to its raw materials and to its markets led to a reappraisal of development provisions.

A significant outcome of this reappraisal was the Report of the Royal Commission on the Distribution of the Industrial Population[1]. This is apparently the first Report to acknowledge the highly complex nature of the built or developed environment. The Report (known as the Barlow Report after its Chairman) stated:

> "(Land take) ..... since 1900 has been so rapid that it is stated to have covered with bricks and mortar an area equal in size to the counties of Buckingham and Bedford combined. Alike in urban extensions and in expropriation of land by Government Departments for military, Royal Air Force, or other national requirements, regard must be had to the agricultural needs of the country.
>
> Nor is it merely the agricultural needs of the Country that should be borne in mind. Providence has endowed Great Britain not only with wide tracts of fertile soil, but with mineral wealth in the form of tin, lead, iron-ore and, above all, coal*, with abundant supplies of water, hard and

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[1] Command 6153: The Barlow Commission

* Author's emphasis

> soft, corresponding to the various needs of industry; with rivers and harbours apt for transport and for both foreign and internal trade; and last, but by no means least, with amenities and recreational opportunities, with hills and dales, with forests, moors and headlands - precious possessions for fostering and enriching the nation's well-being and vitality." (Command 6153, pp. 36 and 37)

In conjunction with this awareness was an awareness of the need for constructive planning designed to encourage particular patterns of development over others, this was also emphasised in the Report of the Committee on Land Utilisation in Rural Areas[1]. During the Second War, when thought was given to reconstruction, this became more important, and the Act of 1944[2] carried with it powers of compulsory purchase to enable councils to buy and develop land as they saw fit.

All previous legislation with the exception of the Act of 1943 was repealed by the major Act of 1947[3]. This Act established an entire planning system with wide powers for the Minister. The extent towhich these powers have been used has varied during the currency of the 1948 and superceding legislation. In theory the Act could have enabled the Minister to decide each planning application. In practice however the Act contained wide powers of delegation, by which local authorities were charged with conducting surveys of their areas, and with the preparation of development plans based on this survey. The emergence

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1 Command 6378: Chairman Lord Justice Scott

2 Town and Country Planning Act 1944

3 Town and Country Planning Act 1947

of the concept of a development plan heralded a more integrated approach to land use planning, away from the earlier, public health, emphasis.

The regulatory aspect of planning included provisions which required the local authority (or the Ministry) to give a planning permission for any "development or other use of land", from a factory to a lounge extension. Provisions were also included embodying powers over historic buildings, trees, advertisings and so on. The enormous volume of administration involved in assessing each application for planning permission resulted in the emergence of a body of town planners; these officers, especially in the early days, were predominantly surveyors, architects and civil engineers. The profession (represented by the Royal Town Planning Institute) grew progressively to the very large size it achieved following the introduction of Structure Planning with the Act of 1971.

Numerous amending Acts followed[1] which were consolidated by the Act of 1962. Further changes followed and were paralleled by the appointment by the Minister of the Planning Advisory Group, whose terms of reference were to consider the changes needed in the light of development over the next 20 years. Their recommendations, for broad ranging and flexible Structure Plans needing Ministerial approval, and more detailed local plans not requiring such approval, were incorporated by the Act of 1968[2] which has since been superceded by the Act of 1971.

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[1] e.g. The Town and Country Planning Act 1953, 1954

[2] Town and Country Planning Act 1968

CHAPTER 6

THE CURRENT LEGISLATIVE SITUATION

Following the historical review of the last chapter, this summarises the current situation in planning legislation, particularly the 1971 Act which introduces the concept of Structure Planning.

6.1 The Town and Country Planning Act 1971

The Act of 1971 is now the principal Act together with those changes contained in the Town and Country Planning (Amendment) Act 1972, and procedural alterations implied by the Local Government Act 1972. This Act developed more fully the recommendations of the Planning Advisory Group which were in the main as follows.

It firstly recommended the preparation of Structure Plans, which were to be written statements of policy together with a diagrammatic structure map for the county (commonly referred to as a "Key Diagram"). This was to form the link between Policy at National and Regional levels and the local planning level.

Secondly it recommended the preparation of Action Area plans showing the implementation of the structure plan policy in a given area.

Finally, the preparation of Local Plans was recommended. These were to be specific to the local areas, and corresponded more closely to the traditional land use map.

Indeed this was the major difference in the Structure Plan scheme; previous development plans had been map based documents. The Structure Plan was to consist of two parts, the Report of Survey and the Written Statement. The Report of Survey had to cover six specific areas, as follows:

> "The local planning authority shall institute a survey of the area to discover:
>
> (a) The physical and economic characteristics
>
> (b) Population characteristics
>
> (c) The characteristics of communication, transport system and traffic
>
> (d) Other distinctive characteristics
>
> (e) Other matters as directed by the Secretary of State
>
> (f) Changes already occurring in the area and their effects"

The Act also contained provisions for publicity in connection with Structure and Local Plans, the aim being to encourage public participation in Plan making as much as practicably possible. The actual statutory requirement was quite slight however as the following extracts show.

> "Sect. 7
>
> 1.(a) The authority shall secure adequate publicity for plans
>
> (b) Persons shall be made aware ..... that they are able to make representations"[1]

At the Committee Stage of the Bill an amendment was moved to ensure in the case of Mineral Workings, consultation by the Authority with the Operator, the Department of the

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[1] Town and Country Planning Act, 1971, Section 7

Environment and the Institute of Geological Sciences Mineral Assessment Unit. However the Minister refused to single out any one sector of Industry for consultation. He said,

> "Structure plans will deal with the broad general issues and policies. Minerals are often bad neighbours, but there should be separate local Mineral Plans, (with) consultations occurring during the Survey stage. Only at local level should map plots be made followed, perhaps, by Local enquiry."[1]

The Act also covered the whole range of Action in Breach, Appeals, Enforcement and so on, together with the power of the Minister to call in applications.

McLoughlin gives definitions of the two types of local plans which emerged with the 1968 Act; first of all the District Plan.

> "A link between broad strategy and detailed execution, providing broad guidance for development control and a context for the most detailed plans, which are: Action Area Plans, detailed programmes of action for the area to be developed or redeveloped over the next 10 years or so." (in McLoughlin 1974)

It is within this legislative framework that current planning practice has developed, dominated in the main by the Structure Plan concept. This is discussed more fully in a subsequent chapter.

This short chapter concludes the history of planning law and practice, form the Public Health Act of 1874 to the Town and Country Planning Act of 1971, a period of almost

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[1] Hansard, March 5 1968, Cols 233-236

a century during which the United Kingdom passed from completely unregulated land use to the present situation where every aspect of the use of land including minerals, is specifically provided for by statute.

CHAPTER 7

STRUCTURE PLANNING

7.1 Structure Planning is the most recently introduced system of land use planning, and is the major current policy vehicle for development of land. The process of Structure Plan formulation has been perhaps the most extensive and exhaustive exercise in land use planning history.

As was mentioned above, the distinctive feature of a Structure Plan is that it is not a map based document; this is specifically prohibited by subsection 2 of section 12 of the Town and Country Planning (Structure and Local Plans) Regulations 1974: "(2) No diagram or inset contained, or accompanying, a structure plan shall be on a map base"[1].

This was intended to force the Planning Authority to "(formulate) the local planning authority's policy and general proposals in respect of the development and other use of land in that area....."[2] rather than producing detailed land-use zones at a specific scale which could produce enormous perturbations over the position of precise boundaries and so on. In short it was supposed to operate as a broad policy document.

Much of the research on this topic has been undertaken by workers at the Centre of Environmental Studies (e.g. Drake McLoughlin et al 1975; 1971; McLoughlin and Thornley 1972),

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[1] Statutory Instrument No. 1486, 1974

[2] Town and Country Planning Act, 1971, Sect. 7, para. 3

and the reader is referred to these for a fuller account. The main thrust of structure planning, as with most British planning, has been in the tradition of "pure rationalist" or "comprehensive" planning (Dror 1968). In this approach an attempt is made to map or measure all variables, to project their course, and to choose the 'best' (according to some criteria) from among all the alternatives. In some of the counties in the research some evidence existed, in written material, that a mixed scanning approach had been adopted (Etzioni 1967). This differs from the comprehensive school, in that several total strategies are chosen straight away from among which a choice is made.

7.2 Overall, in the two regions studies, the Structure Planning process has absorbed an enormous amount of staff time and resources (though no data was collected to substantiate this impression). McLoughlin (1969) has classified staff disposition for the purpose of achieving the twin aspects of planning, namely design and control, into four types. Only one of these types was represented in this study. This was the arrangement where development control and land use design (Structure Plans and Local Plans) are kept separate. This separation varied widely in extent. The Organisation Charts shown in Appendix 3 show the variety of organisation encountered. In Lincolnshire and Warwickshire each function occupies a separate section under the authority of an Assistant County Planning Officer. In Nottinghamshire and the Peak Park Planning Board the distinction is less clear, under the direction of a Group Leader or Assistant Director.

In forming broad policy on minerals as an input to the Structure Plan process, the lack of contact between Structure Plan and Development Control staffs, noted by the C.E.S. workers, seems to have been avoided[1]. This is due primarily to the fact that the mineral expertise within the county Planning Department is confined to the Minerals Officer or, if there is no minerals officer (e.g. Lincolnshire) to the development control officer who habitually deals with mineral casework. In fact, in the 11 counties examined, all except two counties had a designated Minerals Officer, and in the exceptional cases the function was performed by one of the Senior Development Control Officers. These officers therefore prepared the mineral input in the Structure Plan as well as being responsible for the Development Control aspects. This was not the case in the Peak Park, where the Structure Plan input was prepared spearately. In each case however the mineral officer combines with his responsibilities, or those of his section (e.g. Shropshire and Nottinghamshire, West Midlands and Peak Park) other duties, most often reclamation and waste disposal, since these are perceived to be closely allied with the issues dealt with in mineral planning. In these counties, the officers concerned spent from 20% upwards of their time dealing with minerals. There was an extremely wide variation in the proportion of time spent on minerals. In the Peak Park, day to day control of minerals was dealt with by a different office

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[1] See Drake et al 1975, also McLoughlin 1969

from the strategic planning for minerals, but this was an exception. In the latter case, the strategic policies did benefit from consultation with development control officers but were formulated in the context of the overall plan, rather than in the context of development control experience.

The findings of McLoughlin et al (1969 ibid), that case workers felt themselves to be more involved in the real world than the structure planners, was in general confirmed. The implication was that since mineral case workers had formulated the mineral Structure Plan policies this was more down to earth or less philosophical (and hence better) than policies for other areas. In general however contacts between mineral workers and other planners, especially Structure Planners, were infrequent, and there was no overall feeling that the mineral policies were in fact a part of an integrated land use strategy, viz the Structure Plan. Structure is defined to be

> "..... the social, economic, and physical system of an area so far as they are the subject of planning control and influence"[1]

The extraction of minerals, particularly the bulk minerals, is heavily dependent on "the social economic, and physical" factors. The integration of mineral policy into the overall plan commonly fails to recognise this. Bulk minerals are low in cost (commonly £1.75/tonne ex works) and have a high place value due to very high costs of transport.

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[1] Development Plans Manual, p. 18, para. 3.6. My emphasis

Their location relative to their end users is therefore very important. Each semi-detached house for example needs approximately 40 tonnes of concreting aggregate[1] beside any specialist aggregate or building stone. When planning land use for amenity, for example in a National Park, it may not be appreciated that the aggregate to build an access road to the National Park may have to be quarried from the National Park. These few examples illustrate the need for integrated planning from all sectors. Little evidence of this was seen despite statements that Structure Plans should " ..... include measures for the improvement of the physical environment and the management of traffic"[2] and also "shall have regard (a) to current policies with respect to the economic planning and development of the region as a whole"[3].

Ensuring that this does occur is the role of the regional offices of the Department of the Environment who are responsible for reconciling Structure Plans with existing regional policies.

The only other requirement which is of general application is that "the proposals and policies .....(shall be)..... justified by (the) results of the survey (made) under section 6 of the Act"[4].

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1 Source: Sand and Gravel Association

2 Subsection 3a, Section 7 of the Act of 1971

3 Subsection 4, Section 7 of the Act 1971

4 Ibid

Discussion with planning officers clearly revealed a tendency to regard Structure Plan minerals policies in the context of only three factors.

1. The pattern of supply distribution in, and adjacent to, the County

2. The likely demand trends, as exemplified by Working Party figures

3. The significance of minerals in the economy of the County.

At the level of case work in individual quarries however, the picture was very different, with detailed attention being given to design aspects and conflicting claims on land use.

CHAPTER 8

THE EMERGENCE OF MINERAL PLANNING

8.1 Introduction

The last chapter discussed Structure Planning in general, and, in the latter section, the nature of mineral policy formulation in Structure Planning. This chapter discusses in detail the emergence of mineral planning and the current legislation situation.

8.2 The Historical Perspective

The first body appointed to look into the operation of planning law and provision with respect to minerals was the Waters Committee established in June 1946 under the Chairmanship of Mr. A.H. Waters[1] with the following terms of reference:

> "To make recommendations on future policy for the control under the Town and Country Planning Acts of the extraction of sand and gravel, with particular regard to the following:
>
> (a) the need for maintaining adequate sand and gravel supplies at a cost which is reasonable under all the circumstances;
>
> (b) the need for ensuring that the necessary disturbance to agricultural land is reduced to a minimum and confined as far as possible to the land of less agricultural value;
>
> (c) the need for co-ordination between sand and gravel working and other land use including the need for protection of amenity;
>
> (d) the need to ensure that land from which sand and gravel has been extracted is as far as possible employed to some useful purpose with due regard to amenity;

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[1] The Report of the Advisory Committee on Sand and Gravel, under the Chairmanship of Mr. A.H.S. Waters, Min. of Town and Country Planning, HMSO, 1948

(e) any special aspects of the problem affecting particular parts of England and Wales.

The Committee are requested to submit at least two reports, of which the first would deal with the problem in the Greater London Area."

These very full terms of reference resulted eventually in the report being published in 18 parts; a General Report, a report for Greater London, and 14 others dealing with other parts of the country, and a Final General Part, (published up to 1955).

As an aside it is interesting to note the concluding remarks of the Preface to part I which state that

"our Report necessarily takes little account of the recent deterioration of this country's economic circumstances ..... There is, we believe, good reason to suppose that the cuts in capital expenditure may result in no more than a temporary slackening in the demand for gravel ....."

The Report comments on "the difficulty ..... of securing accurate and comprehensive statistics of output" (para. 16) and "we strongly recommend that early steps be taken to make one Department responsible for compilation of all returns (on production" (para. 17).) This recommendation was only slowly implemented, and even now is not totally accomplished.

As regards planning control, Chapter VII of part I notes that prior to the Act of 1947, "the earlier Planning Acts did not extend to the control of mineral working" (Waters, para. 104) observing in the subsequent paragraphs that "..... it was customary for operative schemes to include

a provision expressly exempting mineral working from control over ..... the area covered (by development control schemes)" (Waters, para. 105).

Waters makes it clear that, after patchy and largely inaffective attempts at interim control, and following the report on Rural Land Utilisation (under the Chairmanship of Mr. Justic Scott (q.v.) it became clear that "The question of future control would have to be looked into" (Waters, para. 112, p. 52).

To this end each working was brought under planning control by individual agreement. In many cases however, especially in the case of smaller workings, the records examined show that the sequence of events was for the Minister to approve the area under ownership at that time, often with loosely defined conditions, e.g. "An orderly programme of working which shall proceed progressively....." or, "Trees shall be planted, where possible, over all quarry waste, to the satisfaction of the Minister".[1]

The Town and Country Planning Act 1947 passed into Law whilst the Waters Committee were deliberating, though the Committee felt "that its incidence on our work is small, since the alteration in powers does not alter the main elements in the situation before us ....." (Waters, para. 115).

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1 Extracts from permissions relating to workings in West Midlands Counties and Nottinghamshire

More recently, the Stevens Committee and the Verney Committee were formed to look into various aspects of mineral extraction, and in view of the discussion of those two bodies which follows later in this chapter, it is of interest to note the major factors noted by the Waters Committee.

These were:

"(a) There is very little knowledge of gravel problems in planning circles, and no wide agreement on policy with regard to the siting of gravel workings.

(b) Most existing pits have been located without any influence from planning control, but it would not be practicable to discontinue more than a very small percentage of them before they reach a natural close.

(c) As regards the conditions to be applied to permissions for gravel workings the limiting factors are, even under the existing law, not statutory powers but practical considerations of feasibility and cost.

(d) It is true that the new legislation will materially improve the position as regards the compensation against Local Planning Authorities, but there are so many other difficulties in the formation of a suitable policy that this change is not as radical in its effects as one might as first suppose."

The recommendations of the Advisory Committee concerned details of supplies in the various regions they defined. They also formulated detailed recommendations concerned with Objections to Gravel Workings, After Treatment etc.

In parallel with the work of the Waters Committee, the Government had, in 1951, published a Memorandum, entitled 'The Control of Mineral Working'. This was superceded by a revised edition issued in 1960. The Foreword states:

"This revised edition has ..... been prepared so as to provide an account of the legislative changes in their relation to mineral working and to give guidance, in the light of experience since 1951, on some of the issues raised by planning control of mineral development."

Of interest here are those aspects of it which are in common with the (earlier) comments of Waters and the (later) comments of Verney.

Thus for example, in part II on 'Surveys and Development Plans', the information required to be assembled is gathered under the headings of

"(i) whether active

(ii) acreage already permitted

(iii) acreage remaining to be worked

(iv) estimated life of remainder

(v) end use of mineral." (Green Book, 1960, para. 10(a)).

Still however in 1976 (25 years later) the Verney Committee are able to note the lack of information on end-uses.

The Green Book provided detailed guidance on the application of planning practice to mineral control but there is evidence to suggest, especially in terms of the lack of an appropriate data base, that as Stevens remarks:

"With Samuel Pepys we say 'that the past and present failures ..... are chargeable not so much upon the defects of the theory as upon the infirmities of the hands that are entrusted with the practice thereof.'" (Stevens, op. cit. para. 4.3).

This view was also shared by Mr. George Dobry QC in his review of development control procedures in England and Wales, who remarked:

"..... it is not so much the system that is wrong but the way in which it is used."[1]

Nonetheless it had been the case that, because of the rapidly changing nature of the mineral industry, the Green Book had become out of date, and this fact was recognised by Stevens[2], as well as by many of the respondents in this research.

In addition to the industry changes, there had been numerous minor procedural and legislative changes[3].

8.3 The Waters Committee and Later Work

The main significance from the viewpoint of this work is the change in the situation between Waters' Report and (i) the advent of Stevens and Verney, and, (ii) the shape of the Aggregate Working Parties.

(i) So far as the first point is concerned, the remarks quoted from the General Part of the Waters Report bear a close resemblance to those contained in Stevens.

The statements on the availability of reliable statistics (quoted above) are also repeated in Verney, in 1976, although production figures are available, Verney is still able to state (para. 1.19) "There is very little precise information on end uses of

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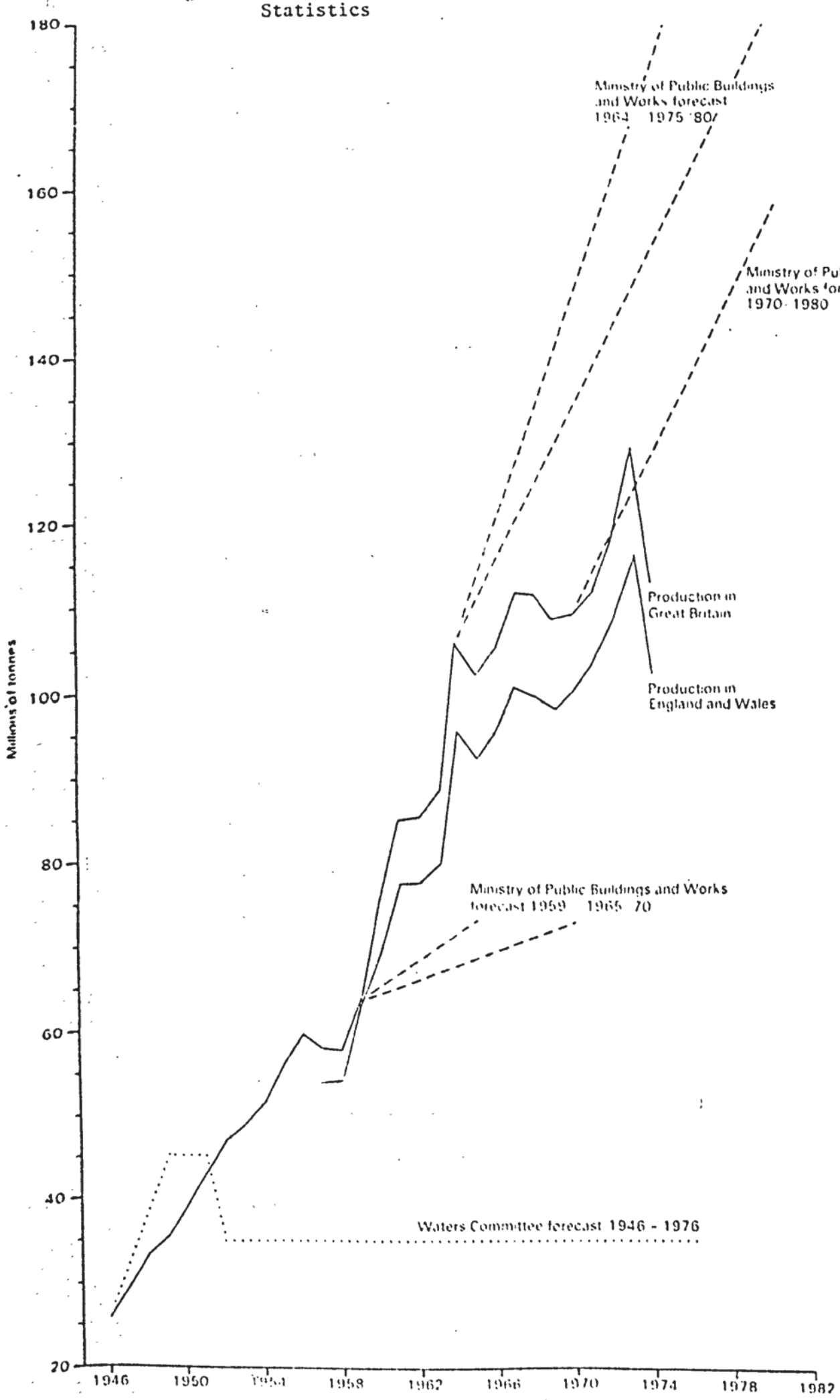
1 Department of Environment Circular 9/76, para. 1

2 Stevens op. cit. para. 5.31 and evidence VII 10(g), VII 25(a)

3 e.g. Statutory Instruments No. 418/74 No. 756; Circulars 60/71; 142/73; 4/72

Sand and gravel production and forecasts of demand

Fig. 9 *NB Excludes Limestone and Other Hard Rock Statistics



Reproduced f… regates: The Way Ahead

aggregates, or on the type of material used to satisfy those end uses", and this is at a time when demand had peaked at around 250 million tonnes per annum*, something over 10 times Water's estimate. (See Fig. 9)

The most striking similarity however comes from the Report of the Stevens Committee, Chapter 4, when compared with the statement of the problems made by the Waters Committee. Compare point (a) quoted above with the following:

> "..... the many authorities who did not, and still do not, recognise the special characteristics of mineral working....." (Stevens, R., Chairman. Chapter 4, para. 4.3)

and point (c) above with:

> "(the statutory) provisions do not always operate in a manner conducive to industrial efficiency and forward planning". (Stevens, R., Chairman. Chapter 4, Intro. para. 4.1)

The overall picture confirms the impression gained from a study of the planning literature and legislation of a complex, evolved, aggregation of law and procedure. In mineral planning, to quote Stevens again,

> "Mineral working is ..... both operation and land use, ... is a large industrial process in a rural area, perhaps ..... near a residential area, ... goes on for a long time, ... and is destructive".

In these respects the mineral regime differs markedly from other forms of development. That the problems in this area are closely similar now to those recognised 30 years ago is an important indication that the solutions so far implemented have been

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*Including Hard Rock and Sand and Gravel Source Mineral Statistic Yearbook 1975

ineffective, perhaps directed to the wrong problems.

(ii) The second point, on the establishment of the Aggregate Working Parties, is also of some interest. In 1970 an Inter-departmental Steering Committee of officials was set up to consider a preliminary enquiry prior to a review of policy on aggregates. This was composed of officials from the Department of the Environment, Department of Trade and Industry, Ministry of Agriculture, Fisheries and Food, the Natural Environmental Research Council, the Crown Estate Commissioners, and the Scottish and Welsh Offices, each of which body has some responsibility for, or interest in, minerals and, more particularly, aggregates.

Among their recommendations was the establishment of Regional Working Parties, consisting of Planning Officers, Industry and Department of Environment representatives. These were to examine demand and distribution patterns and the general distribution of mineral-bearing land. The areas covered by the Aggregate Working Parties corresponded to the Statistical Economic Planning Regions. Phase 2 of the work was to be to assess the reserves of land with planning permission and to assess the likely regional shortfalls or surpluses. So far stage 2 is pending. The Working Party boundaries coincided quite closely with the Sand and Gravel Service Areas

of the Waters Committee, and some of the statistical work retained these older classifications.

8.4 Current Developments

Since the publication of Stevens and Verney several documents have been issued by Central Government. These are:

I The Consultation on the proposed revision of the Memorandum on Control of Mineral Working (the Green Book), 1960 edition; DoE, September 1979.

II Consultation Paper on Proposals to Amend the Law relating to Planning Control over Mineral Working, DoE, June 1979.

III Consultation Paper: Proposals for Changes to the Town and Country Planning General Development Order, 1977.

I The proposed revision of the Memorandum on the Control of Mineral Working follows the report of the Stevens Committee and is considered by many to be long overdue[1]. The consultation paper lists the paragraphs of the memorandum and outlines the modifications, its scope being

> "to summarise the legislative provisions relating to mineral working in England and Wales, to set out the principles governing the exercise of planning powers, and to suggest ways in which conflicting interests and needs may be reconciled". (Consultation Paper, para. 1.1).

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[1] Stevens, para. 5.3: "Many witnesses also criticised the Green Book....A further revision is long overdue...We recommend that (DoE) should investigate the possibility of producing it as a loose leaf manual which could be annually amended". See also the preceding section

The listing is exhaustive; salient features are drawn out when this is considered during the analysis phase of this thesis.

There are significant changes in the content in the revised text, including the role of the new Development Plan (Structure Plan) scheme and a section on the problems likely to occur in fixed plans when they forecast extraction rates, demand and so on.

II Legislative Changes - Consultation Paper

Perhaps the most significant aspect of the appearance of this paper is the fact that it appeared on the 25th June, 1979, and full comments were requested by 29th July, 1979. As the British Quarrying and Slag Federation commented,

> "As more than 1 year has elapsed since the Government responded, in Circular 58/78, to the Report of the Stevens Committee, it is most unfortunate that such a limited term has been allowed (for consultation)...This Federation had found it impossible to canvass....the views of Members and considers.....the time allowed for consultaiton is totally inadequate".[1]

Similar sentiments were expressed in discussion with other groups[2].

The proposals cover seven areas where main legislative changes would be required[3]. In abbreviated form these are:

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1 BQSF response to DoE Consultation Paper, July 27, 1979

2 e.g. FOE, SAGA, CPRE

3 Either by amendment of the 1971 Act or Amendment of General Development order

1. Review of existing permissions and subsequent modification of certain conditions.

2. Determination procedure for cessation.

3. Improvement of enforcement procedure.

4. Enabling powers to compel the aftercare of restored land.

5. Redefinition of "mining operations" to include reworking of waste tips.

6. Amendment of S.27 of 1971 Act relating to notification of applications to persons having an interest in other minerals.

7. To enable permissions to lapse after 60 years unless arranged otherwise.

Paragraph 1 states:

> "This paper sets out our latest thinking on those matters requiring legislation, and after comments have been received.....draft legislation will be prepared".

It is understood from DoE officials that the draft legislation will be incorporated in the new 240 clause Local Government Planning and Land Bill.

III Proposed Revision of the General Development Order 1977 (GDO)

A six page consultative paper was issued by the Mineral Planning Division in October 1979. The DoE Circular 58/78, accepting the Stevens Report, undertook to examine the implications of the Report for the GDO, this paper incorporates the proposed changes.

The main effect is to amend and clarify certain provisions, especially the definition of mining operations, which is defined separately from development. It also deals with areas under S.26 of the Act of 1971, defining minerals as a "Bad Neighbour development".

The other major amendment is to exclude works ancillary to mining operations from the Classes of Permitted Development detailed in Schedule 1 of the GDO.

The effect of this paper is to provide the facility for tightening control over mineral development and also to clarify previously ambiguous definitions, thereby aiding a clearer exposition of planning law in the case of minerals. It also therefore goes a little way toward separating minerals out as a distinct class of development.

8.5 Summary

This chapter has traced the historical development of mineral planning law, and may be summarised as follows.

(a) Waters Committee (1948)

Defined gravel areas; accomplished a National Stock Take; defined the need for planning powers, and recommended the collection of centralised statistics of demand and production.

(b) Production of the Memorandum (The Green Book) (1951)

Sets out areas of mineral development in need of control and the scope and content of Development Plans and Surveys.

(c) The Stevens and Verney Committees (1975)

Dealt with planning and economic aspects of mineral extraction; the problems of control; forecasting Demand, etc. Recommended (among others) establishment of Aggregate Working Parties.

(d) Consultative Papers on Stevens and Verney, Revision of Green Book (1979)

Papers proposed legislative and procedural changes in planning control over minerals.

These various recent documents are discussed in detail where they influence the analysis in Part IV of this thesis.

PART III

THE SYSTEM DEFINED AND THE PROBLEM STRUCTURED

PREFACE

The following two chapters define the system from the set of elements previously described, and define problems generally as a failure of achievement to match expectations, given a certain purpose. Adequate assessment of problems therefore rests on an assessment of purpose, or what a system is for. One of the assertions made here about mineral planning is that in many cases differences of purposes are only dimly recognised, and that mechanisms do not exist within planning procedures for, first of all, recognising and explicating such differences of purpose and, second, reconciling them.

Within the methodology used here the first stage of the process was to discover what the three subsystems defined here are for; that is, what their purpose is.

This is done in chapters 14, 15 and 16 by deriving Root Definitions (RDs) from each of the three subsystems. Three RDs are derived for each subsystem. One RD is derived by the analyst and actors in the subsystem whilst the other two are derived by actors of the other two subsystems, each preparing one RD in discussion with the analyst. None of these RD's will be entirely free of the analyst's views and values but they involve, as far as possible, the attitudes of the Actors. This use of the Root Definition is thought to be new, but is very much in keeping with the concept advanced by Checkland (1976) of structuring a debate in the

real world. In each of the three chapters, the Root Definition is preceded by a short section illustrating from the literature and the research the general character of views on planning of the respective subsystems. In Part IV these root definitions and their implications are further examined.

CHAPTER 9

SELECTING THE SYSTEM

9.1 Introduction

In any systems study a major step is to define the boundary of the system, i.e. to define what is within the system, and what is outside it. In Checkland's methodology this is partly what is included in the stage called "the problem situation analysed". Boundary setting activity is also implied in problem structuring activity. This chapter describes the fieldwork which occurred during this process, and they way in which the system boundary was drawn.

There were essentially two stages to this process. The first consisted of defining a field area, and the second consisted of collecting data. The definition of the field area is discussed below. Data was collected from three sources, one verbal and two written.

The verbal sources were all those members of different groups and organisations who were interviewed, or with whom the research was discussed. Those organisations are listed under Appendix 1

The written sources comprised firstly literature and secondly case material. The former consisted of all published material, ranging from Trade Association Literature to Transcripts of Evidence given to the Stevens Committee, and includes Government Statistics and the normal academic journals, and papers.

The information collected in this way covered mineral planning in the two Economic Planning Regions of the East and West Midlands. Within the methodology employed in the research, the nationwide position represents the problem situation unstructured; the first step in structuring[1] this situation was to choose a sample space. The two economic planning regions were chosen, for a number of reasons.

9.2 Choice of a Field Area

Most obviously the two regions and the counties which comprise them are close to Birmingham. The county-town most distant from Aston University is Lincoln (c. 120 miles).

The choice of two regions adjacent to each other enables aspects of regional "import" and "export" of aggregates to be considered. The boundaries of the regions are arbitrary but sanctioned by custom. This arbitrariness means that mineral fields (outcrops of rock, or deposits yielding economically worthwhile products) may lie across such boundaries, whether regional or county. The choice of two regions show these cross boundary effects whilst containing the volume of data at a manageable level.

The East and West Midlands seemed to contain examples of most of the major geographical and socioleconomic features of the country as a whole.

For example:

(a) A major connurbation and industrial complex (West Midlands - Birmingham - Coventry)

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[1] Checkland uses the term analysis. The term structuring or ordering is felt to indicate more accurately the nature of the process here

(b) Major agricultural areas (Worcester - Hereford/ Lincolnshire)

(c) A national park (Peak District)

(d) Major Mineral Fields:

(Derbyshire: Limestone)

(Trent Valley: Sand and Gravel)

(Northants: Ironstone)

(e) Major roadbuilding activity and construction works:

(A38 Exeter-Leeds Trunk Road)

(M42 Motorway)

(M69 Motorway)

(Redditch new town)

(Telford new town)

(f) The counties represent the full range of mineral activity, net importers (e.g. West Midlands) net exporters (e.g. Derbyshire) and variable status counties (e.g. Lincolnshire).

(g) Finally, but not unimportant, the existing regional organisation means that certain data and attitudes are defined in those terms; to disaggregate these to fit some other, but equally arbitrary geographical area (e.g. Trent Valley, Pennine Uplands, Severn Basin etc.) was felt to be impracticable.

One consequence of this regionalisation is that the Economic Planning Region appears as the intermediate level between National and County level, thereby biasing perceptions toward that particular organisation. Other possible intermediate, regional structures could conceivably revolve

around Water Authorities or Development Area classifications. In point of fact, the dissolution of Economic Planning Councils in autumn 1979 casts doubts on the continued existence of the Planning Regions; so that there may not be any intermediate level.

Consequently, the sample space chosen is felt to be representative of the country as a whole; this is not to assume that these two regions form a closed system; in fact this is definitely not the case, since resources of all types flow freely between the two regions and others. The only simplifying assumption made in the research is that the two Regions are typical of the country as a whole with respect to the way in which mineral planning is executed.

The problems became clearer and better structured as more information was gathered and as the framework of the research was clarified. The problems which eventually emerged from a study of the field area are described in the chapter entitled "The Problems of Mineral Planning Control".

In the planning control system which is the focus of this study, a distinction is drawn between the "Statutory system" and the "Dispositional system". The Statutory system is taken to be the legally specified system as embodied in Parliamentary statutes, Instruments, Orders in Council; Regional Plans, Structure and Local Pland and so on. The Dispositional system is the set of physical organisations,

arrangements of personnel, and so on, which enable the processes specified by statute to take place.

To fill in this outline which effectively structured the problem situation, data was collected under the heads noted above, namely published literature, published statutes and case material, and personal interview and conversation material.

As regards the written material, there were few constraints. A normal literature survey was undertaken in the area of planning theory and practice and in the statutory area of the enactments relating to Planning and minerals planning currently in force were readily available. Additionally Structure Plans and other material published by the Local Authorities of the two Regions was collected, together with samples from other regions on a more or less random basis.

Two categories of written material were problematic however. The first set were papers on Structure Planning procedure, internal to the Department of the Environment, and similar documents which had a security classification. The second category was that of papers relating to particular applications; brief particulars of the application are held on the register of the district council, which is publicly available. Detailed files, kept at County Offices, often contain confidential information, or correspondence. The range of access varied enormously therefore from those Counties where complete access was allowed to case files, to those where access was allowed only via interview with a planning officer who then provided a summary of the sequence

of events. This latter category was fortunately small, since the object of examining this class of material was to assess "how" activities were carried out and nor merely "what" the activities were. Great care was taken to ensure that in no instance did the case study approach at any time jeopardise the confidential nature of information given to County officers on a privileged basis.

The major participants were, firstly, the staffs of the County Planning Departments, in particular the Mineral Officers of the eleven counties in the two regions, and other local authority staffs.

Secondly the national and regional planning staffs of the Department of the Environment.

Thirdly representatives of Industry, and Industry associations.

Fourthly other bodies and individuals representing the broader society view.

The public were also represented by statements relating to specific applications and by the Written Statements of pressure groups such as Friends of the Earth.

A full list of participants is attached as Appendix 1.

9.3 Methods of Data Collection

A two-fold method was used in the data gathering phase, that of structured interview and case-study. The form used to structure interviews with County Authorities is given in Appendix 7. Answers in some form were sought

to all these questions, though when other fruitful avenues appeared, the discussion was allowed to follow them. It is difficult to carry across the richness of the discussions in a summary; the additional insights and the "informal" dimension are expressed, either directly or indirectly, in the arguments presented in the subsequent sections.

The second method, that of case studies, was employed in nine of the eleven local authorities in the study, though at varying levels of detail. In six of the cases, virtually unrestricted access was allowed to certain files, and, in each of these, two application files were selected to exemplify the fullest possible range of planning and procedural points, particularly in terms of the range of consultations and communications events. A second criterion for selection was the complexity of the application. The main object was to examine cases which illuminated as fully as possible the ways in which the procedures, described by interviewees and defined by statute, worked in practice in the Local Government system.

In the case of these six authorities a period was spent in the offices of the Local Planning Authority reading through the files, and abstracting and summarising the data.

Discussions with members of the industry took a rather different form. In general it consisted only of the initial interview. Such discussions occurred with the three largest producers operating in the study area. The prevailing attitude amongst operators was that they wished to present a combined front on the question of Mineral Planning. This

feeling had been reinforced by the Working Parties, the evidence of the Stevens Committee and commenting on Department of the Environment discussion papers. They were quite prepared to discuss the subject with the author but preferred to refer detailed discussion to the Trade Federations.

In general, operators with only one or two quarries do not have "a view" on mineral planning. Their view is limited to the position of their own holdings which are invariably small, indeed it is estimated that only 6 companies account for about 80% of total sales[1]. This pattern, of increasingly large companies, is discussed in detail in the chapter on the structure of the industry. Only the larger operators, among which may be mentioned the Amey Roadstone Corporation, Tarmac and Redland Aggregates Limited, have a company policy on planning related matters; frequently the smaller operator is represented at the high level by the industry associations and at the local level put his own case on an ad hoc basis. It is only occasionally that a small operator will retain specialist counsel for particularly important applications.

Since the appointment of the Aggregate Working Parties and the Stevens and Verney Committees the Industry has tended increasingly to speak through its National Associations. Consequently approaches made to individual Companies were frequently channelled to these bodies. The discussions were mixed in nature according to the response from the firms concerned and ranged from the very formal to the

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[1] Pers. Comm. Official of DoE November 1978

informal. It will become apparent that no attempt has been made to talk to every organisation involved in mineral planning. Besides being practically impossible, such an approch would have been unsystemic, in the sense that true comprehensivity, when dealing with complex systems, is impossible. The approach adopted here is largely pragmatic, but is backed by sound principle. The attempt is to characterise the mechanism of mineral planning, not to describe the minutiae. The results may be open to criticism on the grounds of not being representative.

However, there was a constant awareness of the possibility of bias, and it is believe to have been substantially avoided, by maintaining a constant awareness of other events in the area.

This was facilitated by the fact that mineral planning is dominated by a relatively few individuals who may appear in many different situations. This was true for example of the Secretary of the Council for the Protection of Rural England, who also prepared the evidence of the Committee for Environmental Conservation to the Stevens Committee as well as sitting on the Sand and Gravel Association Panel for judging the merits of Restoration Schemes.

9.4 Subsystems Identified

The elements identified are described in the following Chapter, and formed three subsystems which together constitute the mineral planning system. The elements are shown diagrammatically in the accompanying figure 10.

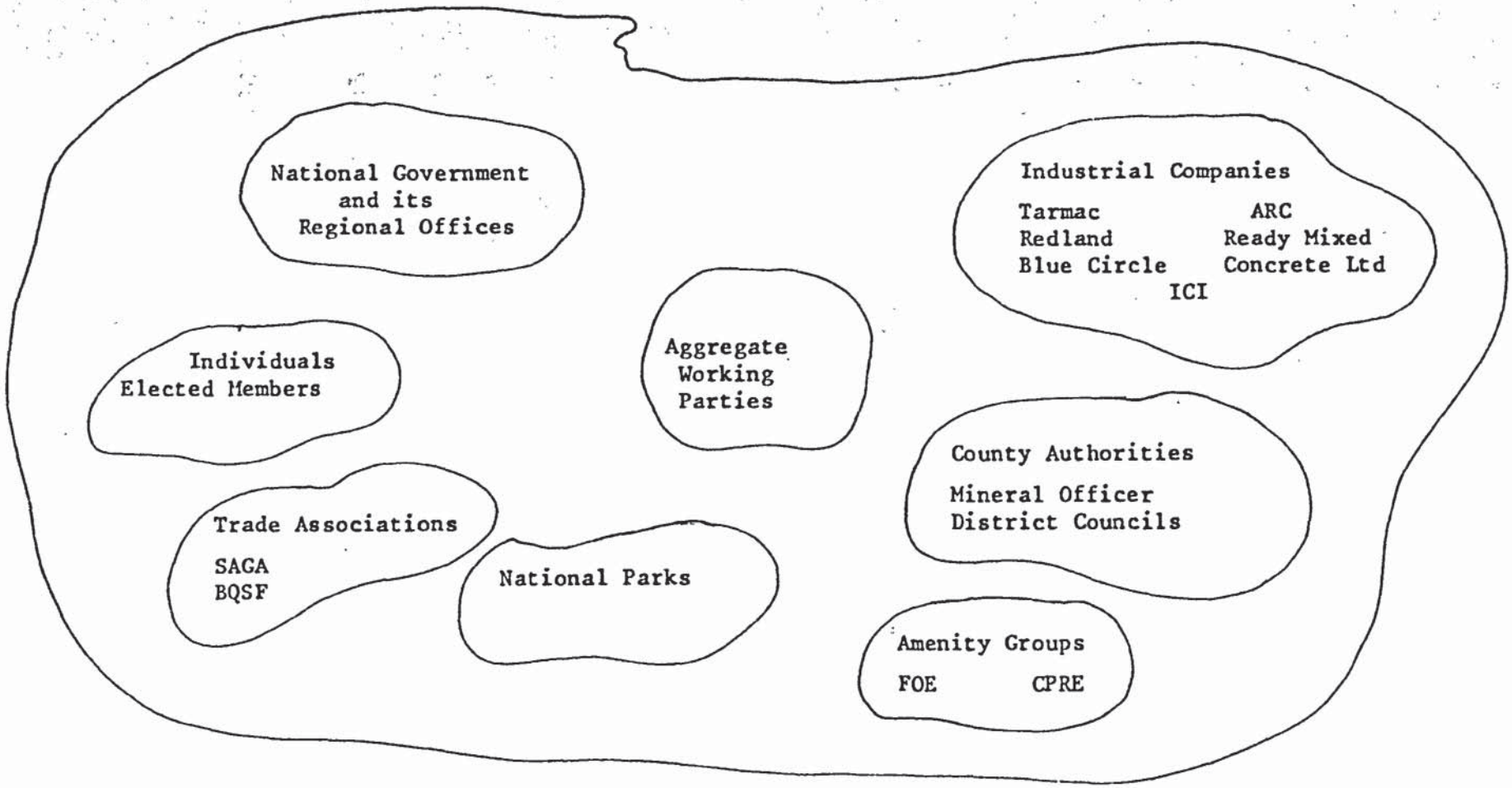

Fig 10 Elements of the Planning System: Sets or Assemblies of these comprise the three subsystems, shown in the next Figure

The three subsystems, which have been called Authority, Voters and Industry, are defined on the basis of their mutual interest as seen from the analyst's viewpoint.

This corresponds to "naming of systems seen by the analyst to be relevant to the problem situation" (Checkland 1972), stage two of Checkland's methodology. The classification is made on the basis that there are three identifiable interest groups, each of which has more in common between its members than between itself and another group.

These subsystem groupings do not correspond to organisation groupings but fall roughly into a threefold stratification of National, regional and local groupings.

The three subsystems in overlapping relationship are illustrated in Fig. 11.

9.4 Summary

This chapter has summarised the selection of a field area and its characteristics and has discussed the participating groups in the study in a broad way.

The next two chapters deal in a detailed way with descriptions of the three subsystems outlined above, and derive Root Definitions for each of the three groups.

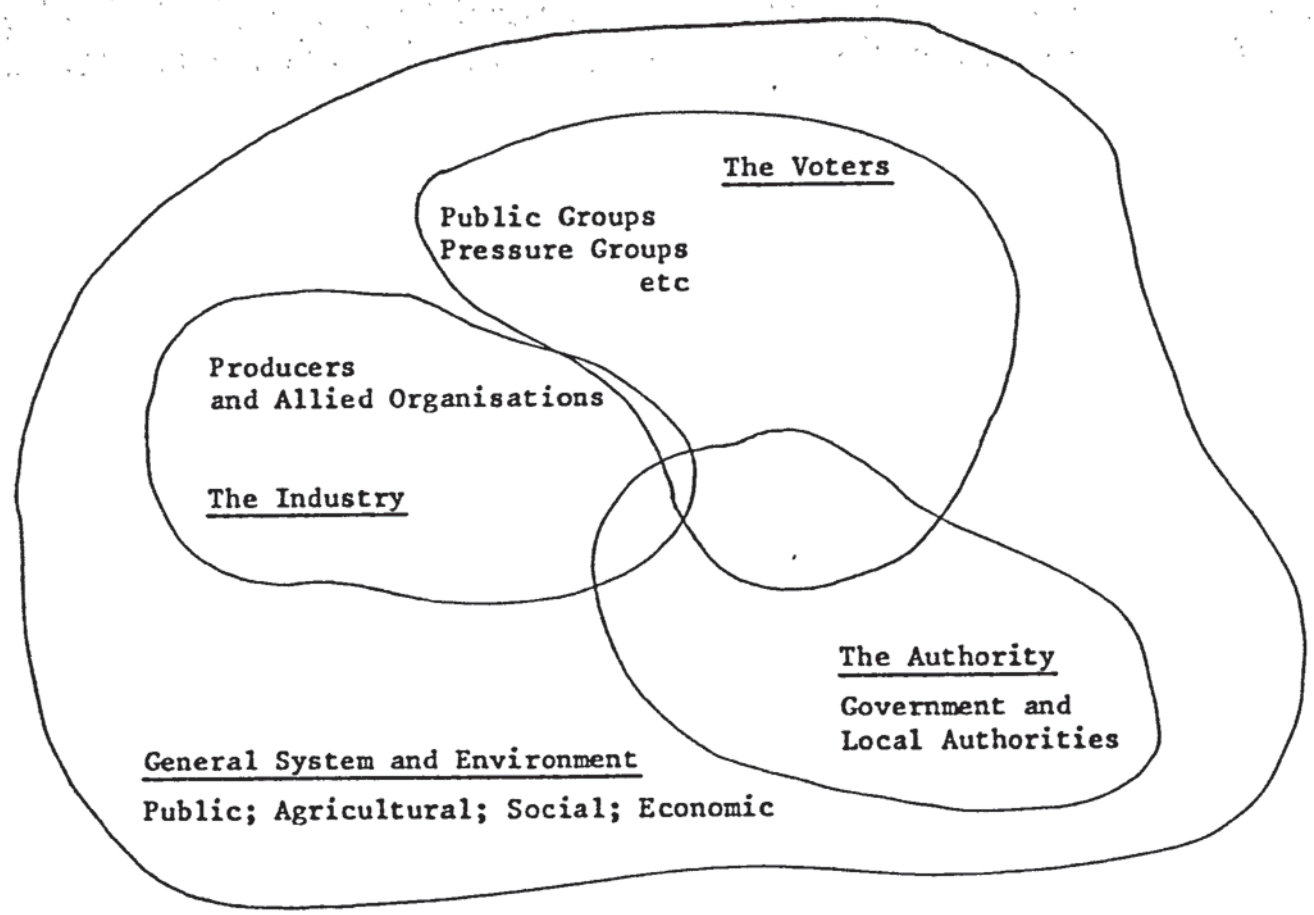

Fig. 11 To show the Mutual Interaction of the three systems defined in this study composed of the elements depicted in Fig.

	Industry	Authority	Voters
National	The Sand and Gravel Association (SAGA) British Quarrying and Slag Federation (BQSF) Institute of Quarrying	The Department of the Environment (DoE) Association of County Councils Ministry of Agriculture Department of Industry	Council for Protection of Rural England (CPRE) Committee on Environment Conservation (CoEnCo) Friends of the Earth (FoE)
Regional	Aggregate Working Parties Some regional branches of the Trade Associations	West Midland Planning Authorities Conference Regional Depts.of the Environment. East Midland Forum of County Councils Aggregate Working Parties	Occasionally formed Groups and Conservation Bodies
County (Local)	Individual quarry operators, and managers	County Councils District Councils Parish Councils and their Officers	Action groups (special purpose) Residents Individual Objectors Local Groups of FoE

Table 3 To Show the Distribution of the Main Organisations and Groupings Perceiving Problems in Mineral Planning

CHAPTER 10

THE SYSTEM DESCRIBED: NATIONAL AND REGIONAL LEVEL

10.1 Introduction

The diagram on the facing page shows the classification used to structure the problem situation, that of National, Regional and Local levels. The horizontal axis shows the three systems defined, those of the Authority, Industry and Voters. (See Table 3)

This chapter describes the elements of this matrix according to the vertical classification. The material is interpretive as well as descriptive, and sets the ground for the developments of the three views characterising the three systems contained in the next chapter.

10.2 Bodies at National Level

Department of the Environment (see Appendix 10 for general Organisation Chart of the DoE)

The relevant division of the Department of the Environment is the Mineral Planning Division, headed by two Assistant Secretaries. This division is split into two parts, one of which deals with aggregate minerals, and the other with all other minerals. Their functions are diverse. At the broadest level the MPD (Mineral Planning Division) is responsible for prompting research or discussion on particular mineral issues, in response to lobbying or ministerial initiative. Examples of this type are the sponsored research by the Institute of Geological Sciences

on Sand and Gravel[1] and Limestone Resources[1] or work at the Royal School of Mines on the feasibility of giant quarries[2]. They also provide guidance at national or regional level for mineral inputs to Structure Plans, as well as sponsoring the Regional Aggregate Working Parties.

They have the role of "sponsor" for construction minerals, explained as follows:

> ".....first to ensure that the needs and practical problems of the industry are taken into account in the formation of the policy; second to interpret that policy to the industry, and to provide the industry with a clear point of entry into contact with the Government machine"[3]

The regional liaison, via regional offices of the Department, may deal either with county Structure Plan mineral inputs, or with the provision of detailed advice to Counties in terms of material or planning matters, or bibliographies on various topics[4].

The Mineral Planning Division are also responsible for framing policy within the Government's overall aims and for giving guidance in this respect to Counties. The extent of the Department's success in this area is discussed later when their role is analysed.

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1 e.g. Best, D.P. The Sand and Gravel Resources of the County around Blaxton, S. Yorks. A Report in the Sand and Gravel Assessment Report Series HMSO in preparation

2 Conducted at the Mining Environmental Research Unit Imperial College, London

3 Pers. Comm. DoE, 5th November 1979

4 Eg. Annex 5c Stevens Report

In the wider context the Department frames and executes law and policy on Planning matters through the Town and Country Planning legislation, within which the Mineral Planning Division works.

> "In practice responsibility for the minerals aspects of (development) plans is undertaken as a co-operative exercise between the MPD and the Regional Office. Thus MPD are engaged in various stages of the development plan formulation as and when required."[1]

Within the structure of the Department of the Environment there are two divisions (or Directorates) which have some responsibility for minerals. The first is the Mineral Planning Division, which is mentioned above. The second is the Construction Industry Directorate, which has responsibility for aggregates used in the construction industry. There is little if any formal contact between them, communication being purely on an informal or ad hoc basis[2].

This division of responsibility is largely an historical accident from the time before the creation of the Department of the Environment. At that time the Construction Industries Directorate was a division of the Ministry of Building and Public Works, whilst the Planning Mineral Division was formerly a Division of the Ministry of Housing and Local Government. Following the creation of DoE their organisational separation continued.

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1 Pers Comm DoE 10th January 1979

2 Pers Comm DoE 5th November 1979

The Institute of Geological Sciences (IGS)

Since 1968 the Institute, sponsored by the Department of Environment (MPD), has been conducting a programme to determine the distribution and extent of sand and gravel and, to a lesser extent, of limestone. This survey, carried out by the mineral Assessment Unit (latterly the Industrial Minerals Assessment Unit), was conceived as a 10 year rolling programme. Now, in 1979 it is still continuing, having published a number of reports covering the Trent Valley, parts of the Teesside area and the Thames Valley and a number of miscellaneous areas. Additionally the IGS is "the central repository of geological knowledge in this country"[1]. Through the statutory requirements of the Science and Technology Act of 1968, it holds information on certain exploratory developments, boreholes, trenches, and seismic surveys carried out by private bodies, and notified to the Institute under the 1968 Act.

Although officers of the Institute occasionally sit on Working Parties or will attend Public Planning Enquiries (often in the capacity of Assessor), there is no existing mechanism whereby the expertise available is automatically utilised by County or regional planning bodies. The use made of the Mineral Assessment Reports, and their overall value, is currently subject to some debate though they seem to be slowly gaining acceptance by both Industry and Local

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[1] Stevens, p. 219 para. 5.13

Authorities. The debate about usefulness may stem from a relative unawareness by by Local Authorities of the information service which the IGS represents.

> "I have been rather conscious for a long time that what we could do for many local authorities is simply not known to them."[1]

The evidence suggested that if LPAs were widely aware of the service available, the resulting demand for information might outstrip the ability of the Institute to satisfy it.

Other Government Bodies

So far as the other agencies of the Government are concerned, the Mines and Quarries, and the Alkali, Inspectorates are reluctant to provide advice to planning authorities because of their statutory role in assessing engineering safety, emission levels and so on. This statutory responsibility carries with it power to obtain information which, as it may be of commercial significance, is not open to disclosure.

Including the Inspectorates mentioned above, other governmental or public bodies have the role in planning of consultee only. The Ministry of Agriculture Fisheries and Food will usually be consulted, and may be expected to object almost automatically if the land is of Grade I or II in the land classification[2]. The extent to which other

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1 Evidence of IGS to Stevens Committee p. 29, para. 5.13

2 Stevens, para. 5.11; this was corroborated frequently in case material

consultations occur varies widely. They include the Nature Conservancy and the British Waterways Board.

The Sand and Gravel Association (SAGA)

SAGA are one of the two producer's Associations, the other being the British Quarrying and Slag Federation (BQSF) with whom SAGA work closely.

SAGA has a membership drawn from Aggregate producers extracting sand and gravel, and claims to have as members about 90% of the industry (one large operator is outside the Association). SAGA may be classed as an employer's protection organisation and is active across a wide front; a list of Committees and Panels is given as Appendix 8 together with other bodies on which the Association is represented.

In planning matters SAGA are consulted as a matter of course;

> "I think the only thing I need to add is that bodies such as SAGA..... are formally consulted on policy matters..... The department is also engaged in informal meetings with representatives of such bodies to discuss matters of mutual interest"[1].

SAGA formulates and expresses a formal and united view on behalf of its members, and also acts on the Regional Aggregate Working Parties. Interestingly, these geographical areas tend to coincide with mineral fields and production areas, and rarely coincide with County boundaries.

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[1] Pers. Comm. Dept. of Environment Planning Mineral Division, 14th June, 1979

SAGA is not only active in a lobbying capacity, it actively encourages its members to adopt a positive attitude to matters of good management and restoration, particularly by quarry restoration.

Publications such as "Take a Closer Look"[1] are aimed specifically at the quarrying industry and, as well as being very good for public relations, aim to increase the level of awareness of environmental issues in quarrying staffs, and the importance of a good quarry housekeeping in conveying a good impression to the public. SAGA obviously acknowledge an important role in educating the public to a belief in the necessity and value of a flourishing quarry industry. Discussion with SAGA revealed an implicit belief (hardly surprising) of the fundamental necessity of a flourishing industry allowed to exercise its rights to expand in response to demand. Coupled with this however, was an awareness of the severe constraints which irresponsibility within the industry may produce.

The links with the British Quarrying and Slag Federation, already strong, both formally and informally, are being continually strengthened, and increasing co-operation is likely as the overall environment becomes more 'hostile', or more constraining, as seen by the industry.

Regionally therefore, as well as nationally, SAGA is represented at the Examinations in Public, Planning Enquiries,

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1 Take a Closer Look: Published by SAGA written by Colin Oliver 1979

and at all stages of Mineral Subject Plan, or Structure Plan preparation. It may provide advice or information at regional level to the DoE, and may exert pressure on its members to secure co-operation in matters which the Association judges to be to the benefit of the Industry as a whole. It therefore in practice exerts a fair degree of control over its members' attitudes and behaviour in matters at a regional, or national level, where economic competitive pressures are less important than a united approach.

British Quarrying and Slag Federation

Together with SAGA, BQSF represents the vast majority of producers of the bulk minerals.

It was formed in 1969 by the incorporation of the three Trade Associations which had previously represented the separate interests of limestone, granite, and slag.

The objectives of the Federation are stated to be:

> "to promote and develop the Industry and its relationship with the Government and the Public, and to serve the interests of its Members with particular reference to economic, environmental, technical and safety matters"[1].

The membership of the Federation is now in excess of 81. As with its sister organisation, BQSF maintains an administrative and executive organisation in London under the direction of a Director General, who is responsible to the Council.

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[1] BQSF 1976 Members' Directory

In mineral planning, work is conducted through a Committee structure, as is the rest of the Federation's business. They are represented on the Aggregate Working Parties and the National Co-ordinating Committee of Aggregate Working Parties, which includes Working Party Chairmen and DoE representatives. They enjoy the same status for consultations as does the Sand and Gravel Association, and, as noted previously, work very closely with SAGA.

Their position differs however in that the members of BQSF have a slightly different industry from SAGA members, even though in some cases output from both organisations' pits may be used for the same purpose. In general however plant costs are considerably higher for a hard rock quarry than for a sand and gravel pit.

The reasons for this are that sand and gravel may only require screening or sieving (or grading) to eliminate particular size fractions, and washing. Hard rock on the other hand will always need crushing as well as grading and may also be coated with bitumen or subjected to further crushing before leaving the quarry. Additionally hard rock may travel large distances because of special qualities which will hardly ever be the case in a sand and gravel operation. The very hard gritstone from Craig-yr-Hece, for example, has been exported to Europe from South Wales; sand and gravel would never be transported over such distances, since its properties are not unique nor are they place-dependent.

A further difference is that of restoration. Hard rock[1] quarries may have several working faces each up to 150' high[2], and infilling, or making grassed gently sloping sides, is rarely possible. Similarly if the working fills with water after working ceases, a water-based after use for the pit is rarely feasible because of the dangers which sheer walls and deep water pose.

BQSF's general approach to restoration reflects this difference in emphasis. When BQSF presented evidence to the Stevens Committee, they strongly endorsed the evidence of the Confederation of British Industry which emphasised the more industrial bias of hard rock operators toward safety factors in planning, and in its approach to inclusion of exploratory drilling under "the 28 days rule"[3]. Exploratory drilling for hard rock is both more costly and more time consuming than sand and gravel drilling, and is therefore rarely sanctioned without a planning consent.

Their general approach, revealed in discussion, is essentially similar to that of SAGA. The reality and necessity of planning control is recognised, together with the need for a responsible approach from the Industry in educating and informing the public. Equally however, there is a strong

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1 "hard rock" is a commonly used term for deposits of igneous rock (granite, basalt etc.) quartzite, sandstone, gritstone, and limestone

2 See for example Best, D.P. 1977

3 "The 28 day rule" provides that planning permission is not required for a temporary development taking less than 28 days.

awareness that there is a cost attached to each increment of control, the extent of which may not always be realised by those seeking to impose the controls.

Particular concern was expressed over the way in which, after an elapsed term of seven years, only four weeks was allowed for consultation before legislation on planning control revision was published. This is a particularly good example of the patchy nature of communication between Authority and Industry. Four weeks, to obtain a cogent and orchestrated response from all members of SAGA and BQSF seems hardly adequate. This disquiet was as much due to the piecemeal approach as to the time period; thus they say[1]:

> "The Stevens recommendations are intended to be looked at as a package..... It is of considerable concern that legislation to give effect to (them) is being brought forward in a piecemeal fashion and.....the Federation feel at a considerable disadvantage in looking at an isolated part of a series of interlinked legislative matters."

Viewed from the approach of this study this disparity in the view of the planning changes between SAGA, BQSF, and the Government is indicative of the incomplete nature of the communication between them and of the status accorded to the Industry bodies by Government.

The Council for the Protection of Rural England (CPRE)

The purpose of CPRE is to "Improve, protect, preserve the quality of Rural England"[2]. In this capacity it is perhaps

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1 BQSF; Response to the DoE Consultative Paper, July 27, 1979, p.1

2 Pers. Comm. Secretary to CPRE, London 2nd November, 1979

the most prestigious of the private conservation bodies. As was noted in the case of SAGA and BQSF, CPRE also is formally consulted on policy matters as well as being informally consulted on many matters as and when the need arises.

The Council is based in London with a small administrative staff supported by 5 secretaries. In the country as a whole it is organised on an area basis, though it is not active in all areas. Discussions were particularly singificant since the County co-ordinated the evidence on mineral planning of 18 conservation bodies comprising the Committee for Environmental Conservation (CoEnCo). This evidence was written and presented by the Secretary of the Council[1], who also served as a member of the Verney Committee. This was an instance where an apparently very wide range of environmental (Voters) groups was in fact represented by one individual with a very wide range of experience and expertise in the area.

The attitude of the Council is in general less extreme than, for example, Friends of the Earth; Council (and CoEnCo) accept "that the working of minerals is a vital element in the economy of the country"[2]. They expressed concern, however, over three aspects:

(a) the actual ability of planning authorities to control mineral extraction, both by virtue of knowledge and in law;

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1 Mr. A.J. Holford-Walker, evidence presented in December 1972

2 A.J. Holford-Walker, Pers. Comm. November 1979

(b) the long-term planning and policy position;

(c) the position of landscape and amenity generally in national planning law and policy.

Concern was also expressed over related matters; time limits, enforcements and so on.

Activity of the Council in the regions is normally that of watchdog or objector in planning application procedures. They may be consulted by a County Council, but this is exceptional.

Relations between Council and operators are probably best classed as mutually tolerant, except in circumstances where, in the opinion of CPRE, an operator has a history of intransigence on amenity matters. This mutual attitude is exemplified by the participation, for example, of the Secretary of CPRE as a member of the adjudicating panel in the annual SAGA competition for restoration awards.

The Friends of the Earth

The FOE are "committed to the conservation, restoration and rational use of the environment"[1].

FOE is organised along lines designed to maximise their ability to mount a representation in as many areas as possible at enquiries etc. They are supported by voluntary subscriptions of over 5,000 members. The membership is

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[1] FOE letterhead, though originally it read ".... rational use of the ecosystem"

organised in over seventy regional branches which, together with something like a thousand members, form a wide, loosely federated professional consultancy.

In accordance with their "activist approach" they take an extreme position with respect to mineral extraction, which is quite divorced from political or economic issues. The question which they pose with regard to minerals could be paraphrased as "is this available from elsewhere?" If so, and if "elsewhere" would mean recycling, a use of alternative material or use of land of low amenity value then in the opinion of FOE, permission should be refused in favour of such an alternative.

The research base of FOE in mineral matters is broad but lies predominantly in the area of metalliferous non-ferrous minerals, hence several FOE publications[1] deal with the environmental problems of opencast metal-ore mining. Their major statement on mineral planning was in the Evidence of the Stevens Committee[2]. Characteristically the introduction deals with the adequacy (as seen by FOE) of the terms of reference of the Committee. This was done, apparently, to seek to bring to the notice of the Committee matters which in fact were outside their terms of reference, because FOE felt these issues highly relevant.

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1 e.g. Eyri, The Mountains of Longing by Amery Lovins; FOE/Geo. Allen and Unwin 1972

2 1973 (2nd January), Evidence submitted by FOE to the Committee on Mineral Planning Control

The evidence offered to Stevens by FOE is therefore not restricted in its approach; in this context the comments of the Stevens Committee on their terms of reference are of significance[1].

> "From the onset we thought that any recommendation based upon only a narrow examination of.....statutes would be unlikely to be either well informed or practical. Planning control ..... does not operate within a watertight compartment."

Further on Stevens remarks:

> "We found ourselves ..... making a wide ranging investigation of law, procedure, policy and institutions in order to operate effectively within (or around*) our terms of reference."

This approach by the Stevens Committee to a certain extent justifies the approach taken in evidence by Friends of the Earth. Even so it is clear that the assumptions underlying the FoE evidence differ widely from those underlying the evidence of, say, SAGA.

The evidence of Friends of the Earth thus range widely over all issues involved in the extraction of minerals, albeit emphasising the massive, opencast type of operation. In highlighting the need for policy for example they state "... you are to examine the operation, through statute, of policies which do not exist"[2]. As much as the operation of the law, therefore, the views and attitudes of FOE deal with the political and informal elements of the planning

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1 Stevens, R., Chairman, p. 3, para. 1.9, 1976

* My parenthesis

2 FOE 1973, para. 18

system, elements which are of crucial importance in decision systems of the complexity of this one. Hence they draw attention to the words of Sir Arthur Salter[1] (March 31st 1949):

> "Against the specialised and eager interest of a strong Department, I think that the Minister will usually be incapable of securing ..... impartial judgement....."

FOE then refer to the increased size of the Department of the Environment (then newly created):

> "Differences over ..... decisions are reduced from inter-Ministerial conflicts set at Cabinet level, to purely inter-departmental decisions taken out of the public view" (FOE evidence, para. 24).

We may consider this enlargement of DOE, from the view taken of it by FOE in terms of the system boundary. With the enlargement of DOE the boundary is drawn to include subsystems, communication between which was formerly public, but which now occurs within the system boundary out of public view. FOE in their Stevens evidence clearly define the purpose of the system in a way quite different from the Industry and Authority groups.

The reply of FOE to the consultative paper on Proposals to Amend the Law relating to Planning Control over Mineral Working are similar in approach and content, hence they state "Our submissions (on the Green Book) are framed in a positive manner so as to be of genuine use in drafting the text"[2]. The attitudes expressed in these two papers are

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1 Hansard 463, 1501-1502 and 1504-1506

2 A.J. Caldwell: Memorandum on the Control of Mineral Working. Submission by Friends of the Earth on Proposals for revision of the 1960 Edition, September, 1979

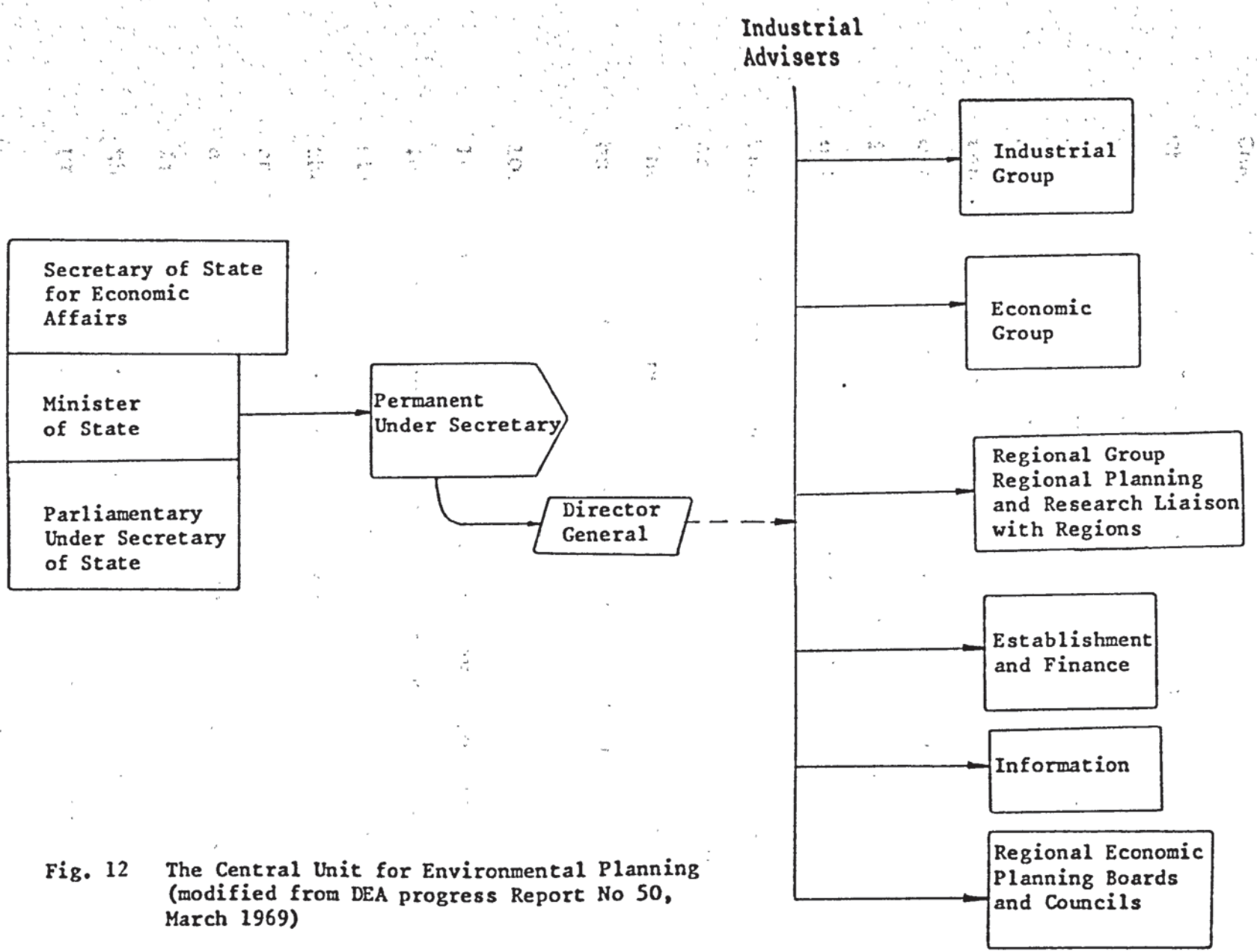

Fig. 12 The Central Unit for Environmental Planning (modified from DEA progress Report No 50, March 1969)

used in the derivation of the Root Definitions in Chapter 6.

The FOE document and the attitudes described briefly above have relevance at the national level; locally FOE is organised into over 70 branches. Only rarely will the branch be permanently active in the mineral field. Activity tends to be sporadic, usually when an application is under consideration by a County. In none of the cases studied in this research was FOE active either in objections to extension applications for new working.

This concludes the description of and general positions and organisation of the national bodies consulted and studied. The detailed aspects relevant to the research are dealt with as appropriate during the analysis section.

10.3 The Regional Level

It is only recently that regions have been of importance in planning, since traditionally there has been a two tier structure of National and Local Government. In 1965 however, the (Labour) Government defined Economic Planning Regions, on the boundaries which they still have, and also created a simple organisation on regional lines. This was the first attempt to create a regional organisation and thus a third tier in the goernmental system. This followed the previous industrial Regional Boards for Industry.

The relationship of the various regional bodies to central government at that period is illustrated in the (see Fig. 12) accompanying diagram. A prominent feature of the debate

in mineral planning has been the suggestion (by the Stevens Committee) that the proper level of planning for minerals should be the region, though the Economic Planning Councils (EPCs) were not envisaged as being the vehicle for this to occur. When the Chairman of the West Midlands EPC was approached during this research, the Minister responsible for the EPCs requested that the Council should not express an opinion.

Any role which the Councils may have played is now conjectural, since the incoming (Conservative) Government caused them to be disbanded in September 1979. Any regional mineral planning will therefore require a separate organisation to be set up.

As far as land use planning is concerned, several documents in the regions have been produced and bodies of regional importance do exist. More work has been done in other areas of policy, some of which have direct relevance for land use planning, for example, the West Midlands Transport Study, only the second such study to be undertaken in Britain (1963)[1]. Such strategies have implications for, and are in turn affected by, other policies and land uses, for example housing, road improvement, etc. (and therefore indirectly have an effect on demand and production of aggregates).

The concept of regional planning as framed by several authors, for example Lichfield (1967) and Robertson (1965) is closely bound up with the problem of the relationship between economic planning and spatial (or land use) planning.

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[1] Published in 1968, Vol. I and II

This is a relationship which lies at the heart of many modern planning land issues. It may be argued that the arbitrary separation of these two interconnected areas is responsible in part for urban decline. There has been a continuing debate as to the extent to which economic planning should "dictate" what land use occurs in what location. As a result an integrated approach at a regional level has been lacking. This has not been helped by the fact that regional planning has traditionally been concerned with non-urban planning, and more concerned with transportation patterns, recreational land use and the macro aspects of regional economy. This may be historically determined to some extent since, as has been shown, town and country planning originated as a specifically urban concern for physical improvement.

Consequent to this there is no regional equivalent of the Structure or Development Plan. There have been general studies produced, however, of which the Study/Strategy for the East Midlands is an example.

In the West Midlands the West Midland Planning Authorities Conference (WoMPAC), comprising the representatives of the Local Authorities composing the West Midlands Economic Planning Region, meets on a regular basis to consider planning issues of mutual interest and importance, additionally some research and statistical compilation is performed by WoMPAC.

The Regional Department of the Environment (DoE)

The Department runs regional offices centred in each of the English regions. The regional function for the South East is run from the London headquarters at Marsham Street.

The West and East Midlands offices are situated in Birmingham and Nottingham respecitvely, the Regional Directors are also chairmen of the Economic Planning Boards supporting the (new defunct) Economic Planning Councils. The regional offices of DoE are the main operational filters of variety between Local Planning Authorities and the Government; the regional offices deal with housing and land use planning and also with broader scale planning of the region as a whole[1]. This anodyne statement obscures the fact that the vast bulk of all structure plans approval and consultation occurs at the regional level, and is performed by the Regional Superintending Planner and his staff. Due to their statutory nature, structure plans and local plans must conform to the regulations laid down by the Secretary of State (as expressed in the Principal Act of 1971, the Town and Country Planning (Structure and Local Plan) Regulations 1974 etc.). The major task of regional DoE is thus to ensure that the development plans meet these criteria. In addition to the merely legal role, this involves searching for, or being aware of, points in the development plan where national and county policy are at odds, in which case a reconciliation will be advised.

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1 DoE and its Works: A factual note about the Functions of the Department of the Environment; DoE, London

Meetings may involve representations of several bodies including appropriate Ministries, as well as Officers and Elected Members of the particular Local Authority.

The mineral content of structure plans are also dealt with at regional level, in respect of their legal and policy aspects. Frequently however, Headquarters staff are involved in an advisory capacity, since specialist knowledge resides in the Mineral Planning Division.

10.4 Regional Aggregate Working Parties

The first aggregate working party was established in 1969 in the South East with an area roughly corresponding with the areas of the Sand and Gravel Service Areas of the Waters Committee. In 1971, following the recommendation of the Interdepartmental Committee[1], Regional Aggregate Working Parties were established, but for areas corresponding to the Economic Planning Regions. It was not until 1975 however that Working Parties for the Northern, North-Western, South Wales and the South West Planning Regions were appointed. The appointment of Working Parties therefore spanned seven years.

The Working Parties of East and West Midlands were established in 1974 at the request of the Department of the Environment and at the recommendation of the East Midlands Forum of County Councils and the West Midlands Planning Authorities

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[1] The Interdepartmental Committee was formed of officials of DoE, DTI, MAFF; Natural Environment Research Council; Crown Estate Commissioners and the Scottish and Welsh Offices

conference respectively. The first, interim reports were published in June 1976 and May 1977 respectively.

The terms of reference of the working parties were as follows:

(a) to assess the short term demand, up to 1980/81, for aggregate in the West/East Midlands;

(b) to assess the total sand and gravel and rock resources available for working (i.e. with planning permission) and to indicate whether in the short term (1980/81) there is likely to be a surplus or deficiency without further permissions being granted;

(c) to indicate to what extent, in the long term, taking into account agriculture, amenity, transportation and other planning consideration, there may be either a shortfall of sand and gravel, hard rock and substitutes for natural aggregates, or a surplus[1].

The terms of reference of the East Midlands differed in wording though covering the same points. This difference in wording led in practice to a considerably different emphasis in the report of the Working Party; this difference in outcome was not limited to the two working parties considered here, and caused difficulties in the collation of results at the National level. They also included a requirement to consider whether the area serviced by the

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[1] West Midland Report of Aggregate Working Party, para. 1.2, 1977

East Midlands Region should be extended[1] beyond the boundaries of the Economic Planning Region to include in total the gravel bearing areas which the arbitrary, county based, boundary cut across. The Working Party as eventually constituted did not include these areas though good informal contact exists between the East Midlands and adjoining areas. The composition of the Working Parties is of County Mineral Officers, representatives of Industry, observers from DoE, the Ministry of Agriculture, Fisheries and Food and, in the East Midlands, the Peak Park Joint Planning Board.

The terms of reference limit the role of the Working Parties to data gathering. It was clear from early discussion with DoE (1977/78) that it was not intended that their role should extend beyond this. However, discussions with planning officials and industry representatives show that the working parties have evolved into a valuable forum for discussion of common problems and issues. Thus the Working Parties act as a device which increases the opportunities for communication, free from the, often limiting, context of particular applications.

The first reports, containing statistics by regions based on 1974 figures, appeared for the East Midlands in 1976 and for West Midlands in 1977.

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[1] See para. 1.8 Interim Report of the East Midlands Working Party

In the case of all Working Parties the degree of detail contained in the reports varied considerably, and this meant that there were some serious inconsistencies, especially in the way in which production and other statistics were aggregated. The resulting problem of standardisation as the statistics were aggregated to larger areas meant that publication of the collation of the results at a National level was delayed from 1974 to 1978. The information was therefore 4 years out of date when it appeared. The collated statistics for 1977 are now being circulated between WPs in draft form and will probably appear in published form early in 1980.

The future of the Working Party in the West Midlands, as in East Midlands and all other regions, depends on the form which stage II takes.

In his letter of 10th January 1979 Martin Wright[1] stated:

> ".....the precise form, content and timing of the.... (Part II) studies are still the subject of discussion between the Department, Welsh Office, local planning authorities and the trade federations. Of particular importance is the relationships of this work to development plans."

At the time of writing (November 1979) this is still the case. In the words of another senior official "there has been no frontal attack" on Stage II. The object of this stage is to provide a comparison of reserves held within and between regions so that if a shortfall is found within

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[1] Then with PRM Directorate DoE

one region it can be made good from another region by increased permission for working in that region. Understandably both Planning Authorities and the Industry are perturbed by this, since the Authorities fear that it may discriminate against a particular region, and the Industry representatives fear that it may favour one comapny rather than another.

Two consultative papers have been circulated by the Department of the Environment concerning the preparation of guidelines for aggregates in England and Wales. Appendix A of the revised consultation paper[1] gives the headings of subjects which the commentary should cover. These include Production, Demand and Import and Exports to the region. The headings also include issues which are less quantitative than the headings given about which are largely within the existing remit of the Working Parties.

These more speculative matters which commentaries are required to cover include considerations of Alternative Ways of Meeting Expected Future Demand.

Though the paper states that these should be conducted within the framework of existing approved (structure plan) policies, paragraph 12 of the paper states, "It is inevitable that in some areas (the incorporation of a new information) will require alteration of the approved Structure Plan". Confusion seems to exist in part because the reports of Stevens and Verney, and the establishment of the working

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1 Department of the Environment, November 1979

parties came after many Counties were well into Structure Plan preparation.

The inconsistency of approach between some Working Parties gave rise to the formation, informally, of a Secretaries Group consisting of the Secretaries of the Working Parties. This group communicates the course of each working party's deliberations in order to ensure a commonality of approach, although the group itself has no formal status. The Chairmen however form, together with DoE observers and Industry representatives, the National Co-ordinating Group of the Regional Working Parties. It was to this group that the DoE paper was directed, as well as to the wider forum. It recognises the recommendation of the Verney Committee that:

> "Local planning authorities should pay much more attention to the recommendations of working parties"

and

> "There should be a greater degree of consistency between the approach adopted by different working parties. They should be provided with common and clearly defined terms of referencel, national and regional guidelines on demand and resources and they should answer the same specific questions within the same specific format....." (Verney, R., Summary of Conclusions and Recommendations, paras. 16 and 17, op.cit.)

The paper also, in recognising the concern of the public over most mineral applications and the many conflicts which arise in such cases, states:

> "The resolution of such conflicts through the appeals machinery is to be avoided if a less costly and time-consuming means can be found."[1]

In this context the consultative paper aims to set out the steps by which:

> "a positive framework for the land use planning of aggregates based on a consideration of the resources and needs of each region and the extent to which provision would be made for inter-regional flows."[2]

The aims are reproduced as Appendix 5. In acknowledging the importance of as firm an information base as possible the paper states "The Working Parties, as technical groups, have a leading role to play in the process."[3]

The effect of these changes, as with the legislative changes, are considered in the subsequent General Analysis. Other regional bodies, including the now defunct Economic Planning Councils, have had no role in mineral planning. Regional branches of organisations described at a National level (e.g. FOE, SAGA) act only nationally, through their Headquarters or locally on single applications. Some are active in the Working Parties and are thus included in the description of those bodies.

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1 DoE Guidelines for Aggregates in England and Wales, para. 3

2 Ibid. para. 4

3 Ibid. para. 7

CHAPTER 11

THE SYSTEM DESCRIBED: THE COUNTY LEVEL

This level is the appropriate level of this research, it is treated as "semi-black box" in the sense that only relevant functions of the Local Authority systems are examined.

11.1 Local Planning Authorities (LPAs)

The final elements of the system considered here are the local planning authorities. They are the key elements since they have:

> "the primary responsibility for local planning policies, and the granting of permission for working must lie with them."[1]

This responsibility is delegated to Councils of counties by the Secretary of State via statute (section 1 of the Act of 1971) which also sets out the extent of further permissible delegation.

Despite the requirements of the legislation on Structure Plans discussed earlier (q.v.) county planning authorities have tended to operate very much as closed systems, except in two circumstances. The first of these is where some part of a development requiring planning consent lies across or adjacent to a County boundary, or in the second case, where the product or nature of the development itself warrants or requires consultation outside the County area (examples would be the Windscale nuclear reprocessing plant or the Selby

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[1] DoE Consultation paper on Guidelines for Aggregates, para. 2

coalfield case). Except in these two cases, counties have tended to act in isolation on the majority of mineral developments and certainly do so for other classes of application.

In the planning authorities studied in this research, frequent consultation occurred only between the Peak Park Joint Planning Board and Derbyshire County Planning Authority.

Two areas were examined in the LPAs studied, their structure and their methods in mineral planning. To this extent therefore the other areas of work of the Planning Departments were ignored, except where they impinged on the work done by the minerals staffs. In general other sections of the Planning Departments and other departments involved with particular applications were Highways and Surveying Departments and the Landscape and Conservation Sections.

Some points have been made on local planning authority functions in previous chapters. The points made here summarise the function of mineral planning in the county planning authorities studied.

The functions of County Authorities in mineral planning are two-fold. Firstly, as already noted, they have a responsibility to prepare a Structure Plan under the Act of 1971. Secondly they are responsible for deciding planning applications to work minerals, since minerals are defined as a County Matter under the provisions of the Local Government Act of 1972. They are therefore responsible also for the developmental control of mineral workings.

The methods of developmental control between counties have much in common, despite some differences in staffing. This will be dealt with first, with structure planning, in which the differences are much greater, dealt with subsequently.

11.2 Development Control

The generalised sequence of events is shown schematically in the attached fig.13. All planning applications are submitted to District Councils in the first instance, and from there they are passed to the appropriate County Planning authority. From this point onwards however, and even before the formal application is submitted, the procedure by which applications are dealt with varies widely. In some cases the application will be the subject of a heads of section meeting, together with other applications which are sensitive or controversial. In other counties, the application, after registration, is circulated to departments for comment but is handled predominantly from the minerals office. Different again is the set of Counties where the developer will contact, or is referred to, the Authority before formal application.

It is increasingly common practice for extensive consultation to occur between the prospective developer and the County Planning staff. Even in Staffordshire however, a County with a formidable reputation in mineral planning matters, approximately 30% of application for planning permission to work minerals are submitted without any approach having been made to the planning staff. This is true of other

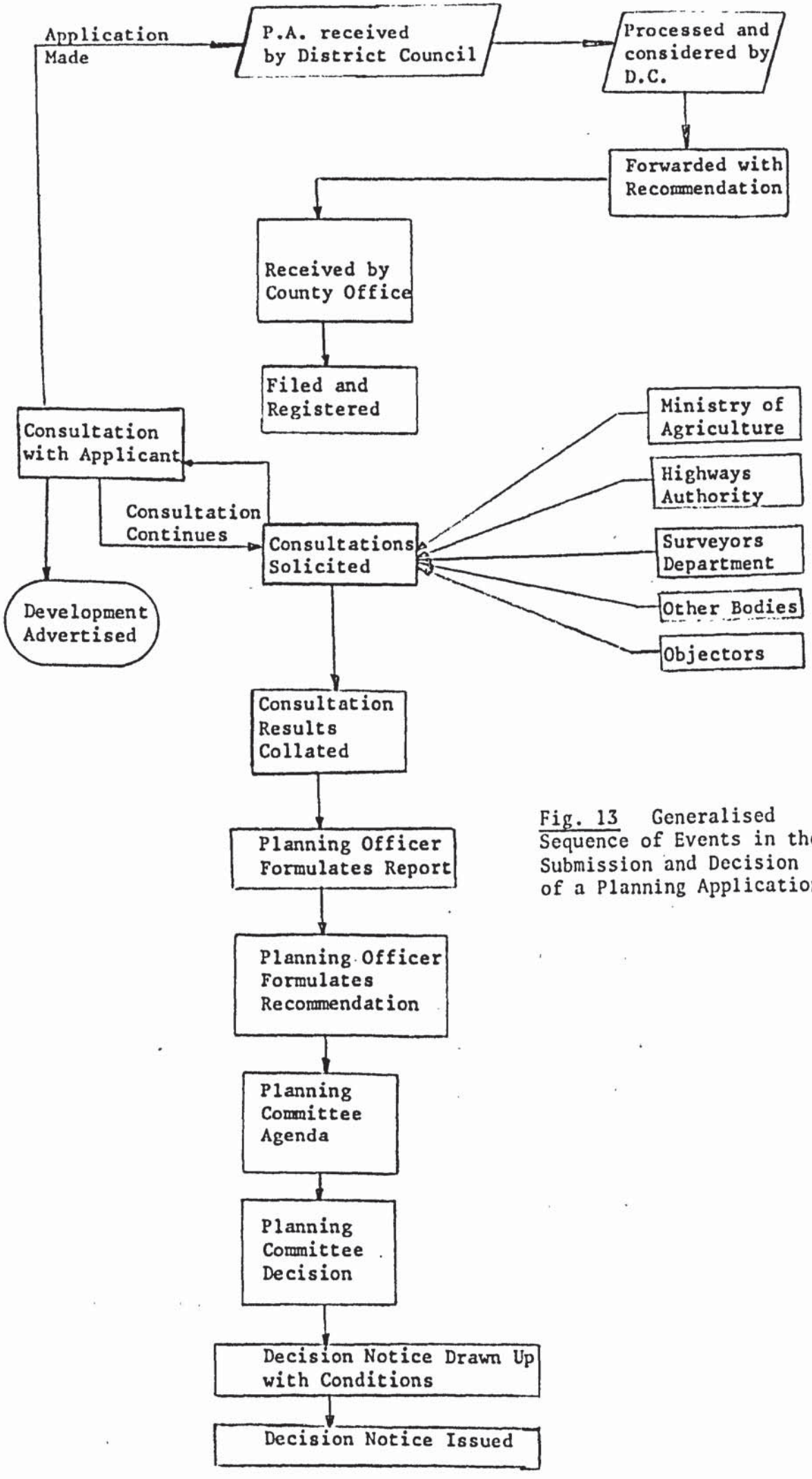

Fig. 13 Generalised Sequence of Events in the Submission and Decision of a Planning Application

authorities also, examples were seen from Shropshire, Lincolnshire and the West Midlands, although in all these counties it is standard practice to encourage informal discussion before submission of an application.

The completed planning application is submitted on a form of application which varies widely between counties. Staffordshire, Derbyshire, Shropshire, have either a special form for mineral application or have a supplementary form on which they request additional information. Counties which do not employ a special form receive mineral applications on the standard planning application form. The additional information which is required by the planning staffs is secured in a variety of ways, ranging from personal interview with the developer or by questionnaire to, in the case of very large developers, a quarry development plan submitted voluntarily. In the case of medium and large companies in the minerals industry it is unusual if the application does not consist of a fairly full and detailed case for development, which includes directions and rates of working, together with landscaping and restoration provisions. Smaller companies may not possess the necessary expertise to produce this level of presentation, in which case the application becomes a matter of negotiation between planning authority and developer.

Since the advent of the Aggregate Working Parties some counties for example Lincolnshire and Warwickshire, utilise the forms used in the Working Party surveys to assembly information in the case of new applications.

The second stage of the application is that of consultation. The minimum consultations necessary are specified by the Act of 1971 and the General Development Order 1977 (Article 15). Again the actual number of consultations and the way in which these are conducted varies greatly. Statutory obligation to consult is incurred not by virtue of the development itself, but in many cases, those developments which it may affect. Standard consultees are:

(a) the highway authority;

(b) the Secretary of State if a trunk road will be affected;

(c) any other planning authority, on or adjacent to, whose land the development may occur;

(d) the appropriate District Council;

(e) the National Coal Board (if the development is on or adjacent to a notified coal working area);

(f) Nature Conservancy Council (if appropriate);

(g) Ministry of Agriculture, Fisheries and Food.

(Article 15 GDO 1977)

Furthermore, Section 29 provides that in determining any application the County shall take account of any representations made to them.

There are essentially two mechanisms operating which are statutorily defined. The first is the requirement to consult, dealt with above. The second are the so-called Section 26 and 27 notifications. The classes of development

to which these provisions apply are specified by Articles 8 and 9 of the GDO and include those developments felt to be 'objectionable' in the strict sense, for example, mineral working, "Turkish or other vapour or foam baths", and sewage works.

These sections provide that notice of the application shall be published in a local newspaper circulating in the locality to which the application relates, and that the applicant shall also post, and leave in position on the land, a notice that an application is to be made. This notice must be left in position for not less than seven days in the month immediately preceding the application. It should be easily visible and legible to the public without going on the land to which it relates.

Section 27 provides that a certificate shall accompany the application stating that either the applicant is the owner in fee simple, or is the tenant or, if not, that the applicant has served a notice of the application on all persons owning or having any interest in the land, or if he has been unable to do this, why he has not done so.

As pointed out in the Cybernetic analysis of the Planning Acts, these sections effectively act to amplify the variety of the planning application throughout the immediate environment. Consultations to this extent are therefore standard. The method planning authorities use to supplement these statutory requirements and the vigour with which they do so varies widely.

The most extensive supplementation of the statutory procedure found in the areas studied occurs on the Peak District National Park, as might be expected. Here the District Councils consult the Parish Councils and forward the results of the offices of the Joint Planning Board. A weekly list of planning applications (including minerals) is circulated to all amenity groups, and groups are invited to make representations on those applications which concern them.

In Leicestershire what appears to be a highly effective system operates whereby the planning staff will offer to attend public meetings at which contentious proposals may be discussed. In Lincolnshire the Parish and Community Councils, together with other bodies (e.g. Lincolnshire Wildlife Trust) are very active but act mainly through Section 26 and 27 opportunities, the same is true of Nottinghamshire, Northamptonshire and the West Midlands, Warwickshire. Shropshire, Staffordshire and Derbyshire adopt principally the same system, but with more flexibility in soliciting opinions.

There was considerable evidence, especially in the authorities with a developed Minerals Section (e.g. Shropshire, Derbyshire, Staffordshire), that there is an increasingly positive approach to informing the public and soliciting their opinions on mineral workings. The same is not always true of operators. There are notable exceptions to this. e.g. Redland Ltd have a very keen awareness of the benefits of good public relations as have several other major producers. The quality of the information is also important however.

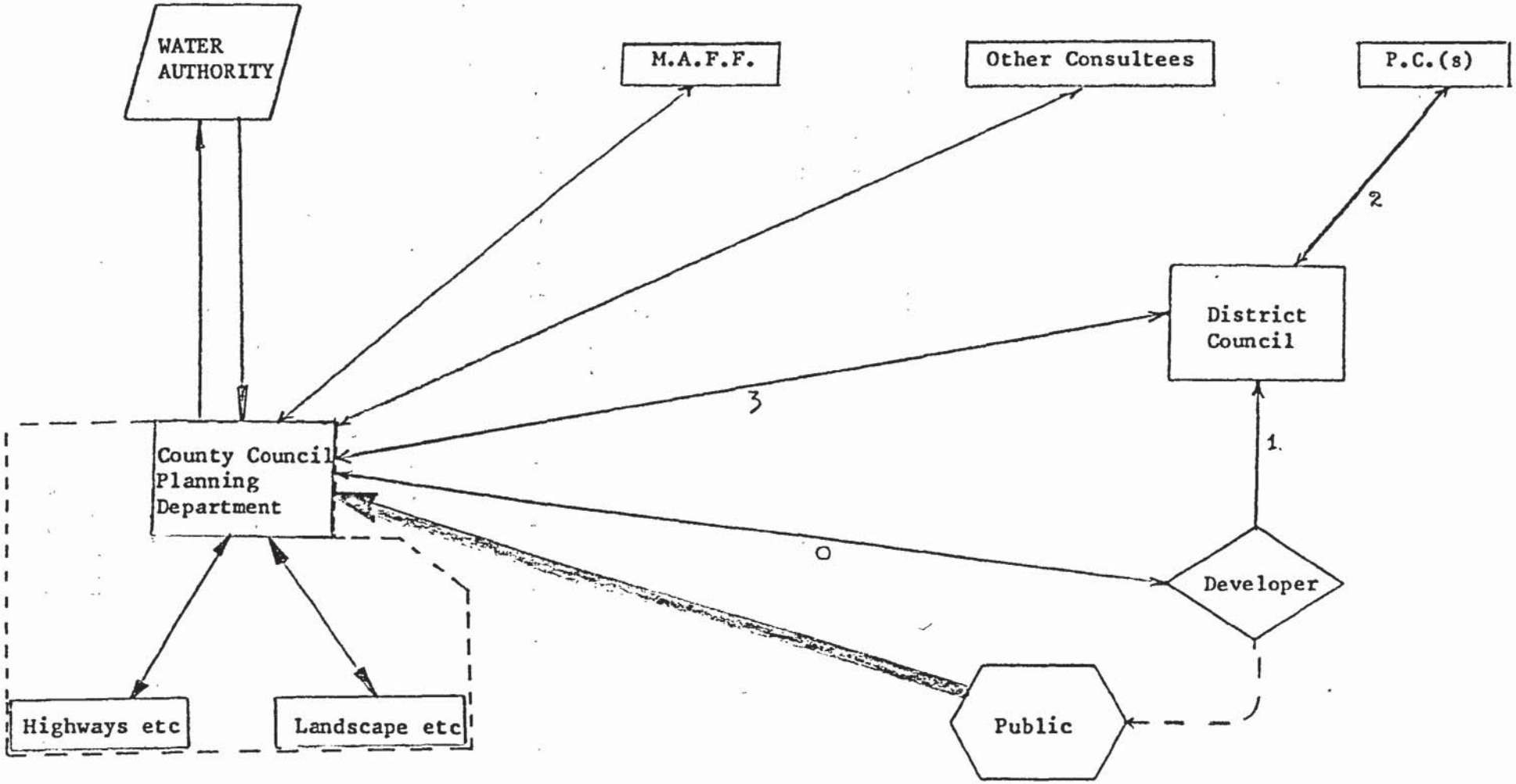

Fig. 14 To Show Submission and Consultation phases of a Mineral Planning Application

The stages up to and including the results of the consultation and the receipt of representation are the crucial ones in the application phase of local planning authority function. They are crucial since the Act of 1971 only provides for a local planning authority to either grant permission (with or without conditions) or refuse it. This is a "once only" decision and the stages described so far, during which information is gathered by the authority in the form of applications, questionnaires, letter and verbal communication, provide the information, the matter of fact, on which this decision is based. These steps are illustrated in the accompanying fig. 14.
The next stage is the one in which the planning staff prepare their report to the Planning Committee. The Act of 1971, Section 4, provides for power to determine certain applications to be delegated to officers of local authorities. Mineral matters do not fall within any of the classes of development decisions which may be delegated, each mineral application is therefore decided by the Council.

In all the authorities studied planning decisions were made by a sub-committee of the full Council, normally the Planning or Planning and Transportation sub-committee. This commonly meets once a month, and makes decisions on planning applications on the basis of written reports provided by the planning department. These reports are usually supported by a verbal briefing from the County Planning Officer who is invariably in attendance. As in the other stages of planning control there was considerable variation

in the preparation and presentation of reports and a case to the planning committees. In all cases such reports were very full, frequently supported, in cases of major developments, by photographic or diagrammatic material.

Two sample reports of the West Midlands County Planner to the Planning Committee are enclosed as Appendix 5. These are representative of the general type of such reports. There may be a large number of such reports at any meeting, no data was collected on this aspect, but at the meetings of planning committees attended, the agenda was usually very full. The most innovative variation from this general approach was seen in Leicestershire, where the County Planning Management Team meets every Monday and particularly significant (i.e. contentious or important) applications are 'starred' and considered at this meeting. This communication device ensures the widest range of planning inputs and awareness on important applications of whatever type. The committee report itself (the Mineral Assessment Document) sets the case giving as neutral an assessment as possible with all the implications and only after full consultation does the Planning Officer make a recommendation. The general pattern is that a factual, generally neutral, report is given in which no opinion is expressed by the Planning Officer, who reserves his reasoned recommendation until the end of the report.

The awareness by planning committees of the problems was very variable. As was to be expected, the interest in the

subject varied proportionately with the importance to the County of the minerals in terms of employment and general impact.

In Derbyshire and Staffordshire therefore as well as in Shropshire, Leicestershire, Warwickshire and Nottinghamshire there was a high degree of awareness, in the elected members, of mineral problems. In Staffordshire, weekend seminars have been held for Chairmen and Vice Chairmen to increase their awareness. Similar activities, day seminars and site visits had also been held by some of the other counties. In the planning authorities in whose areas minerals play a less significant part there is a corresponding decrease in the level of awareness.

A rough guide to this is provided by the number of planning applications for minerals over the last twenty-four months, which varied from over one hundred and fifty in Staffordshire to three in the West Midlands. Other Counties reported between fifteen and twenty applications over the same period. These include applications for extensions and exploratory borings as well as new workings.

Conditions are invariably attached to a permission to work minerals. These conditions are customarily agreed between the planning authority and the developer, although, of course, additional conditions may be imposed by the Planning Committee. It is usual for the recommendation of the Planning Officer to be accepted. However this is not always the case. The Committee is made up of elected members, and they are ultimately responsible to their electorate. There will be

be a class of development, of which minerals are one example (of which other examples may be homes for the mentally handicapped, or disabled, motorways etc.), where there may be considerable public feeling and where the councillor is compelled to reflect this feeling. There exists one crucial difference between minerals workings and the other types of developments mentioned above; this is that a particular mineral working can only be sited in one place, namely where that mineral occurs.

The final stage of the formal decision process is therefore the issuing of the decision notice with (if an approval) attached conditions. Samples of conditions attached to existing permissions are given in Appendix 6. The conditions given there do not exhaust those seen in the fieldwork, where the number of conditions attached to a permission varied up to 25 and permissions with more than that number of conditions are not uncommon. As the Minerals Officer of one country put it "when one only has one opportunity to set conditions the tendency is to make quite sure that the situation is as tight as possible."

Following the grant of a planning permission the development is, in theory, monitored. However this aspect of control, which is indeed control, as opposed to sanction, was poorly covered in the counties studied. In only one County was a regular two yearly programme of monitoring visits under way. Four others visited regularly once a year. The remaining counties admitted that they visited irregularly, at the best once every eighteen months, a

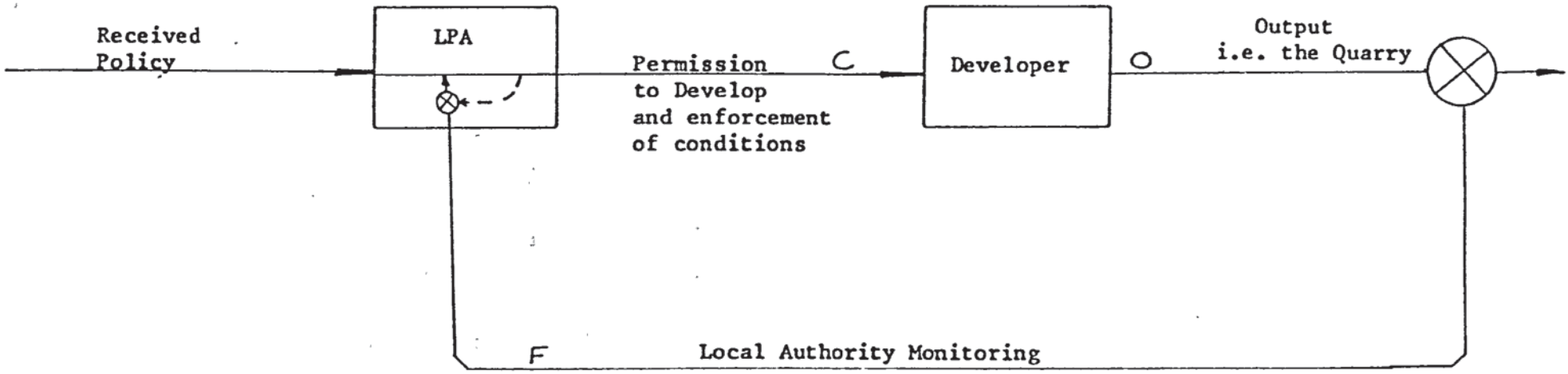

Fig. 15 Local Planning Authority and Developer as a Closed Loop System

worst only when things went wrong, and in this case the public acted as the monitoring force. Without exception the planning authorities were aware of the necessity of monitoring and in most cases it was purely pressure of work which prevented a regular monitoring schedule.

It should be noted however that the only action open to an authority is to ensure compliance with the conditions of the consent; if the original conditions were inadequate, so far[1] there has been no mechanism by which they can be changed.

The representation of the LPA and Developer in a feedback control situation as in the accompanying fig. 15 is thus inaccurate. The monitoring loop, labelled F, does not operate effectively in many cases, and the control channel C is solely concerned with controlling the developer to comply with the starting conditions of the planning permission. Due to the way in which planning law and procedure operates, the control channel cannot change the behaviour of the developer during the course of the development, even though it may have resulted from the starting conditions imposed on the developer at the beginning.

Consequently the view is taken that planning control only functions when the development in question can be classed as an event; it takes a short period and the end state is

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[1] "So far" because legislation now before Parliament provides for review of planning conditions. The effectiveness of this is examined subsequently

securely predictable. The planning process here may be classed more accurately as a decision process.

When the development is a process, as in the case of mineral development, with a long period of development and an unspecified end state, the planning process is not structured to cope. It can only specify the starting conditions and may attempt to sepcify operating parameters. However, values on amenity transport etc., will change throughout the life of the working, and the planning law is not in any way flexible enough to cope with the evolving situation. It is equally incapable in attempting to define the end state of a mineral working which may have a working life of 40 to 50 years.

This description of the planning process forms the basis of the following analysis.

11.3 Mineral Structure Planning

Each of the Counties studied had either published an approved Structure Plan or a Draft Written Statement. Some had also started preparation of their Mineral Subject Plans. In common with the approach of comprehensivity, the policies of Counties on minerals are based on a through survey of the mineral resources in the County area[1]. There are essentially five sources of information available for the compilation of the survey affecting the delineation and definition of resources, reserves, demand, and distribution and end-use. These sources, in decreasing order of generality, are the Geological Survey maps, the

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[1] The Surveys were largely shaped by the advice in the Green Book paras. 18 and 19

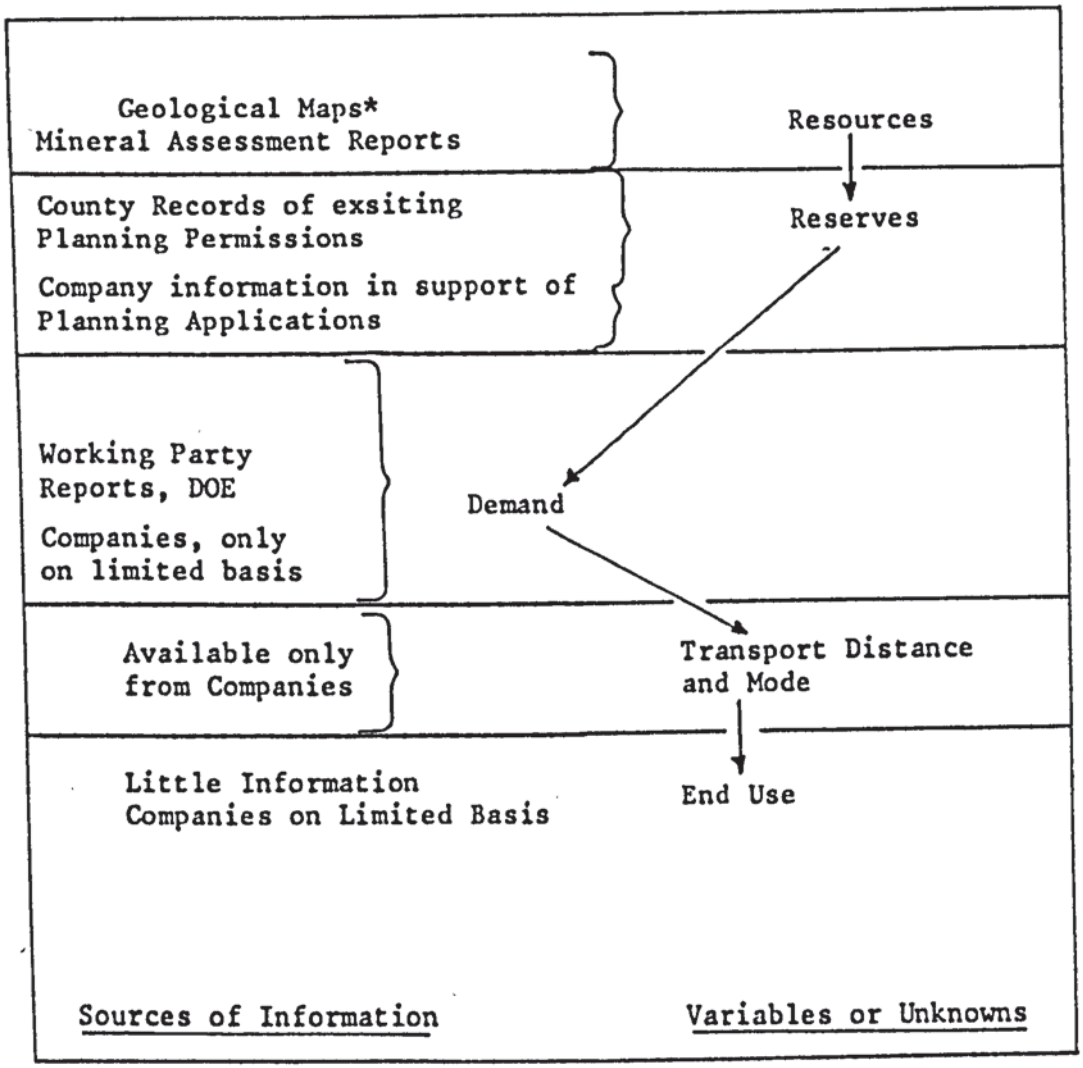

Fig.16 To show the Variables in the Report of Survey and Sources of Information on the Variables

* Geological Maps indicate the extent of outcrops only; there is no overall criterion by which to assess the possible utility of the outcrop as an aggregate

estimates made by the Verney Committee, the figures of the Aggregate Working Parties, and the County records containing extracts of producers' findings and estimates. The relation of these sources to the variables is shown in the accompanying chart. (Fig. 16)

The Working Party figures were in some cases too late to be incorporated into the Structure Plan but they form the basis of the review and monitoring of the Structure Plan.

The major difference between the former Development Plan and the Structure Plan is that, as has been discussed in the Land Use Planning chapter, one is map based and the other is not. This creates problems for positive mineral planning. At the extreme, the limit of mineral working is the limit of the rock outcrop within which a working is situated. In the event of working being allowed at all therefore, the Structure Plan has broadly to indicate in which outcrops and to what extent working is permissible.

It is recognised that 'permissible' involves complex trade-offs between conflicting opportunities. However, although some research has been carried out on social/environmental cost-benefit analysis[2] and on landscape evaluation[3,4,5], none of the authorities with the exception of the West

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1 The surveys were largely shaped by the advice in the Green Book paras. 18 and 19

2 For example Wolff and Caborn (1970)

3 In the West Midlands, an unpublished paper by West Midlands Planning Authority, 'Regional Landscape Evaluation' undated

4 Linton D.L., The Assessment of Scenery as a Natural Resource, Scottish Geo. Mag. 84, 3, Dec. 1968

5 Fines, K.D.,Landscape Evaluation, A research project in East Sussex, Regional Studies Vol 2. No 1968

Midlands has utilised this or similar methods to assess the trade-offs with respect to minerals. The field for research into a pragmatic and sensible application of such techniques to landscape evolution where minerals are present is a fertile one.

Current approaches in mineral structure planning tend to follow three lines of enquiry. Firstly, what planning permissions already exist. Secondly where else could in theory, mineral working occur. Thirdly what constraints exist and what is their effect on the extent to which working can occur. These constraints consist of a mixture of factors, both social and economic. The outcomes of this process are the Minerals policies contained in the Structure Plan.

In the area studied these varied immensely, from the one policy in the Warwickshire Structure Plan, which merely undertakes "to ensure that suitable deposits are made available to operators", to the detailed definition and allocation of sites and land area delineated in the Staffordshire Structure Plan. Counties for example Leicestershire, Shropshire, Derbyshire and Nottinghamshire, that is those with a sizeable (in Derbyshire's case, very large) minerals industry lie between these two extremes, outlining the nature of, and reasons for, various constraints but not defining specific areas. Hence most counties undertake to "safeguard all proven mineral reserves in the Geographical County from development which .... would

sterilise them"[1] (i.e. render them unobtainable). Similarly, protection of the environment is a common component of the structure plans, as is a statement that county authorities will "seek a reduction in road-borne mineral traffic"[2].

So far as the process of formation or origination of Structure Plan Policies is concerned, some description of this has occurred in previous sections. It is true that the method of preparation is in some respects a function of the organisation of planning departments. The organisation chargs included in an earlier section of some of the counties of the study shows that minerals personnel occupied a range of organisational niches. These varied from an entirely separate section in the case of Shropshire, Staffordshire and Northamptonshire to being one among many functions of the Development Control Section, as in the West Midlands. In Lincolnshire it is one of the functions of the head of Development Control and in Nottinghamshire mineral personnel form a sub-group of a group within a division. Whatever the arrangement however, the Structure Plan Minerals policies were prepared by the mineral case workers, not by the Structure Plan Group (the strategic planners).

In the two exceptions to the above statements, Derbyshire and the Peak District, the Structure Plan policies are different in several respects from the style of policies

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[1] Wording taken from Leicestershire Structure Plan, para. 21.4, 1976

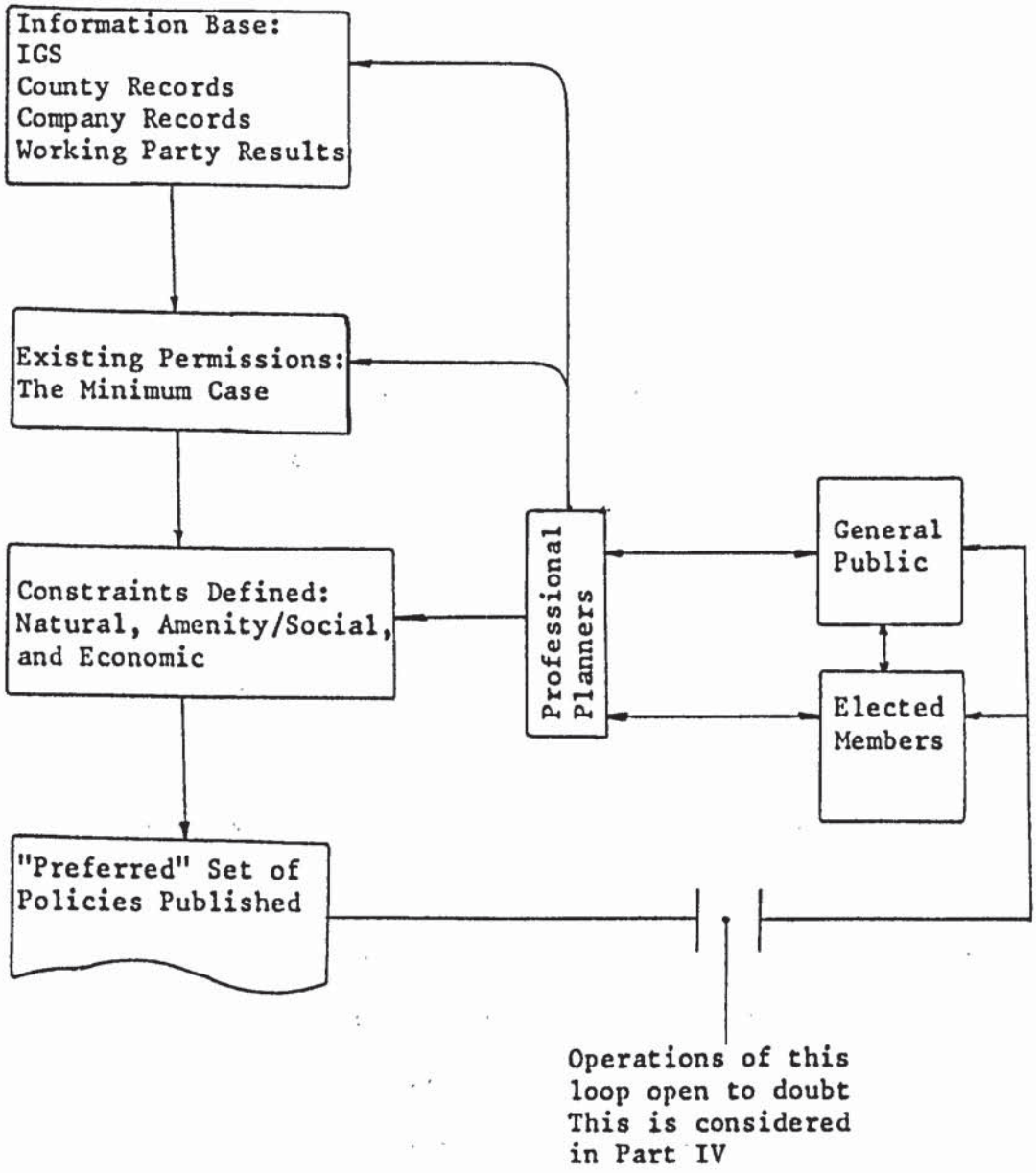
[2] Leicestershire Structure Plan, op.cit.

in the other documents. In Derbyshire for example, the identification of "Issues" in mineral planning, and the subsequent derivation from these of policies, makes the Structure Plan different in language from the other Structure Plans, although the policies are substantially similar to other Counties' policies in their content, though clearly the constraints differ in degree between Counties.

In summary therefore, Local Planning Authorities arrive at decisions on planning applications, and, in the case of approval, enforce the action of the developer to comply with that decision. The extent of monitoring was seen to be widely variable, as was the extent to which active participation is encouraged from other than statutory consultees.

In Structure Planning the process followed a sequence of steps illustrated in the accompanying Fig. 17. In all except two areas it was carried out by Development Control Personnel. The policies which represent the outcome of the process are in fact statements of constraints identified during the planning process. These constraints are generated by the geology of the county at one extreme, but predominantly by the population and their elected members moderated through the professional staff of the planning department. Therefore, in dealing with the question of demand from outside the County, the majority of Structure Plans acknowledge some responsibility to the Regional or National pattern but do not quantify it. Currently, with no defined regional or national policy, each case is fought purely on its merits. Some alternatives to this are examined in Part IV.

Fig. 17 To Show the Steps in the Mineral Structure Plan Process



CHAPTER 12

SYSTEM DEFINITION: STRUCTURING THE PROBLEM

12.1 Introduction

Part II described the roles of a number of elements, each involved in some way with mineral extraction and mineral planning. There is, however, an evident difference between the role of the Department of the Environment and the County Planning Authority or between Friends of the Earth and Tarmac Ltd. Both the end purpose and involvement with mineral planning varies, though, when asked, all profess themselves concerned with mineral planning. This chapter defines "the mineral planning system".

12.2 The Planning System

Normally the phrase "the planning system" is taken to mean the Act of 1971 and subsequent statutes and implied procedures. The view adopted here, in pursuing the "naming.....of relevant systems" (Checkland 1976), is that there are in fact three major components of the planning system. This system has as its outcome a productive mineral working (which includes its socio-economic, and environmental effects). These three components have a certain commonality of purpose, which has been taken as one of the principal defining characteristics of a system. Viewed traditionally, the "Planning System" is embedded only in one of these major subsystems, namely the Authority subsystem. This is argued to be, at best, only partially true, and at worst a dangerous misperception. The formal,

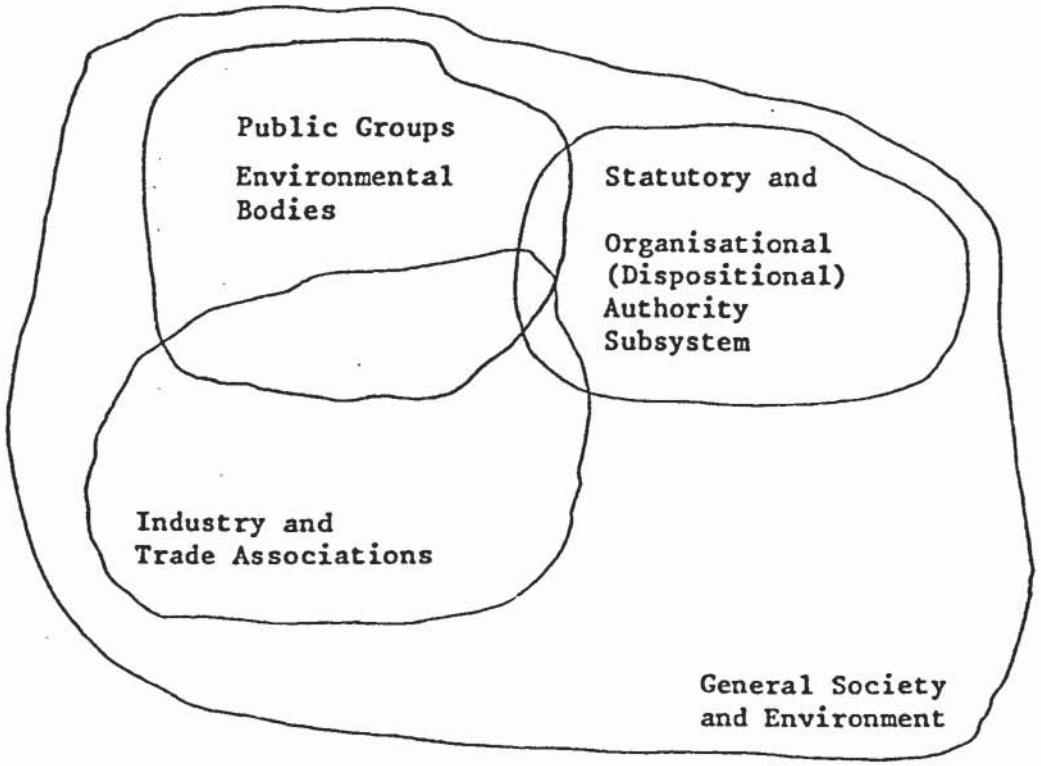


Fig. 18 (See also Fig. 11) Showing the Mineral Planning System Expanded from Fig. 9

statutory system is embedded in the dispositional elements, Planning Departments, parts of the Civil Service and so on, which themselves form the Authority subsystem. Most importantly, this statutory system is a result of the interactions of the three subsystems, overlaid finally with the necessary self-organising flavour of the subsystem in which it is embedded, namely that of central government and local authorities.

Seen in this way therefore, the mineral planning system is conceptualised as being the dynamic interaction of three major subsystems, whilst of course, if we were to consider the whole of land-use planning, mineral planning itself would be only one subset.

Each cloud will have its own relevant environment comprising the Society at Large and the various public groups. These relevant environments have been omitted for the sake of clarity. The mineral planning system itself was shown in Fig. 11 and is repeated here for ease of reference (Fig. 18).

The three subsystems are comprised of elements described in Part III. They are named Authority, Industry, and Voters. Each group has a differing set of purposes with respect to mineral extraction, but in each case their "achievement" is a function of their interaction with the other two. An example would be the Tunstead Limestone Quarry Extension Application. Here the outcome coincided with the expectations of the producer but did not coincide

with those of the local authority or the public pressure groups. In these two subsystems therefore a problem was recognised (which remains largely unresolved) because their achievement did not equate with their expectations.

In the next few chapters, the purpose of each of these three subsystems are explored by the use of Root Definitions, the concept of which was described in Part I.

CHAPTER 13

PROBLEM CONCEPTS - ROOT DEFINITIONS

13.1 Introduction

The last chapter introduced the three systems which have been identified as making up the mineral planning system. The purpose of this Chapter is to discuss what is meant by the term 'problem'.

13.2 Problems

Reference has already been made in previous sections to the concept of a problem as the difference between expectation and achievement, and it is this idea which is developed here.

Such problems fall under Checkland's definition of "soft problems".

> "Their crucial charactristic is taken to be that they are unstructured ..... If a problem is stated in a well defined form, its solution is usually implicit in the definition, and such solutions in the "real world" tend to pass the problem by." (Checkland 1976)

These are contrasted with so called "hard problems" of the type "how shall I put this peg in this hole", which are held to be common in the physical and empirical sciences. In the present work the problems of mineral workings have often been expressed, especially in the letters of objection from private persons, as being problems of noise, dust or traffic; problems which have, or are expected to have "a solution". Research on these issues has been widespread[1],

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[1] See Bibliography for detailed references

and in general there now exist well tested solutions for vegetating waste tips, or decreasing blasting noise. The Department of the Environment, for example, has sponsored research on the "quiet lorry" by the Transport and Road Research Laboratory. Above this level however, that is at a more general level of decision making, "problems" still exist. Problems at this level are of the type; how may we control the working (i.e. cause a tip to be planted, or a road surfaced or smoke reduced). These are problems of whether or not to allow working at all and the regulation of it when it exists.

These problems when "solved" in some sense may avoid the more detailed problems, or at least facilitate decisions on them. For example, if a working is allowed and is well controlled, there may not be smoke to reduce, or a tip to vegetate, these being "designed out" in the early stages. This may be made clearer by illustrating the idea of problems as developed by Mitroff (1977). Mitroff defines a problem as follows:

> "In the most general sense, a problem can be said to exist whenever there exists a discrepancy, however slight, between a purposeful individual's (or a group's, a society's, a civilisation's etc.) desired end states or goals and its current level of accomplishments in the way of attaining these goals."

A recent paper (Best and Molloy 1979) has expanded this view of problems. The main point of interest here is that several major assumptions underly this "definition". First of all is the term 'purposeful', which is taken to possess its normal usage. Second is the assumption of a clearly

defined and appreciated 'desired end-state', and finally there is an equally assumed known level of accomplishment.

There is no evidence in the literature to suggest that the disquiet over mineral planning issues has even been expressed in these or similar terms. It is suggested here however that the problems stem from the differing achievements of the three groups (given their different purposes) and that this is highlighted by the lack of any effective system:

(a) to enable effective debate between groups of different purposes;

(b) to effect a compromise decision between parties;

(c) to control the process (of land use) initiated by that compromise in a way which maintains it.

The first stage toward examining the validity of these claims is to establish the views and purpose of each of the three groups.

The case for problems to be considered as observer dependent, and not in any sense independent of those experiencing the problem is developed fully in a recent paper to which the reader is referred for a detailed treatment of the argument[1].

The point here is that the last Chapter has described the groups and elements forming the systems defined in the Problem Situation Structuring phase. The issues of

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[1] Molloy, K.J. and Best, D.P., 1979. The Nature and Status of Problems, Management Centre Working Paper No. 157

mineral planning will be perceived differently by different groups, and it is these differing perceptions which give rise to the conflicts which are outlined in this section.

In a previous chapter, on fieldwork, elements of the study were described on a national, regional and local classification. This orthodox classification is complemented by three broad groupings whose attitudes this section examines, to identify the problems which they experience. These three broad groupings are labelled the Industry, the Authority and the Voters[1].

The Industry comprises the companies, and the professional bodies which represent them, as well as individuals within companies. The Authority is taken to be both the Central Civil Power, in this case the Department of the Environment, and the Local Planning Authorities. The Voters is defined to be, for the purpose of this research, only those groups or individuals expressing themselves on the subject of Quarrying and mineral planning. This is the most difficult group to assess, being commonly very little represented in the literature or in other documentation.

Chapters 14-17 complete the problem structuring phase of the Checkland methodology by naming the relevant subsystems, and concludes with root definitions of the Planning System as developed in conjunction with key actors in each of those subsystems. These three Root Definitions highlight the

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1 The sense of this tripartite grouping is borrowed from Arnold, M., Culture and Anarchy (Ed. Wilson, J.D. 1931)

problems experienced by each of three groups by emphasising the difference of view, and hence the expectations, which they have of the Planning System.

CHAPTER 14

THE INDUSTRY VIEW

14.1 Introduction

Three major points emerge from a study of the Industry subsystem. They are summarised below for convenience, and are then discussed in the text. Derivation of the Root Definitions follows the discussion.

The three main points are as follows:

(a) concern over the conservation and effective utilisation of deposits and the lack of national policy;

(b) concern over the level of additional control being exerted over working in the wake of the new legislation;

(c) the apparent "double thinking" of the general population in simultaneously demanding more mineral products whilst exerting pressure on planning authorities to prevent mineral working.

14.2 Industry's Concern

These three aspects of the Industry's concern occur repeatedly in the literature and in discussion, and are closely interconnected. One of the most articulate critics of the Government action in this area is probably Professor R.N. Prior, President of the Institution of Mining and Metallurgy 1978-79.

In his Presidential address to the Institution of Mining and Metallurgy on 20th June 1978, Professor R.N. Prior, in speaking of minerals in general said:

> "The missing component (of control over land use) as far as minerals are concerned, is that there is little positive planning, such as exists embryonically for land, in the structure plan..... There are inadequate Government policies or mechanisms either at central or local level for seeing that (minerals) are worked in such a way as to secure optimum utilisation of a national asset."

In concluding his speech, Professor Prior, after remarking upon the strategic importance of minerals to the economy spoke as follows:

> "Yet what have we done? What are we doing (now)? We are not even studying the subject in any real depth"

thereby indicating his feelings on the level of knowledge about, and interest in, minerals and mineral planning.

That the subject of minerals policy should be chosen as the topic of his Presidential address is perhaps not surprising, but the tone and conclusion, of which the above quotations are representative, demonstrate the feeling in the minerals industry over the lack of policy and procedure in planning matters.

As became clear in the previous section, the framework of planning legislation exists to control development within policies of land use. Where no policy exists and pressure on the resources is high, as in the case of minerals it is, then shortcomings in the procedures of control become obvious. The strength of the views expressed by the Industry can be considered as being due to a large extent

to their awareness of those shortcomings whilst coming under increasing attack from an increasingly aware public.

The situation reached a peak in the period 1972-1974; at that time the growth in demand for aggregates had been considerable, as shown by the graph in Figure 9 Town and Country Planning had been substantially revised by the passing into Law of the Act of 1971 which introduced the concept of structure planning. As Jacobs (1974) remarks,

> "The Structure Plan, in terms of a framework, is really a series of policies, perhaps regional (the whole in this case coming first) which dictate the infilling parts....."

Planning Authorities, as the implementation agencies of this new planning framework, had also been reorganised by the Local Government Act of 1972, introducing the new two-tier strucuture of authorities.

Fish, the Director of the Institute of Quarrying, in a useful paper in 1977 attributed the "new climate" in which operators found themselves, to a large number of factors, which may be categorised as firstly, legalist and secondly, public, in nature. The first group include the increasing volume of legislation on matters such as dust and noise emission, and the planning related measures. Two examples of this type are the Dobry Report(1976) and the Sandford Report (1976). The first was a comprehensive review of procedure for handling planning applications whilst the second concerned the operation of policy on National Parks.

The second, public set of factors relates to the historical development of public awareness of environmental matters and their participation in Enquiries and planning generally.

It is thus that Fish characterises the major source of conflict as being due to "much increased mineral activity, coupled with much increased public pressure for control" (Fish, B., op.cit. p. 186).

In a section of his paper discussing the findings of the Verney Committee, Fish summarised the situation for the quarrying industry as follows:

> "The nub of the issue for the quarrying industry and indeed for the economy is: How to guarantee an adequate supply of products when decisions regarding operating sites and levels of extraction are currently vested in a host of local planning authorities who may not be sympathetic, not only to local but also to inter-county needs, let alone the nations need." (Fish. op.cit. p.187)

As Director of the Institute of Quarrying it may be assumed that Fish's statement represented an extreme view, but it is one which is found frequently expressed. Taylor (1968) remarked on the "narrow, quite illogical parochial attitude which exists at local level".

The points hide an underlying concern over the commercial and competitive freedom of the industry. This concern shows particularly clearly in the paper quoted above by Taylor. The issue is debated in greater depth by Savery (1977) who analyses the marketing variables inherent in the quarrying industry. He draws particular attention to cost of distribution suggesting that for crushed rock

the cost is of the order of 50% of sales revenue. Where heavy investment has been made in a pit, say 10 years ago, prior to the boom period of 1972-1973, a producer will naturally seek for new and possibly distant market opportunities to maintain his rate of return.

In the ten years since Taylor's paper, much has changed, particularly in terms of the timetabling and discussions of mineral applications, consequently Taylor's remark "The threat of delays is the chief weapon at the local authorities' command" is not true to the same extend now as it was then. However, the attitude is still existent. Fish (op.cit.) states:

> "The need for a policy and national guidelines is particularly important because mineral planning powers are vested in individual planning authorities. If they are allowed to operate wholly in isolation and in a vacuum there will be a hopelessly piecemeal approach nationwide."

Not wholly unrelated to this is the problem perceived by the industry of the length of validity of a permission. The Green Book drew attention on the problem:

> "Mineral undertakers often need to make their plans a long way ahead, and local authorities should adopt a similar time scale when handling mineral problems."

Taylor (1970) expresses the Industry's view on this in saying:

> "No mineral undertaker can amortize his capital expenditure on a modern gravel plant on a 10 year life, nor can he commercially hazard his shareholders' capital on the good faith on a local authority which is at all times subject to the whims of the electorate."

This draws attention to a major difference between mineral working and other developments that both Industry and Planning Authorities are aware of, but which seems to be the subject of different awarenesses on the part of the public, namely the long duration but temporary nature of mineral working. Whether the working is a borrow pit, working for only six or twelve months, or a mammoth quarry (e.g. Tunstead Quarry, producing 5 million tons per annum) the land will be available for some type of after-use, though this will vary according to the overall topography, location and geology. The industry view is to tend to emphasise this eventual after-use as a benefit accruing to the local community. Hence Taylor (1970)

> "..... we hear so much of the word dereliction. I would like to make the point quite clear that so far as minerals controlled under the 1947 Act and subsequent Planning Acts are concerned, there should be little fear of ultimate dereliction."

The opposite view, that some degree of loss of amenity must be accepted in return for the vital mineral products is propounded by Fish (1973) in a highly emotive paper delivered at a meeting of the Yorkshire Branch of the Institute of Quarrying, 12th September, 1973. Having remarked on the necessity of the mineral industry and upon its antiquity he states:

> "But, quite suddenly, it is under assult from those who benefit from its products, partly through ignorance, partly through the <u>new fashion of questioning everything</u>* and partly through a concern for the environment, often genuine, but sometimes bogus and deliberately stimulated as a useful weapon <u>with which to attack the present order of things.</u>"*

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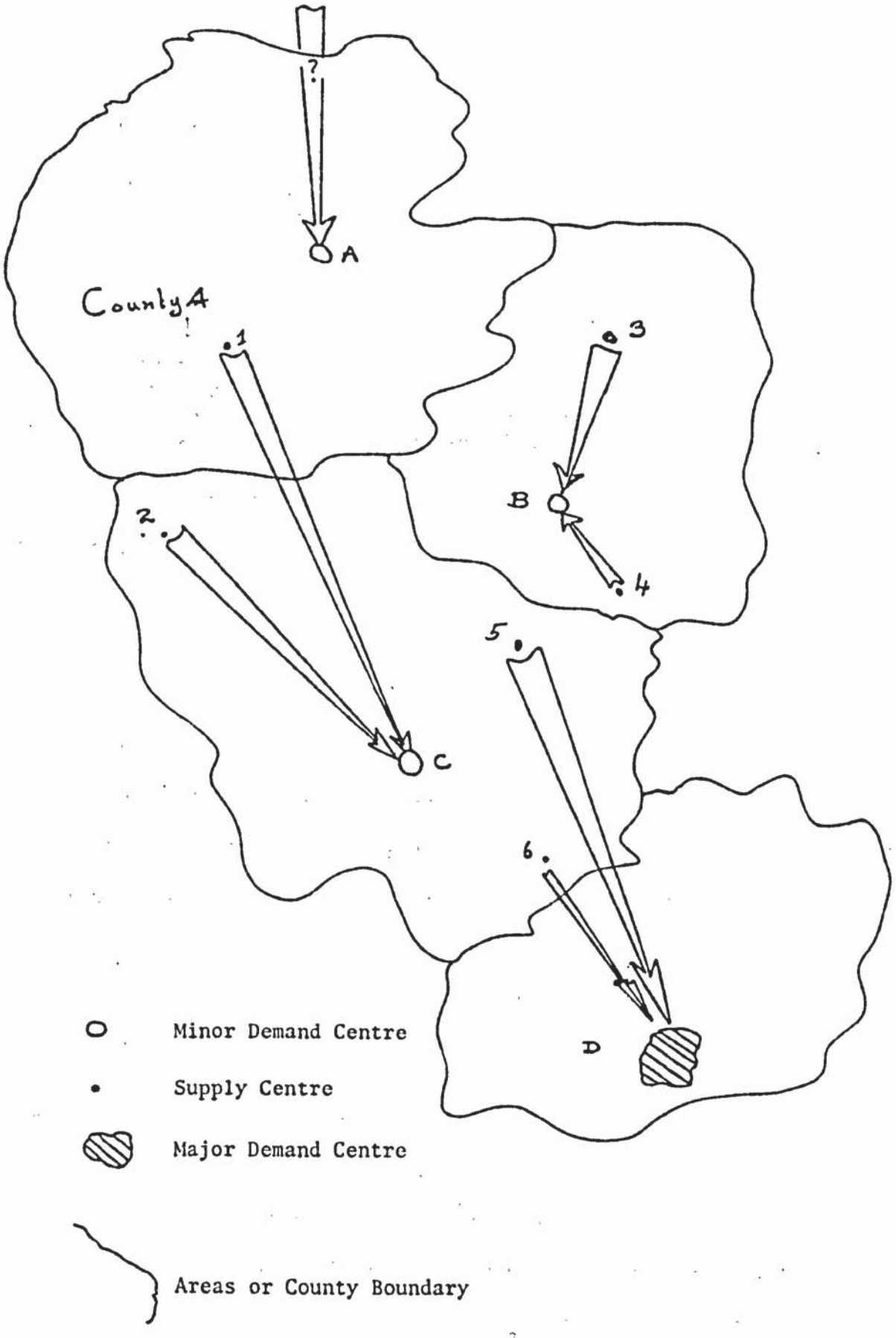
* my emphasis

Fig. 19 To show the knock on effect of Mineral Supply



The implication here of an almost anarchistic questioning of the old order by the general population is inescapable. The implicit assumption, common throughout the industry, is that consumption will continue to increase and that this demand must be met:

> "Whether we like it or not, they (building materials) have to be produced at a rate sufficient to maintain the current level of consumption, and to meet the requirements of industrial and social development.
>
> Mineral extraction is therefore quite inevitable and no amount of sophistry can detract from this conclusion; nor does righteous indignation ... help to resolve the issue. Such polemical devices ... serve only to nourish an illusion."

After employing these and similar arguments to support the case for mineral working the paper goes on to develop an argument for allowing a certain loss of amenity in one place (.e.g Somerset) in favour of a gain of amenity (i.e.: increase in built environment) in another place (e.g. Berkshire or London). This is an attitude which is to be found throughout the industry. The formulation which fish has put forward is the first attempt to quantify or formalise such a view. One company's market will extend over a wide geographical area and distribution costs are high, as the paper by Savery makes clear. Due to this there may be a knock-on effect in supply (see Figure 19).

The figure shows a fictitious but possible situation. Major demand centre D lacks mineral supplies. It therefore draws supply from the County or area to the north. Location C is therefore deprived and in turn draws from the north. Only B is supplied from within its own boundary. The industry

argue that it is fair for C to pay, with a loss of amenity, for supplying D, since C itself draws from a different area. Planning authorities frequently take a different view, arguing that the increase traffic caused by a "knock-on" situation causes higher amenity loss than the working alone would cause if supplying only a local area.

14.3 Root Definitions of the Industry

The industry therefore feel generally constrained and concerned in the three areas summarised at the beginning of this chapter. In the light of this discussion it is interesting to assess what the operators consider the purpose of the local authority and the public to be in relation to mineral planning against their own purpose as assessed by the analyst.

First the Root Definition of the Industry group is developed. After many iterations the final Root Definition developed was as follows:

> "A corporate, raw-materials to finished-goods system to earn a surplus in a competitive market whilst minimising constraints on its growth."

The six "CATWOE' elements embodied in this Root Definition are given over the page.

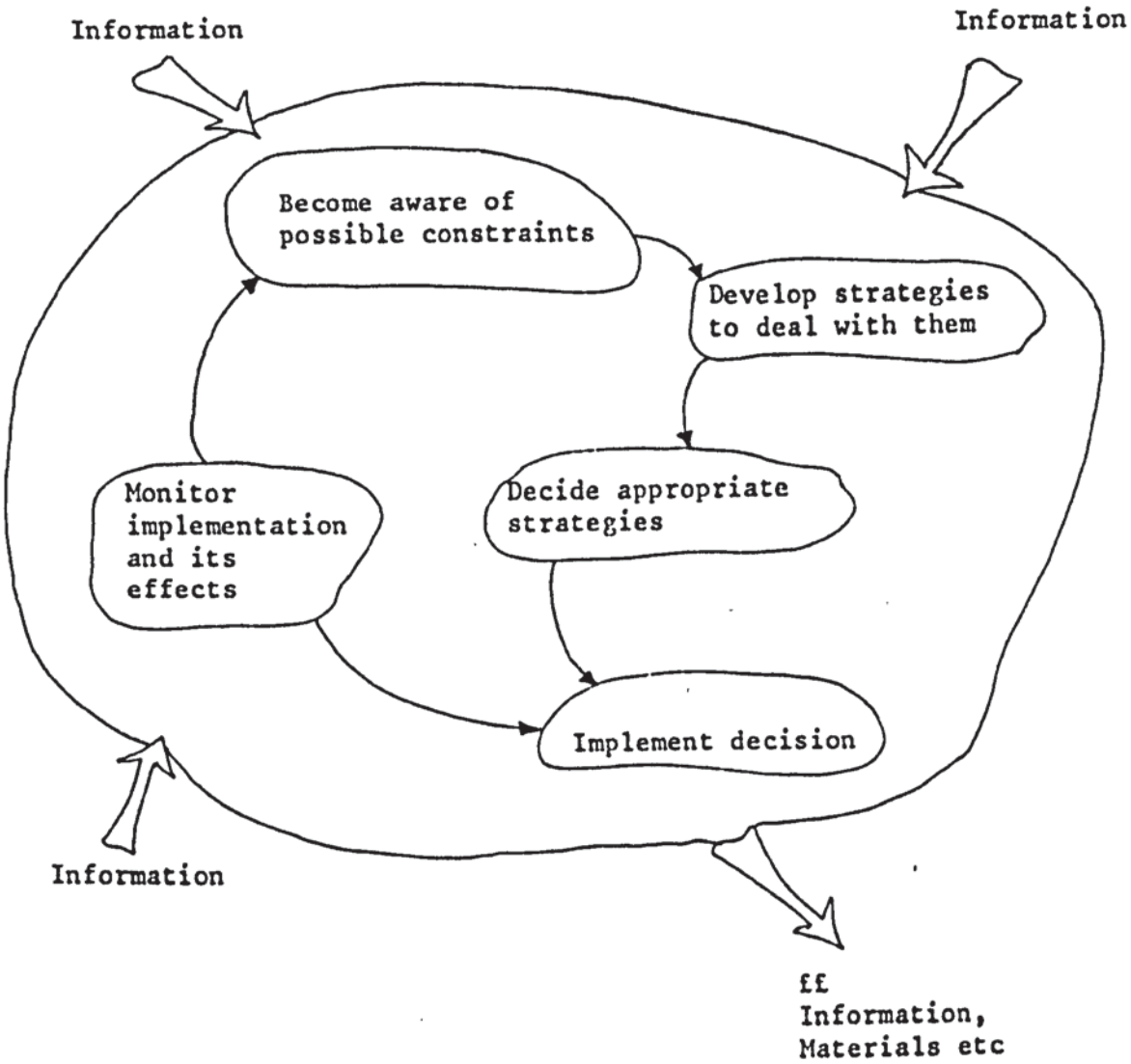
Note that there are in fact two transformations stated in this Root Definition, and one implied. Checkland (1979b) notes the tendency to incorporate more than one transformation in any RD as one common error in the execution of his methodology. It is regarded as an error because "it is virtually impossible to build a model from such definitions." (Checkland, v.s.)

Customer, Beneficiary:	Its customers in the market-place, construction companies, often different systems having the same owners.
Actors:	Employees: executive, workers, managers
Transformations:	'earn a surplus"; minimise constraints
Weltanshauung:	The outlook behind this root definition could be characterised as a "beleaguered industry"; 'the market is highly competitive and the environment is hostile'.
Owners:	Directors and Shareholders
Environment:	A competitive market and hostile social and economic environment.

Table 4 Root Definition Elements of Industry

It is maintained here however that it is precisely the presence of two transformations which make this Root Definition a meaningful one. The system is really a system for making a surplus; in fact many of its actors seem to feel that minimising constraints is in practice what they are being forced to do. (See Fig. 20)

This is done either directly, or indirectly through trade organisations and their committees. As was clear in the discussion of the literature above, the industry's access to its raw materials is seen to be threatened by the increasing public awareness of environmental risk and the



Information or Material Flow

Logical depnedency

Fig. 20 Possible Model of Constraint Minimisation

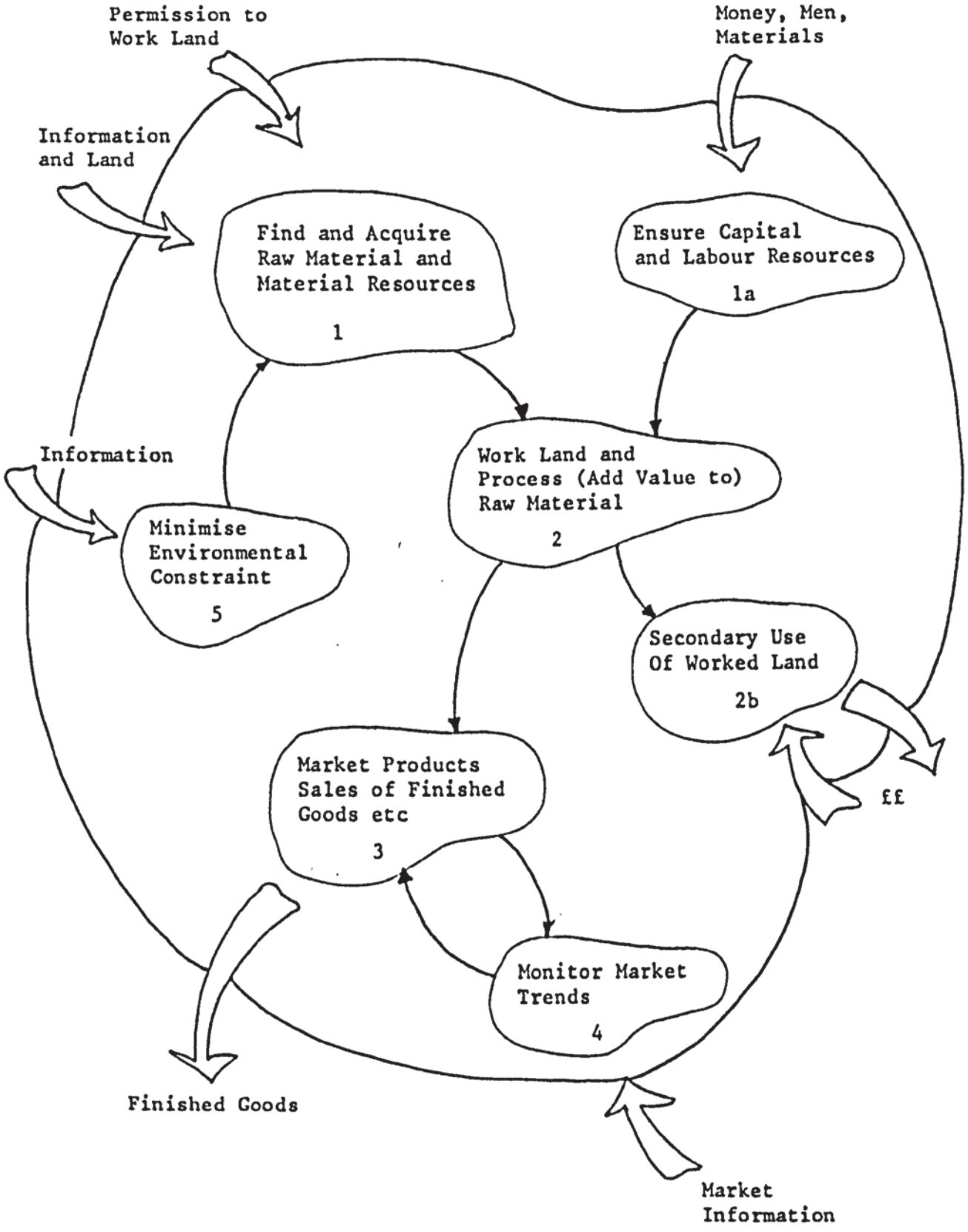


Fig. 21 General Model of Activities of Mineral Industry System

increasing amount of legislation which reflects this state of affairs. This Weltanschauung was also reflected in statements made by various Actors during the research, for example: "We have a job to do"; "Government tie our hands"; "We could do more if the authorities interfered less".

This outlook naturally colours the way in which the Industry views the two other subsystems.

Constraints are obviously of several types; they may be financial or market constraints. Those of significance here are the planning constraints, which are seen by the industry as threatening or restricting its utilisation of its raw material. The first level activity model (Figure 21) shows that obtaining permission to work minerals (or in some cases to explore for minerals) is a fundamental input before the system can operate at all.

In this situation the operation of the system, whereby permission is obtained (i.e. the operation of planning law), must be of great importance to the Industry. The only way in which Industry can contribute toward its own success in obtaining planning permission is to look out for, and minimise any constraints which may operate on it, hence the importance of the second transformation in the Root Definition.

14.4 Industry's RD's of Authority and the Voters

Both these definitions were derived from substantial discussion with the actors in Industry and encapsulate the Industry view of the other two subsystems as understood by the author.

(a) The Authority Subsystem

This was eventually defined as follows:

> "A publicly owned bureaucratic system to ensure that society's demands for minerals are met, at an economic social and financial cost, by permitting mineral working and development to occur."

The CATWOE elements of this are:

Customer, client:	(implied only) (Mineral developers, but ultimately the general population.
Actors:	Bureaucrats, public servants, hence local authority
Transformation:	"Permitting"; a preferred term was sometimes "allowed", and "sanction" was also suggested.
Weltanschauung	This is essentially that the Authority subsystem has the intention of ensuring an adequate supply of mineral-bearing land. This contrasts quite strongly with the constrained feeling which Industry expresses in its own RD. Possibly there is an element of what Authority "ought to do" rather than what Industry feels Authority "does do". The outlook here is clearly that Authority should facilitate Industry's efforts in meeting demands
Ownership:	The RD makes it clear that Industry feels the bureaucratic system to be publicly owned; owned that is, by the people who (should) benefit by its decisions.
Environment:	Significantly this is not explicitly stated in the RD. The implied environment is a competitive commercial one in which there is a demand for mineral products, the implication being that the demand stems from the ultimate owners of the system named in the RD who may only grudgingly allow the development to satisfy the demand.

Table 5 Root Definition Elements of Authority Subsystem (Industry Derived)

(b) The Voters Subsystem

Thirdly then there is the Root Definition of the Voters groups. It should be said that this was an extremely difficult RD to formulate since the attention from Industry to Voters tends to focus on specific organisations or groups within it. This being the case the RD was as follows:

> "A media-supported professionally managed system to prevent environmental damage or amenity loss at whatever financial cost."

The CATWOE elements are given over the page.

The Root Definition expanded below attempts to capture fairly fully the sometimes extreme views of Voter's groups which Industry actors hold. The views are often polarised, though many other actors expressed an understanding of Voter's viewpoints which moderated the extreme views put by some of their colleagues. The RD given is therefore an eventual attempt (after many iterations) to represent the consensus view.

Examining this for CATWOE elements yields

Client, Customer:	(implied only) those who value the "environment" or "amenity"
Actors:	Professionals: This was interesting since it indicated a belief, on the part of Industry, that the 'leaders' of the Voters were in fact "professional objectors" or at least those who were professionally engaged in conservation or amenity matters. This did not necessarily carry a pejorative connotation. In fact the opposite tended to be true; a certain amount of scorn was expressed for "well-meaning amateurs".
Transformation:	'prevention of environmental damage'. This was only vaguely perceived, 'conservation' and 'protection' were also terms which were frequently used but prevention was felt to carry the implication, seen by Industry, that if possible any damage should be prevented, rather than keeping damage to a minimum.
Weltanschauung	The basic outlook behind this RD is that the Voters adopt an essentially untenable position in which they expect their built environment to be maintained and yet will not accept the degradation of certain land areas which this implies.
Owner:	(implied only) The owners of the system are the general public, or more accurately those members of the public who are active in this area.
Environment:	Implicitly one in which amenity loss is common and in which a watchdog in the community is necessary.

Table 6 Root Definition Elements of the Voters Subsystem (Industry Derived)

This concludes the examination of problems perceived by Industry, together with the views they possess of the other two subsystems as expressed through the medium of Root Definitions.

CHAPTER 15

THE AUTHORITY VIEW

15.1 Introduction

This subsystem differs from the other two in several important ways, It is this subsystem which has embedded in it the statutory elements of the planning system and the organisations through which these are expressed. These organisations have their own views of mineral planning, regardless of the machinery through which this is expressed. Authority, as the system comprising the Local Authorities, DoE, etc. (described in a previous chapter), perceives its own problems in the area of mineral planning, and has its own definitions of the other subsystems involved. This Chapter develops this set of views, and, as with Industry, RDs are again developed.

These views have to be seen against the backcloth of the tradition of planning in the UK. Essentially, despite development and Structure Plans, land use planning in England and Wales is passive. There is a general presumption in favour of development. The onus normally lies on the Planning Authority to prove that a development is not desirable, rather than the prospective developer having to show that it is. In the main this presumption does not carry through to mineral development, despite the clear statement contained in the Second Edition of The Ministry of Housing and Local Government's Memorandum "The Control of Mineral Working."

> "In considering whether or to what extent mineral working should be permitted, it is important to bear in mind that the mineral industries are fundamental to the national economy and that many of the other industries of the country are in greater or less degree dependent upon them.
>
> The fundamental concern of planning policy must therefore be to ensure a free flow of mineral products at economic costs."

Despite this admonition, the majority of Authorities place the onus on operators to clearly demonstrate the case for development. The situation as it frequently appears is summarised by Silverlock (1970).

> "It should always be remembered that a person has the right to develop his land in any way he pleases unless there are good reasons why he should not do so..... Some planning authorities appear to adopt the attitude that it is up to the applicant to prove that his land be developed rather than the authority having to show that there are reasons why the development should not take place."

The Memorandum includes, in paragraph 5, sub-paragraph c, the following as an "aim" under the heading Broad Policy:

> "(c) to limit, or if need be to prevent the working of minerals, where such working would involve unjustified interference with agricultural production....."

Although caveats abound about satisfaction of demand from other sources, it is difficult to avoid the impression of conflict or inconsistency in the document as a whole. The major problem Local Authorities express at the level of policy, as opposed to the level of development control is that of trying to ensure a "free flow of mineral products at an economic cost" whilst reconciling conflicts of land use at local level. Further complications arise through attempts to assess what is meant by a "free flow of

minerals". In the Memorandum neither distance nor quantity of flow are mentioned. As we have seen from the previous section, if these considerations are ignored a knock-on supply may arise in which traffic volumes are unnecessarily high.

15.2 The Reports of the Stevens and Verney Committees

An important determining feature of the Authority subsystem in its present form has been the recommendations of these two committees. Because of the way in which the debate over mineral planning has developed since the Reports of the two committees, and because of the effect they have had on the Authority view, their work is considered here.

The Committee to investigate Planning Control Over Mineral Working was appointed in August, 1972, under the Chairmanship of Sir Roger Stevens, KC, with the following terms of reference:

> "To examine the operation of the statutory provisions (except the provisions of the Opencast Coal Act 1958) under which planning control is exercisable over mineral exploration, over surface mineral working and installations, over the deposit on the surface of spoil or waste from mineral workings and over the after-treatment of surface land worked for minerals; to consider whether the provisions require to be amended or supplemented, and to make recommendations." (Stevens, R., 1976, p.1)

The Committee published its findings in 1976, the first official acknowledgement was in the Department of the Environment Circular 58/78, and proposed changes in legislation were circulated for comment in June of 1979. The procedure at the time of writing has therefore taken 7 years. This figure may in itself be of significance.

During a decision period of 7 years there have been two changes of National Government, several Local Authority by-elections, a Local Government reorganisation, (The Local Government Act of 1972 preceded the reorganisation of 1974), and numerous economic crises during which demand for aggregates has slumped to an estimated 70% of the 1973 level[1].

The second body to be set up was the Advisory Committee on Aggregates under the Chairmanship of Sir Ralph Verney, set up at the same time as the Stevens Committee with the following terms of reference:

> "To advise the Secretaries of State for the Environment, for Scotland, and for Wales, upon such subjects relating to the supply of aggregates for the construction industry as the Secretaries of State may refer to them, namely:
>
> (1) To consider whether there are any matters relating to sand and gravel workings which we wish to draw to the attention of the Stevens Committee as requiring that Committee's examination.
>
> (2) To consider the studies and actions initiated by the Department of the Environment following the interdepartmental review and to advise whether the scope and extent of the work which has been initiated are sufficient.
>
> (3) To consider whether there are any further steps which in our view should not be taken towards forming a policy for aggregates."

Following an interim report in 1973 the Advisory Committee published their report in September 1975[2].

Both bodies made extensive recommendations following detailed and comprehensive investigations under their terms of

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1 Source: Personal Communication DoE

2 Verney, R.B. 1975, Aggregates, the Way Ahead, HMSO

reference. For the present purpose it is unnecessary to detail the findings, they are summarised for ease of reference in Appendix 4. What is of importance here is the view of the problems of the situation as perceived by these two Committees.

Verney addresses the problems in Chapter 2 of the report, entitled "The Problem of the Future". Implicitly recognising the unresolved contradiction of the Green Book, the Committee states:

> "..... there is a fundamental conflict between the need to supply the materials necessary for our modern construction industry and the popular desire for an unspoilt environment". (Verney, op.cit. p.9, para. 2.1).

They further state:

> "Carried to an extreme, planning refusals for aggregates extraction due to environmental damage could lead to shortfall and delays in meeting needs..... More probably, excessive controls in one region could lead to significant increase in the quantities of material imported over long distances from other regions, resulting in an upward trend in prices and a dramatic and universally unacceptable increase in the amount of aggregate lorry traffic."

The Committee thus addressed the problem as one of satisfying demand at

> "..... minimum social and money costs..... Creation of environmental nuisance by aggregates production cannot be totally avoided, but every reasonable effort must be made to minimise the environmental costs."

Having perceived the problem in these terms the Committee address themselves to the sub-issue which they see as "implied in it". This view is shown schematically below. (Table 7) The logical structure of the report shows clearly that the whole argument depends from this initial analysis of the

Table 7 Framework of the Verney Committee Report

1. Perceived Problem:

   (a) Adequate Supply at minimum social and money cost

2. Which Imply Problems of:

   (a) Marine dredged Aggregates

   (b) After Treatment

   (c) Transport

   (d) Standards of Material

   (e) Assessment of Supply and Demand

3. Needing

   (a) Assessment of Environmental and Social Cost

   (b) Long Term Possibilities

4. Leading to Policy

5. Experienced Through Planning Control

problem, which, together with the Background, occupies only nineteen pages out of seventy-five pages of main text. This analysis of the problem quite clearly determines the sub-issues which the remainder of the report details.

The Stevens Committee, examining planning control over all minerals, not just those high bulk, low value minerals which are referred to here, took a view which is similar in many respects to that of the Verney Committee though their report lacks a clear structure. Hence they say (p.8, para. 2.2)

> "..... and ..... there is, quite rightly, growing public concern for the maintenance of the environment. In these circumstances it is almost inevitable that strong conflicts of interest will arise..... These strong conflicts of interest are at the root of the problems which we are required to consider and are indeed the main reason for our being asked to conduct this examination and produce this report."

It is of interest that the Committee also noted (para. 2.6) that the need to review

> "the application of planning law to mineral working arises..... not primarily from defects in the law, but from ..... changing circumstances and from deficiencies in the way local planning authorities have discharged their tasks ..... Indeed we have in many ways been impressed by the extent to which a legislative framework first designed nearly thirty years ago with more general considerations in mind, and applied almost casually ..... to the highly specialised field of mineral working, has in fact proved a reasonably flexible instrument in its application to that field".

Following a sample of anomalies in the legislation, the Report summarises the Committee's task as follows:

> "As we see it, the Secretaries of State expect from us recommendations designed to lead to a system of control within which the inevitable conflicts may be resolved with a minimum delay and the maximum certainty; a system within which the desires of society can be ascertained and harmonised, and

> within which the responsible authorities may take and enforce the decisions which will secure that those desires are met.
>
> ..... We feel strongly that decisions of this kind (on the question of quarrying in National Parks) are the responsibility of the planning authorities; our concern must be the machinery, the law and procedure within which these authorities must operate."

These two reports recognise two classes of problems; the first that of defects in the mechanism of mineral planning. We may call these cybernetic aspects since they are concerned with the control of decisions. The second class are the problems of conflict resolution and are therefore concerned with the difficulties of gathering information necessary to make decisions, and with arranging a debate by which social priorities may be arrived at and clearly understood. Implicit in this second class of problem, that of methods of arranging a debate or of resolving conflicts, is the assumption of purpose. What is the purpose of the planning system?

15.3 Root Definitions of the Authority System

As with the viewpoint of the Industry developed in the preceding chapter, views of the actors within the Authority can be developed by means of the Root Definition. Two such definitions are given here. The view of the Peak Park Planning Board as to the purpose of the Planning system differs from the view of its purpose expressed by the other Local Authorities in the study. This is very evident in the two different Root Definitions.

The first of these relates to the majority view, i.e. the County Planning Authorities.

> "A publicly owned, professionally managed statutory system to specify and control the appropriate use of land."
>
> The CATWOE elements are given in the accompanying table.

Element	Description of RD Element
Client	by implication, developers and other users of land, i.e. ratepayers
Actors	the "professional manager", planners, officers of local authority, members of the planning profession
Transformation	Explicitly specify "the appropriate use of land"; this phrase is crucial
Weltanschauung	Broadly, the viewpoint embedded in this definition is a belief in orderliness in spatial development. A belief that complexity must be reduced if life is to be possible or tolerable and that therefore to plan (i.e. determine) the use of land is a worthwhile way of ordering the complexity around us. Innately that planning is "a Good Thing".
Owner	Explicitly the public. The profession feel deeply that they somehow act "in trust" for the public who are their owners (the "ratepayer").
Environment	A highly complex and variable socio-economic environment, the complexity of which plans seek to reduce.

Table 8 Root Definition Elements of Authority Subsystems

This view of the planning subsystem was widespread amongst the local authorities interviewed, with the exception of the officers of the Peak Park Board who therefore gave rise to

the second Root Definition, namely:

> 'A publicly owned professionally managed statutory system to conserve and enhance* the character of the National Park by evaluation and management of existing and potential land-use.'

This very different view of planning is compared to the previous RD after the CATWOE elements of this RD which are given overleaf.

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* This wording occurs in the terms of reference of the Joint Planning Board

Element	Description of RD Element
Client, Customer	Implicitly, those who benefit from the use of the National Park, and supporters of the National Park concept in the general community, indirectly therefore, "the Nation".
Actors	The planning staff of the National Park. Their outlook is quite different from their colleagues', in that their terms of reference are different. They are of the opinion that mineral working (by way of extension or new working) should not be allowed unless it is demonstrably in the National Interest and there is no other alternative site.
Transformation	Explicitly 'conserve and enhance'. This is a dynamic process which does not imply a passive conservationism.
Weltanschauung	The outlook reflected here is that of a 'trusteeship' of a National asset. The planners are clearly aware of not only their statutory responsibility, but also their educational or informative role in making the public (who they see as their clients) aware of the needs and nature of a National Park.
Owners	Directly the Peak Park Joint Planning Board, composed of elected and nominated members. However, the Root Definition sees the General Public as the owners of the system in a very real sense, even though the Weltanschauung somehow embodies the idea that the public must be made aware that they own the system as well as being its clients.
Environment	The environment is one of increasing despoilation where land-use decisions tend to be based purely on socio-economic expediency and where although complexity may be higher, amenity is both intrinsically lower and is allocated a lower priority.

Table 9 Root Definition Elements of Authority Subsystem (National Parks)

The contrast between these two views of planning stems from the very different goals of the two organisations in the planning system. In the first case, the transformation is to "specify the appropriate use of land", in the second the appropriate use has already been specified by the designation of the area as a National Park. The transformation is therefore a "higher level" one, in the sense that the use (a National Park) is assumed and planning must concern itself with the enhancement and conservation of that use. By definition therefore any use of land which does not result in the enhancement and conservation of the National Park is ruled out.

When the use of land is mineral extraction the transformation of the second RD is almost bound to militate against such a land use. Whether mineral extraction is "appropriate" in the case of authorities subscribing to the first Authority RD depends on the circumstances.

The obvious conflict outlined here is only one among many when the range of RDs developed here between the three subsystems, Industry, Authority, Voters, is examined.

Two further RDs are those of the Industry and Voters as seen by (or perceived by) Authority.

15.4 Industry: Root Definition

That of industry is as follows:

> "A privately owned natural resource processing system dedicated to maximise the surplus earned from the sale of products from any development."

The CATWOE elements follow overleaf.

Element	Description of RD Element
Client	Explicitly the private owners i.e. the shareholders, implicitly and indirectly the consumer and community.
Actors	The managers and the workers in the industry.
Transformation	Explicitly "to maximise the surplus earned", secondarily (instrumental transformations) "sale" and "extraction".
Weltanschauung	This RD indicates the ambivalence of the Authority to the Industry. The predominant outlook expressed is of a profit earning developer in need of control to ensure that "owners are not cut in the search for profit". There is also the underlying awareness that the industry is primary and thus essential to the community (and is in many areas an employer of some significance), some conflict therefore exists at a low level between the essential but sometimes distasteful nature of mineral development.
Owners	Explicitly shareholders of the industry.
Environment	Implicitly a competitive, commercial environment.

Table 10. Root Definition Elements of Industry Subsystem (Authority Derived)

15.5 Voters: Root Definition

The final RD in this chapter is that of the Voters' subsystem as seen by the Authority. This was a difficult definition to formulate since there was widespread feeling that only organised groups constituted voters groups. The prevalent feeling was that individual objectors were in some sense very distinct from the 'causes' of organised lobby or pressure groups.

The definition is as follows:

> "A privately owned and professionally managed minority system to prevent development seen as damaging amenity or the environment."

CATWOE elements emerge as follows:

Element	
Client	Implicitly only, those who enjoy the environment 'unspoilt'. Explicitly the beneficiary is the environment, and indirectly the community.
Actors	Explicitly professionals in environmental matters. Those familiar with the lobbying and pressure group activity. Additionally members of society at large, organised by the small full-time salaried officials (c f trade unions), and who benefit from the success of the transformation below.
Transformation	"Prevent development". In this case, the Authority see the object of this system as dramatically opposed in many cases, to their own.
Weltanschauung	The outlook embodied here is that the activity of this group is as important to the actors, as is the result to the group members. Also, the authority ascribe to this system a watchdog role over development which they themselves are unwilling or unable to undertake.
Owner	The owners are seen as being the members of various elements within the system, for example, paid-up members of CoEnCo, FOE or CPRE. Interestingly the community is not seen as being the owner.
Environment	The implied environment is one in which both amenity and environment are threatened by mineral or other extraction.

Table 11 Root Definition Elements of Voters Subsystems (Authority Derived)

This definition concludes the triad of Root Definitions derived by the Authority

15.6 Conclusions

The role of the Authority in the planning system is paramount. As with any system, there are control elements among the general set of elements constituting the system. Earlier in the thesis, in Part III, the planning system was defined as comprising three major subsystems, Industry, Authority, and Voters. Frequently however the Authority is spoken of as being 'the planning system', since it plans and makes planning decisions. The view of what the Authority subsystem is a system for, vary between the two other groups discussed here. The view taken here is that the Authority subsystem is the control element of the planning system. Responsibility lies with it for making control decisions and taking control actions, but these actions and decisions are taken in the context of a wider system (embodying Industry and Voters) which the Authority system controls toward a particular purpose. It is this purpose about which debate centres, since it is, in some sense, determined by the community within which all three subsystems exist.

Exactly what the purpose is, is only relevant to the extent that there is disagreement as to what it is. The important thing would seem to be that the control system (Authority) is set up in such a way:

(a) so as to enable debate to determine a purpose, and

(b) to control actions to achieve that purpose once it is decided upon.

CHAPTER 16

THE VOTERS VIEW

16.1 Introduction

As well as the organised groups, of which the two most prominent are the Friends of the Earth and the Council for the Protection of Rural England, this subsystem includes all members of the community affected by mineral working. Other than published material, data about this subsystem was in the form of file material from respondents on various applications, the vast majority of it confidential.

The most common category are letters of objection on one particular application, usually on the grounds of loss of amenity. Amenity in these cases covers virtually every form of disturbance, from the loss of good agricultural land to the increased necessity to wash cars because of mud on access roads. Next in frequency are individual letters, but objecting on grounds usually related to some statutory provision. Last in frequency are well organised objection campaigns and petitions which may or may not occur under a FOE or CPRE umbrella. Other objectors may be Parish Councils, who are invited to submit views on an application, though their recommendations do not carry the same weight as those of District Councils.

The content of objections vary widely as noted above. The better documented raise questions of the additional traffic nuisance caused by the new working, in terms of dust, noise, hazard, road damage etc. They may also raise questions as to the necessity of the working, the suitability

of the stone for various purposes, the distances of the markets served and so on. At a more local level there are inevitably objections because of the visual intrusion of new working which may break the sky-line, of increased levels of dust from the processing plant and increasing risk of dereliction.

Beside this high level of ad hoc objections to individual applications, in the case of National Parks or very contentious applications elsewhere, groups may organise for the duration of that application. These facts make it extremely difficult to elucidate the major concerns of the public over mineral planning. It is fairly clear that their concern centres on the actual site of mineral extraction and is therefore local in nature; it is most strong when the quarry is sited either in or near a population centre (for example the quarries of the Rowley Hills in the County of West Midlands) or in an area of great natural beauty (e.g. limestone quarries in the Peak District or on Wenlock Edge in Shropshire). As indicated above the main groups involved are Friends of the Earth and the Council for the Protection of Rural England, who also express an opinion for the 18 groups comprising the Committee for Environmental Conservation. Much has been said concerning the published viewpoints of these groups in previous chapters.

16.2 Root Definition of Voters

The development of the RDs completes this phase of the problem exploration. The first of these is of the Voters framed purely by the analyst, viz:

"A privately funded, professionally managed system to ensure the preservation of acknowledged areas of high amenity and landscape value."

The CATWOE elements are tabulated below.

Element	Description of RD Element
Client	Implicitly the community or set of people who acknowledge high amenity or landscape value, and thus implicitly the Actors and Owners.
Actors	Workers in the system. They may be full time professionals or part-time enthusiasts; the funding and organisation of these bodies is such that there is a heavy dependence on the latter.
Transformation	"ensure the preservation". This is framed in this way to convey the feeling that the transformation is indirect; the system cannot of itself prserve amenity and environment, it merely seeks to be instrumental in this transformation
Weltanschauung	The underlying work view is that the preservation of areas of high value can be ensured only by the work of such groups and that they therefore play a vital part in the planning system.
Owners	Explicitly those supplying funds to the groups.
Environment	One in which there is a tendency toward the erosion of amenity and landscape by various developments.

Table 12 Root Definition Elements of Voters Subsystem

The tendency in all land-use planning over recent years has been toward greater public involvement in planning, with expert guidance rather than expert prescription. The RD of the voters group given above and the two given in the previous chapters indicate effectively that the public involvement, at least in contentious issues, is still

predominantly professionally orchestrated, though it may be widely supported by the 'lay' public. This aspect is important here because when considering the role of the Authority as a controlling element, there is a significant difference between ensuring debate across a wide, popular, non-expert forum, and controlling the transactions between small expert groups. This will be explored in Part IV.

16.3 Root Definition of Industry

The definition of Industry is as follows:

> "A privately owned, professionally managed industrial system to maximise profit from the exploitation of a natural resource."

This RD is especially interesting because it captures the idea of "exploitation" whilst implying that the only beneficiaries of the system are its owners, the share-holders. Two transformations are implied, one intrinsic, main, transformation - to maximise profit; the other instrumental to this, namely "exploitation of a natural resource".

The Weltanschauung behind this RD is that which sees Industry as motivated entirely by commercial considerations of profit etc. No mention is made of a competitive environment or of consideration for the natural environment.

The CATWOE elements are given overleaf.

Element	Description of RD Element
Client	Implicitly the shareholders and other owners of the system. Presumably also those who purchase what the system sells at a profit.
Actors	Professionals; manager; employees
Weltanschauung	The viewpoint is of an industrial system devoted to a commercial end, exclusive of "social" consideration.
Owners	Shareholders only
Environment	An environment ruled by market forces is implied

Table 13 Root Definition Elements of Industry Subsystem (Voters Derived)

This RD is significant for the very simple view it takes of industry. There is no recognition of the fact that for much of the mineral industry the maximising of profit is extremely difficult, and is likely to be fraught with problems of trade-offs against considerations ranging from geological to social, all of which involve a money, as well as an opportunity cost. This view of Industry is at once an asset and a handicap, since it allows them to frame arguments against working cleanly but does not allow them to prepare for the highly complex arguments employed by Industry in its defence, often extremely skilfully.

16.4 Root Definition of Authority

The Voters perceive the problems of mineral planning as being those of controlling what they see as the depradations of developers upon the natural beauty of the country-

side. This control is essential if the Voters are to achieve their own objectives. Their RD of the Authority however is as follows.

RD of the Authority by the Voters and Analyst:

> "A publicly owned, professional system to resolve conflicts over the use of land, to the overall benefit of the community."

The CATWOE elements are given below.

Element	Description of RD Element
Client/ Beneficiary	The community explicitly.
Actors	The professional planners and planning staffs.
Transformation	Explicitly the "resolution of conflict."
Weltanschauung	Is the idea of a system to guide and arbitrate over the use of land to the overall good of society.
Owner	Explicitly the public at large.
Environment	A complex one where fierce competition exists for the use of land.

Table 14 Root Definition Elements of Authority Subsystem (Voters Derived)

Compared with their own expectations, this RD is very "soft"; its Transformation, to "resolve conflicts" to the benefit of the community (who are thus Owners and Client/ Beneficiaries) involves only the initial decision as to the use of land, rather than its subsequent control. The implication is that the Weltanschauung embodied here assumes

that a correct initial decision may obviate the need for control of unpleasant development, presumably by not allowing it in the first place. The apparent lack of awareness of possibilities of proper control is similar to the simplistic appreciation of Industry expressed in the previous RD.

CHAPTER 17

COMPARISONS AND CONTRASTS: NINE ROOT DEFINITIONS

17.1 Introduction

The nine Root Definitions of the three subsystems are presented in matrix form in the accompanying table 15.

In terms of the way in which problems were defined at the beginning of Part III we now have a spectrum comprised partly of the specific views of Actors from each of the three subsystems and partly of Root Definitions which express the expectations and perceptions of the Actors as to the nature and purpose of the subsystems.

As a contrast to this there is the legal specification of the system and observations as to its modus operandi in the county authorities studied.

The purpose of the Root Definitions developed above is to illustrate the range of conceptions of the various subsystems held by Actors of those subsystems. This is not the only method which could have been used. A semantic differential or repertory grid technique could have been utilised; the strength of the Root Definition is that it is "a concise verbal definition" (Smyth and Checkland 1976) of the system and encapsulates the purpose of that system from a particular viewpoint. In the strict use of the Methodology each RD would be modelled as a conceptual model, examples of which, in Checkland's published work (e.g. Checkland 1979b) are expanded sentential models, models of system activities necessary to achieve the purpose

Table 15 Nine Root Definitions

Source of Root Definition	Object of Root Definition: INDUSTRY	Object of Root Definition: AUTHORITY	Object of Root Definition: VOTERS
ANALYST (partial organisation)	I A Corporate, raw-material to finished-good system (dedicated) to earn a surplus in a competetive market whilst minimising constraints on its growth	II 1. A publicly owned, professionally managed, statutory system to specify and control and appropriate use of land. 2. A publicly owned professionally managed statutory system to conserve and enhance the character of the National Park by evaluation and management of existing land use.	III A privately funded, professionally managed system, to ensure the preservation of acknowledged areas of high amenity and landscape value.
ANALYST AND INDUSTRY		IV A publicly owned bureaucratic system, to ensure that society's demands for minerals are met, at an economic, social and financial cost, by permitting mineral working and development to occur.	V A media-supported professionally managed system to prevent environmental damage or amenity loss at whatever cost.
ANALYST AND AUTHORITY	VI A privately owned natural resource processing system dedicated to maximise the surplus earned from the sale of products from any development.		VII A privately owned and professionally managed minority system to prevent development seen as damaging amenity or the environment

Table 15 (Continued) Nine Root Definitions

Source of Root Definition	Object of Root Definition: INDUSTRY	Object of Root Definition: AUTHORITY	Object of Root Definition: VOTERS
ANALYST AND VOTERS	VIII A privately owned professionally managed industrial system to maximuse profit from the exploitation of a natural resource.	XI A publicly owned, professional system to resolve conflicts over the use of land, to the overall benefit of the community.	

specified in the RD. Conceptual models of this strict type embody little in the way of explanatory power, as was discussed in Part I; they deal with "whats" not "hows". Conceptual models are not developed here because the Root Definitions alone are adequate for the purpose of this section, namely to summarise the nature of conflicts and problems within the three subsystems.

In the Chapter on System Definition, it was stated that the Industry and Voters act through the Authority system, which enshrines the statutory provisions. The purpose which these two subsystems ascribe to Authority is therefore crucial in determining the way in which they interact with it. The three definitions of Authority are examined first.

17.2 Authority: Root Definitions Compared

Each embodies a different Weltanschauung, as was previously defined. The most significant elements, for the purpose of comparison, are probably those of Client, Owner and Transformation (see Table 16).

Interestingly, there is a high degree of congruence between the ownership of the system, perceived in all cases as being the community or the general public.

The congruence is less close in the other elements however. The most crucial differences lie in the Transformations, which range from "resolution of conflict" in the Voters view, to "permitting (mineral) development" in the Industry view.

Root Definition Element	Source of Root Definition		
	Industry	Analyst	Voters
Client	Mineral Developers	1. Developers & other users of land 2. Users & supporters of the National Park	Explicitly the Community
Trans-formation	Permitting (mineral development) (also suggested; "allowed" or "sanctioned")	1. "Specifying" & "controlling" appropriate land use 2. "Conservation & enhancement of features of value	Resolution of Conflict
Owner	Community at large; directly their elected representatives	1. The public/ community 2. The Peak Planning Board per pro General Public	Community

Table 16 Client, Transformation, and Owner Elements of the Three Root Definitions of the Authority Subsystems

Similarly the Client elements are perceived quite differently by the different groups.

Regardless of the 'actual' (specified) system therefore, each group has its own particular perception of the purpose of the Authority System. This is reflected in the viewpoints expressed as to the nature of problems in the system; for example, the Stevens Report (para. 2.11) states that its recommendations could lead to "a system ..... within which the inevitable conflicts may be resolved". Conversely the Green Book states (para. 5a) "to ensure that mineral deposits are kept available for exploitation as occasion demands". Even in two (Authority based) documents there is not a total consistency. It will be necessary to examine the existing statutory system to see how closely it accords with these views.

17.3 Industry: Root Definitions Compared

The comparison of Root Definitionsis continued with an examination of the Industry system.

Again the opinions of the Owner of the system are congruent; the shareholders and Directors. The transformations named vary in degree but are essentially congruent for the intrinsic transformation, varying a little and in the nature of the instrumental transformation. The intrinsic transformation is most mildly expressed as to earn a surplus, both others involve "maximisation" as an idea. The instrumental transformations, secondary to these, are most extremely as "exploitation of a natural resource", and by

Root Definition Element	Source of Root Definition of the Industry		
	Authority	Analyst	Voters
Client	Private owners; shareholders indirectly consumer	Customer, building and construction industry	Ommitted; implicit only, the consumer
Trans-formation	"maximise the surplus" and; "natural resources processing system"	"earn a surplus" and "raw materials to finished goods"	"maximise profit" exploita-tion of a natural resources"
Owner	Shareholders	Directors and Shareholders	Share-holders

Table 17 Client, Transformation, Owner Elements of the Root Definitions of Industry Subsystem

the Authority sub-system as a "natural resource processing system".

Significantly the RD derived from the Voters omits the 'Client, Customer, Beneficiary' element. The consumers may be implied, but only partially. This may echo the fact that, although appreciated, the explicit link between production of minerals and the results of consumption of mineral products is not always made.

This is taken to reflect the simple view of both Industry and Authority which was revealed by the Root Definitions discussed in Chapter

17.4 Voters: Root Definitions Compared (See Table 18)
This is largely seen as a minority system owned privately by relatively few, but acting in trust for the community. Hence the views of the Owners and the Client/Beneficiary are reasonably congruent. The definition of the Transformation varies however, from the"prevention of environmental damage", to the "prevention of development"; the former being the Industry view and the latter that of the Authority.

In one sense, this latter feature is odd. One would expect that the Industry would have a harsher view of the Voters system than Authority, though in fact it is the Authority who see Voters groups as wishing to prevent development, rather than preventing environmental damage, which is the Industry view. On closer examination however, the Authority is the element of the system which may be caused

Root Definition Element	Source of Root Definition of Voters		
	Industry	Analyst	Authority
Client	Those who value amenity or the "environment"	The Community or some subset of it	Those who enjoy the "environment" or high rural amenity
Trans-formation	"Prevention of environmental damage"	"Ensure the preservation" of "areas... of high amenity ....landscape value"	"to prevent development
Owner	Activists in the subsystem implied as the general public	The funding persons or groups	Subscribers to the sub-system hence the fund-providers

Table 18 Root Definition Elements Compared for the Voters Subsystem

the greatest degree of perturbation by the activity of Voters groups; it is possible that the view of this subsystem reflects this aspect.

17.5 Conclusion

The comparison above shows, not unexpectedly, a wide range of variation in the perception of various of the subsystems by the Actors of those systems.

There are several implications of these variations. First of all, agreement about any action taken by any one of the subsystems will depend on the view taken of it by other relevant systems. Secondly, unless some mechanism exists whereby debate can occur, such agreement may not develop. Thirdly, since the Authority is seen as the group controlling land use, and resolving conflict, it is likely to be seen as the responsibility of Authority to ensure that conditions for debate and agreement exist. Fourthly, debate is likely to continue after the initial decision over land use, and, if control of land use resides with Authority (as evidently it is seen to) the facility for debate around the control measures taken must also be there.

The Root Definition most closely echoing these needs is II.1, namely:

> "A publicly owned, professionally managed statutory system to specify and control the appropriate use of land."

The debate referred to above will centre especially around the "specification" of "appropriate" uses of land. In the case of the other Authority Root Definition (the National Park) "appropriate" uses are those which "enhance the character of the National Park"; this requires a complex set of criteria as to what uses "enhance" this character.

Industry on the other hand, whose relevant environment contains only mineral bearing land, considers as appropriate a use of such land which enables society's demand for mineral products to be met.

The Voters are characterised powerfully by their view of appropriateness which is a highly complex concept of "community benefit" arising from the resolution of conflict over differing land uses. In this latter case a land use is chosen, from competing and conflicting claims, which, according to some concensus of values, is to the benefit of the community.

The conceptual model of Root Definition II.1 is shown in Figure 22; it is largely self-explanatory, giving the groups of activities necessary to carry out the transformation named in the Root Definition.

At the end of Part III therefore, the planning system with respect to minerals has been examined, and its various subsystems have been described and characterised by the use of Root Definitions. One subsystem, Authority, is defined to be the control element, to specify appropriate

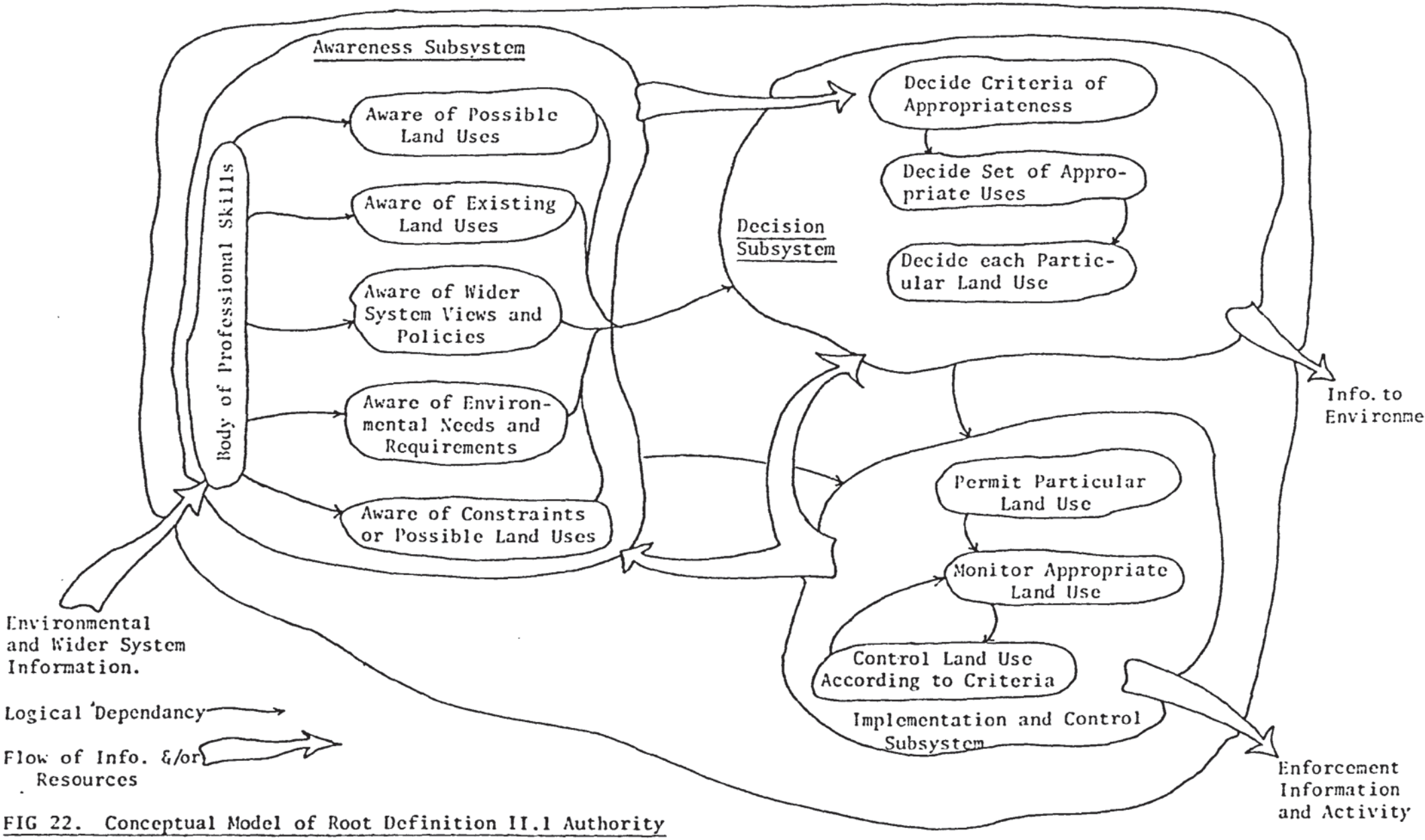

FIG 22. Conceptual Model of Root Definition II.1 Authority

use of land and control that use.

In effect, an hypothesis has been framed that the Authority, comprising law, local and national officials and elected members, acts as such a system for enabling debate, decision, monitoring and control.

The next stage of the Methodology comprises comparison of structured problem and conceptual model. This is attempted in Part IV.

PART IV

Preface

Part III concluded with a conceptual model of one Root Definition of the Authority. This part of the thesis is the concluding part and ends by drawing conclusions based on the analysis and synthesis contained in the final chapter. The thesis does not cover "action to solve or improve the problem situation", since this does not lie within the jurisdiction or responsibility of the author. In terms of the Methodology, part of the conceptual modelling phase and the comparison phase are concerned besides some further activity in the problem structuring of step 2.

The reasons for this are as follows. For the Conceptual Model/Root Definition to be compared with existing organisations, would be difficult or meaningless without some form of structure by which to make sense of the functions of various of the organisations of the statutory planning system. This at the same time structures the problem situation more closely, by imposing (or discovering) a pattern in one area of it.

There is therefore a transition from the conceptual model, through the model used to structure the Authority (planning system), to the unstructured complexity of the real world.

The bridge used to make this transition is the cybernetic functional model described in Part I, and incorporated here as a step 4a of the methodology. It is not used as an input to the conceptual model, but rather as a

complementary theoretical tool. The model is complementary to the work described so far in several ways. It is diagnostic in the sense of containing a set of functions which "ought" to be present. It is also explanatory of function (or dysfunction) since it is itself built around basic concepts of cybernetics, albeit quite simple ones, namely homeostasis, feedback and variety balancing. Finally it enables the various organisational and statutory elements of the Authority system to be structured and classified to see exactly in what way they relate to the activities and functions named by Root Definition and Conceptual model of Part III. That Part itself revealed some differences between the system as modelled and as described in Part II. The question arises as to whether the "actual" system is capable firstly of deciding (specifying) an appropriate use of land, and secondly of controlling that use.

The structure of this part of the thesis is as follows. Chapter 18 describes and analyses the statutory system, conceptualised earlier as Authority, in the terms of the model. The model itself is briefly reviewed, and the question of divisionalisation in the model and in the planning system is discussed. Following this review, the Authority system is examined at two levels of recursion, nationally and at county level. In both cases the nature of the metasystem (System 3, Policy, and System 2 Control) is described and discussed, and the nature of the linkages are discussed. Following this in each case, the systems 1

are described together with the linkages between them and which connect them to the metasystem.

This analysis reveals the differences and similarities between the "real" system analysed in these terms and the system as conceptualised in Part III. It also shows to what extent relationships are provided for, formally and in practice, with the other two important components of the whole system, namely Voters and Industry.

CHAPTER 18

A FORMAL DESCRIPTION AND ANALYSIS OF STATUTORILY DEFINED ELEMENTS OF THE PLANNING SYSTEM

18.1 Introduction

The model used in this chapter was described in Part I and is illustrated in Figure 23. To recap briefly, it consists of three discrete functions and one distributed one. The discrete functions are:

(a) Operation - a division of the system operating more or less autonomously, and possessing at a lower level of recursion all functions possessed by the level described here.

(b) Control - control itself has two aspects:

  (i) an automatic element responsible for ground rules and maintenance of the system at a basic level;

  (ii) executive control, responsible for day to day decisions and overall control; defines the area of autonomy of the operating divisions.

(c) Policy - as the name suggests, it determines the policy and priorities at a strategic level for the organisation at a whole.

(d) The distributed function is Intelligence, that is, ordered, required by the system in order to make sense of, and respond to, its environment. This flows from the environment and within the system at both the level of divisions and the meta-level of Policy and Control.

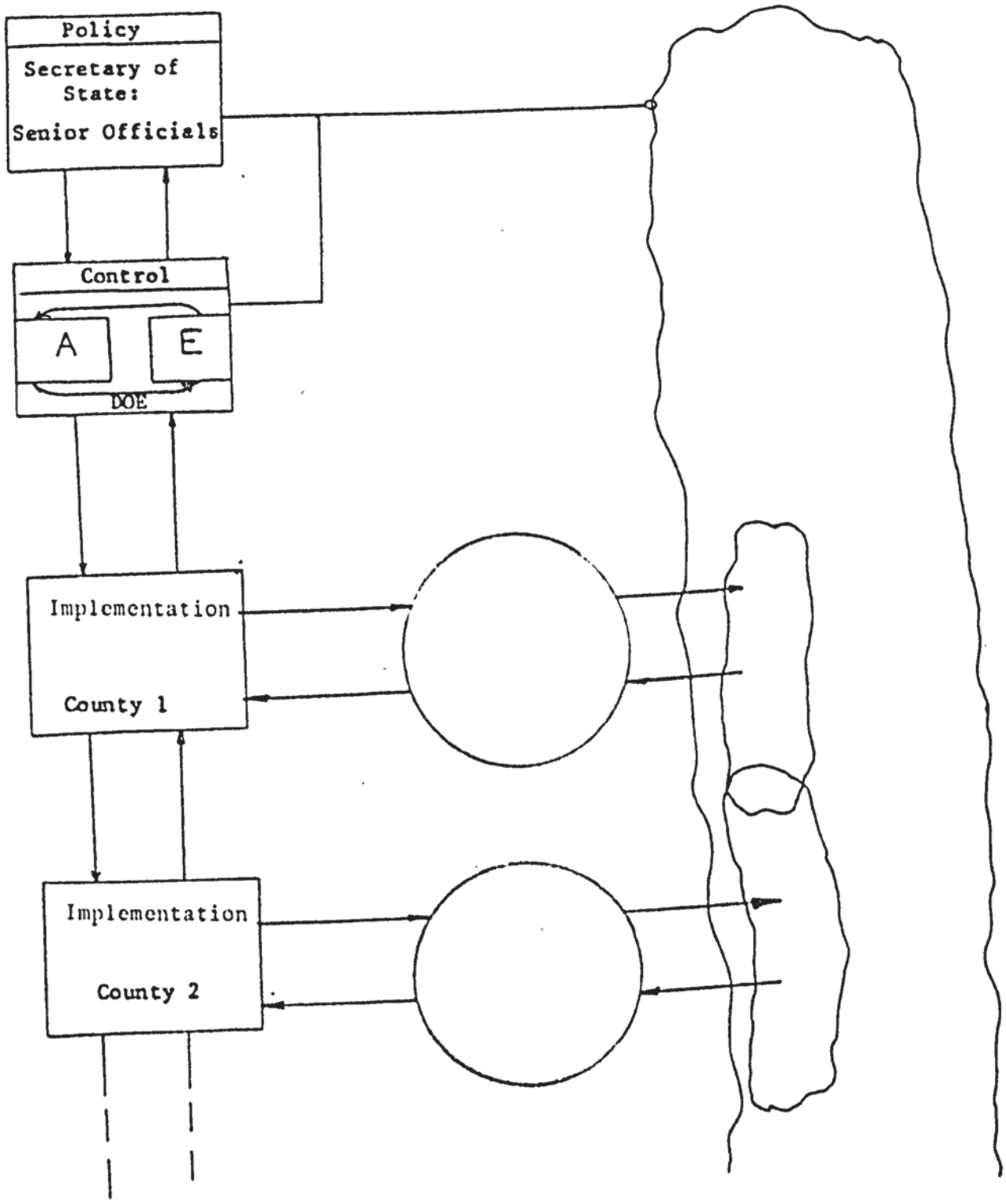

Fig. 23 The Model: Depicting County 1, County 2 etc. as Divisions of the National Government.

The criterion for the application of this model is whether the organisation to which it is applied possesses divisions which qualify as such under three parameters. When applying the model here therefore this requireement must be met. Does the Local Authority act autonomously or is it in fact a division of National Government? When the planning bureaucracy is considered, using the model developed here, it is important to establish in what sense this is true, and whether the Local Authority levels of County and District do perform as subsystems of a national system or whether they are entirely independent systems.

Beer (1972) has stated three general criteria which must be satisfied if the organisation at the lower level (e.g. County Authority) is to be considered as a division or subsystem. These are:

(1) it must operate within the intention of the organisation as a whole;

(2) its activities should not conflict with those of other subsystems;

(3) it should submit to the automatic control of the control functions of system 2.

(Modified after Beer 1972)

In so far as the Town and Country Planning Acts are concerned, it is made clear that the local planning authorities "shall have regard (a) to current policies with respect to the economic planning and development of the region as a whole" and (b) "such other matters as the Secretary of State may

direct."[1] This complies with both requirements 1 and 2 above. In the matter of requirement 3, numerous sections of the Act, for example Section 7(6), 7(7) and Section 35, 36, 37, 38 and 39 detail with great specificity the powers of the Secretary of State over the issues of structure plans and development control. Counties and Districts are therefore left with little choice as to whether or not to submit to the control of the metasystem (National level).

Both points (a) and (b) above, however, presuppose a firm, or at least existent, national position on the issues of land use planning. This, disaggregated into policies for the divisional level, at once defines the autonomy of the division and at the same time ensures that the area of autonomy does not conflict with the autonomy of other divisions.

The argument has been proposed, in an undeveloped form (Espejo, R. 1976), that in general the spending divisions of local (Metropolitan and Shire) authorities act as divisions of Central Government, rather than as effective divisions of the elected council; de facto if not de jure. To decide this in the case of planning it is necessary to examine the nature of System two of the model in detail.

System two controls the activities of those divisions on a day to day basis whilst allowing the systems one as much autonomy as is reasonable within the overall intention of the system. In order to achieve this, two distinct aspects are

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[1] Act of 1971 Section 7(3)

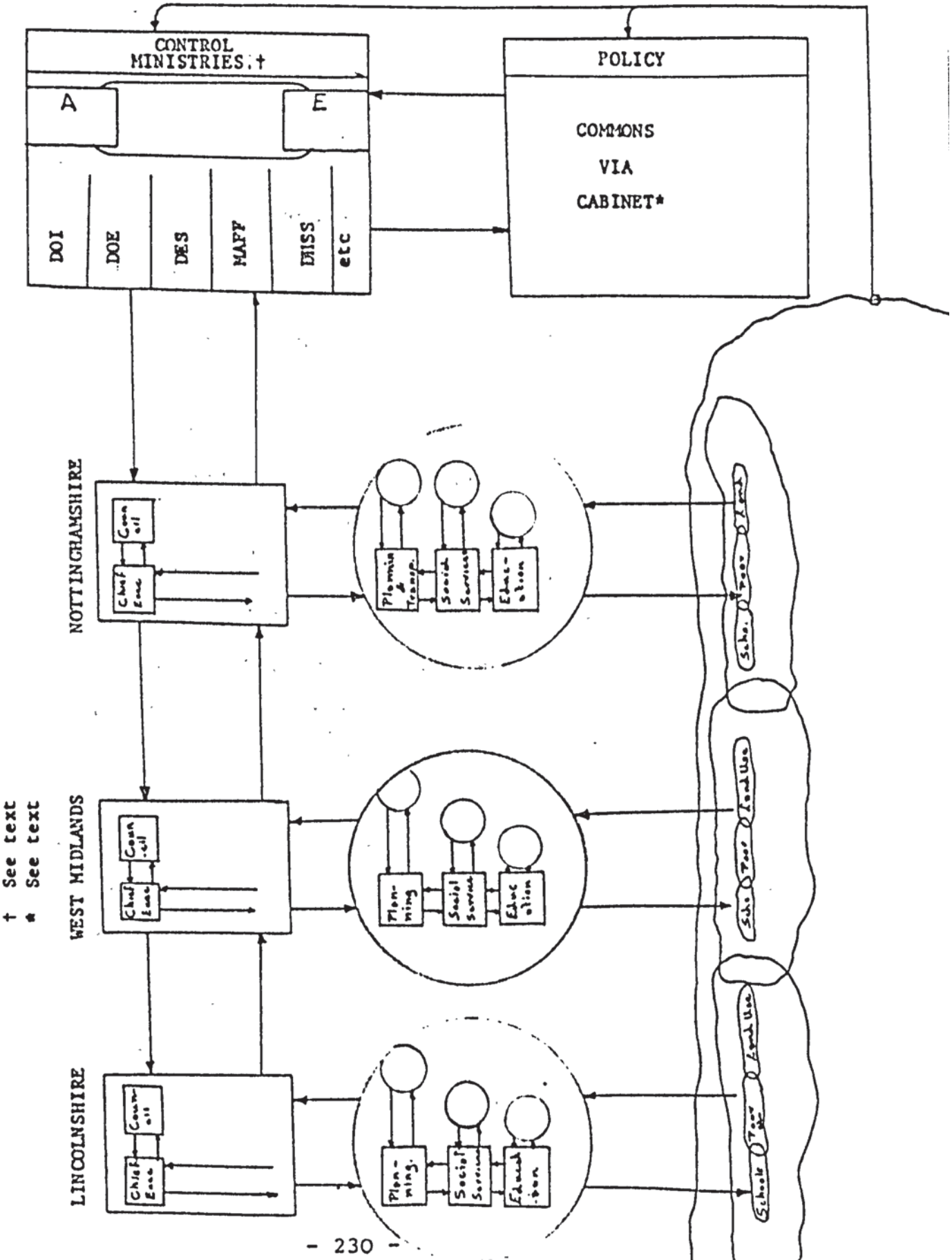
recognised; these are named 'Automatic' control and 'Executive' control respectively. As viewed above, the executive branch of control may formulate alternative strategies by delegated power from the Policy function. They will be adopted as policy only if approved of by by the activities of the Policy function and will be subject to change and modification, in this case by Parliament, as well as being constrained by previous policy. Power thereafter is vested in the Secretary of State, functioning as the main executive arm of control.

The Act of 1971 therefore represents a specification of the procedures and mechanisms of the automatic element of system 2. Also in the way discussed above it constrains both the decision power of the Executive and the autonomy and functional capability of the various systems one, the Local Planning Authorities.

This is one example in which the progressive legislation in planning, or in the terms of the model, the progressive extension of the Automatic elements of system two, equally progressively constrains the possibilities (or variety) of the divisions, or systems one. Change is possible only via a loop which modifies that automatic element; viz. through conscious processes at the highest level of the system, namely system 3.

Viewed in this way, the Local Planning Authorities can be viewed legitimately as divisions of National Government, being defined to be so by the specifying elements of system 2, namely Section 1 and Schedule 3 of the Act of 1971;

Fig. 24 Showing Distribution of Functions between National and Local Government



"the council of a county is the local planning authority for the county", just as for the purposes of highways, the County Council are defined to be local highway authorities, when the highway authority is other than the Secretary of State[1]. In short, for each division of the National level, as vested in the Secretary of State of that Office (division), the County Councils are defined to fill that role locally.

The automatic control in system two defines the boundaries of the divisions and also specifies their autonomy and the various connecting linkages.

18.2 The Nature and Definitions of Systems 2 and 3 at National Level

This situation is shown in Figure 24. The metasystem, systems 2 and 3, is shown rather simply. Policy, marked *, is shown as "Commons via Cabinet". This assumes a single large majority, party whose policies, formulated by the Cabinet can be almost guaranteed a smooth passage through the Commons. The policy body is thus the Cabinet, whereas in a minority Government situation, policy may be varied considerably by its passage through Parliament, which would in that situation act more as a Policy Function, rather than as an approval agency of an extended System of Control (System 2). The diagram also ignores the Lords, which may further modify policy.

Control (System 2) is also shown in a simplified form, consisting of the various Ministries (five are shown, the Departments of Agriculture, MAFF; Health and Social Security,

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[1] e.g. Sect. 290 Part XI of Act of 1971 and the Highway Act 1959

DHSS; Education and Science, DES; Environment, DOE; and Trade and Industry, DTI). Each of these has its automatic and executive control elements. In the case of the Department of the Environment, this is discussed in detail later. The nature of the implementing divisions of these Ministries of State are mixed. In the majority of cases Statute defines the Local Government Authority as the agent of the Secretary of State, for example in the case of Education, Environment, and Transport. In other cases, e.g. Social Security, Agriculture and Trade, the Ministry has its own executive functions.

In the case considered here the Local Authority is defined as the responsible authority, as discussed above. The role of the elected members has not been considered. There is nothing to guarantee that the political colour or persuasion of local authorities coincides with that of the National Government. Indeed, it is customary for the opposite to be true. It is not unknown for Local Government to oppose National policy, as was the case with the Greater Manchester Education Authority over the Government's comprehensive education policy, where the matter was eventually resolved by the courts. In this case the County Council acted in a way opposed to the intention of the whole.

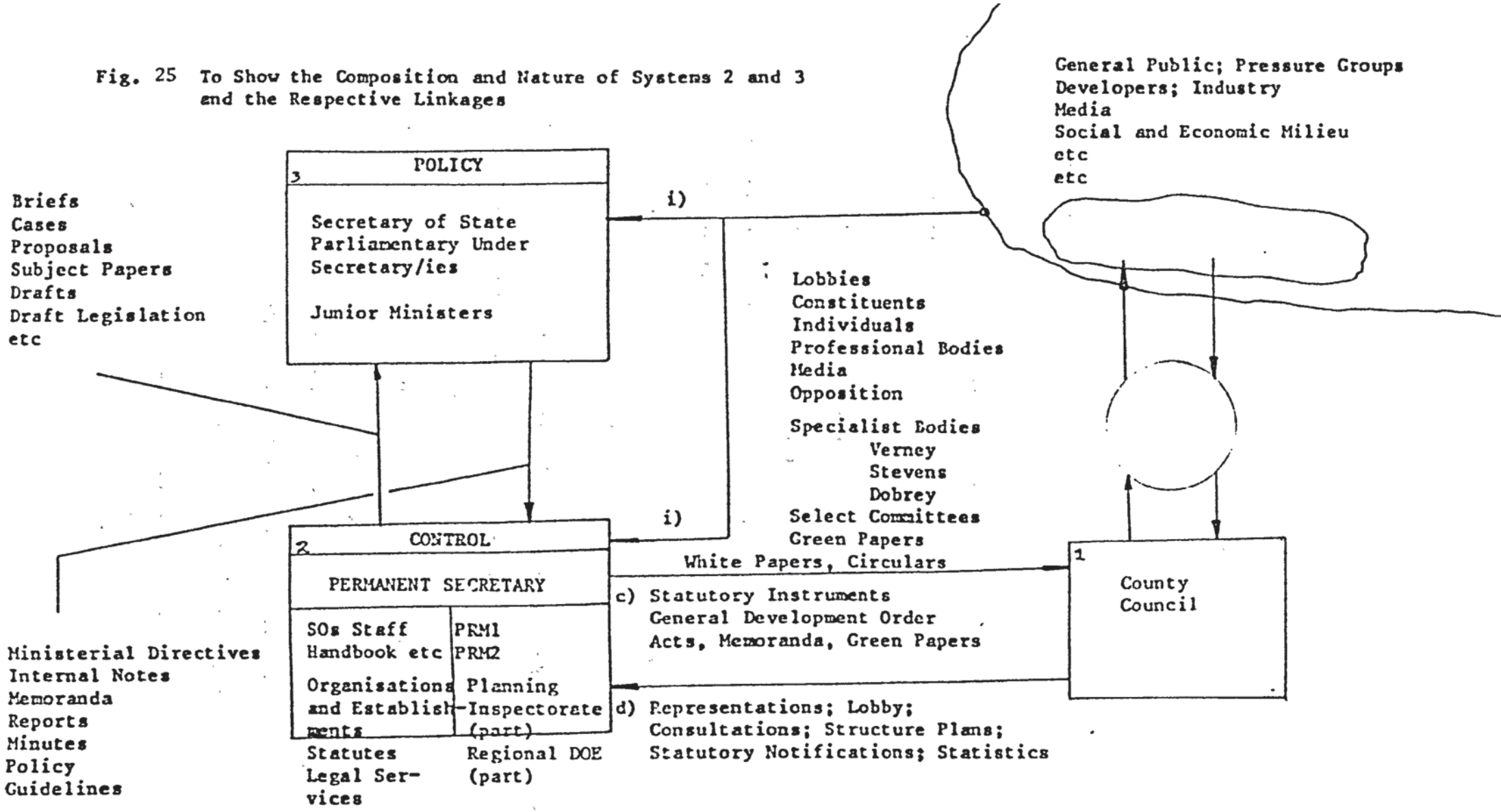
In planning, any possibility of this is excluded by the provisions of the Act of 1971 which tightly constrains the autonomy of the planning Authority and details the Secretary of State's powers. The system thus ensures congruent behaviour by its parts, by Statutes ensuring tight control. As we will see, this is done at the cost of enormously

complex legislation embodies in a very high variety device; an Act of 295 sections and 25 Schedules, a document of some 382 pages.

Considered historically, as in Chapter 6 of Part II the planning system may be considered as an example of the way in which an entirely unregulated situation (pre-1875) gave way to a network of local authority, acting more or less autonomously, being then progressively constrained by national statute until the creation, in 1947, of a centralised planning system. Throughout this period, the actions and powers of the meta-system, systems 3 and 2 (Parliament and Officials) acted as parameters or "given values" for systems 1 (the local authorities).

In the same way, the automatic element of system 2 acts as a parameter or a constraint on the actions of the executive element of that system. It is alterable by system 3, only through procedures embidied in system 2 at this, and the next higher level. For example the powers of the 1971 Act constrain the activities of the whole of System 1 (the County Councils) and also define the legitimate activity of the executive element of system two (officials of the Department of the Environment). Changes in these parameters can be achieved by policy formulation and activity in system 3 but depends for its sanction on recourse to the level of recursion above, namely Parliament. Hence, by this process the legislative system evolves in response to an environment which is partially shaped by its own previous activity. This view of organisational evolution is not developed here; it is sufficient to note that the system under study is a

Fig. 25 To Show the Composition and Nature of Systems 2 and 3 and the Respective Linkages



dynamic, self-adjusting or evolving one, of which the only landmarks are statutory enactments and organisational dispositions or arrangements. Such statutes mark particular stages in the system's development, and are reference points which subsequent activity of the system occurs.

Secondly, as the law of requisite variety operates in this domain, over-specification by the National level (i.e. a limitation of the autonomy of the lower level) means either, that an inadequate response capability will be shown by systems one, or that variety will have to be absorbed 'higher' in the system, in this case by system two, the Secretary of State. This is precisely the case. For example, the 6000 odd public planning enquiries held each year, the large number of all planning applications called in, may be said to represent the very high variety absorbed at a high level in the system due to highly constrained autonomy at lower levels. These points should be borne in mind during the following discussion of the system.

The accompanying Figure 25 shows the linkages between system 1 and systems 2 and 3, these are specific to planning*. What stands out on this diagram is the relative equivalence of the flow between the two parts of the metasystem (flows a) and (b)), relative to the flow of information from and to the collection of systems one (flows c) and d)). There is a very considerable, and formalised, flow from system 2 to system one; this takes the form of the various instruments

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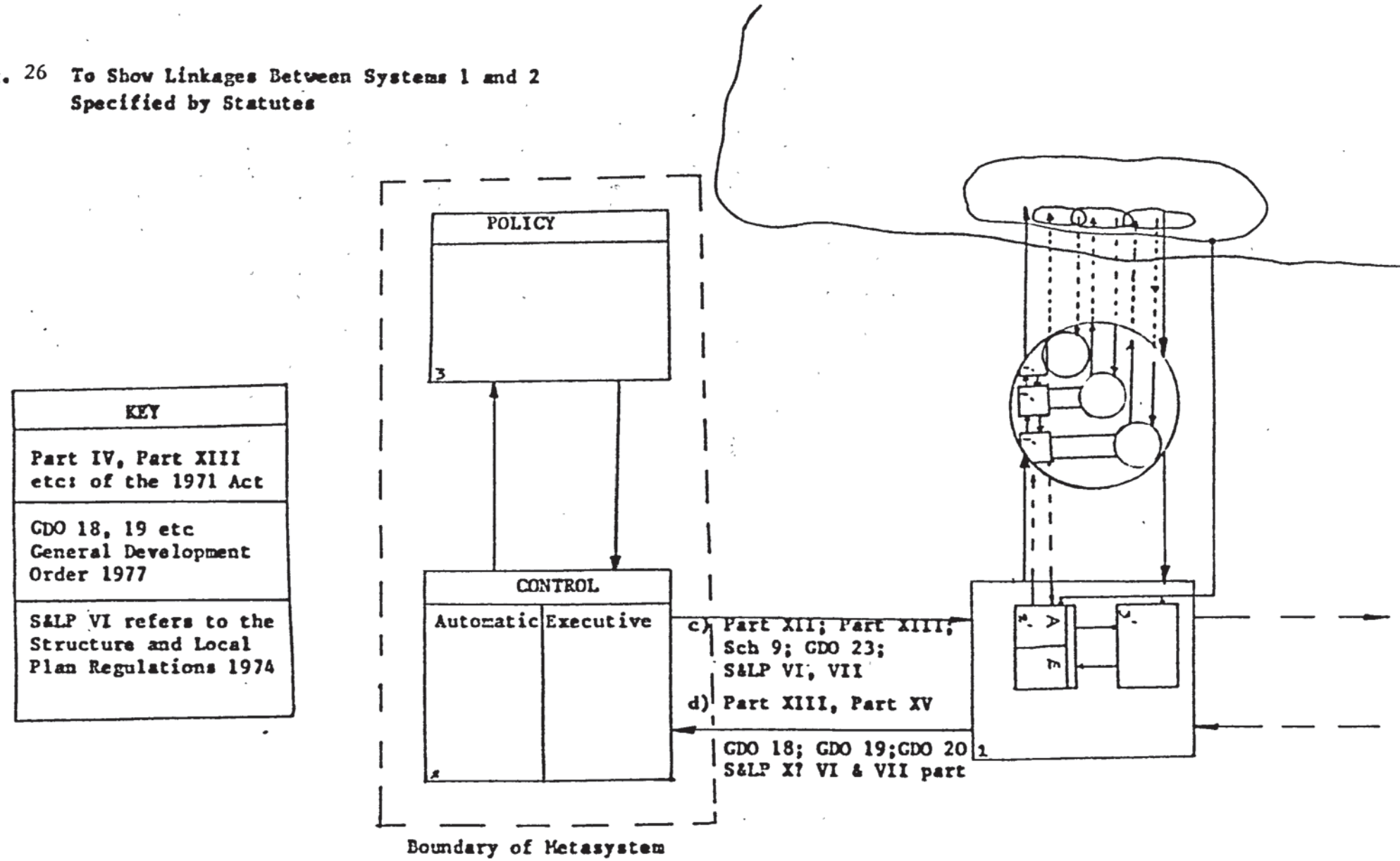
* Note that PRM 1 and 2 are Mineral Planning units within DoE. The rest of the Figure is general for Planning matters

Fig. 26 To Show Linkages Between Systems 1 and 2 Specified by Statutes



shown on the figure. In the reverse direction however, there is a relative lack of information. Statistical returns and compulsory notifications are the formal requirements; in the planning field, copies of Structure Plans have to be approved by the Department. Informal consultation and lobbying occurs, frequently through the Association of County Councils. Specific linkages in planning are dealt with in the next section. Intelligence linkages (flow i) are of two broad types, self generating (originating from the environment) and system generated (originating from the metasystem). Examples of the former type are information or pressures from lobbies, professional obdies or representations from individuals; examples of the latter are Committees or Commissions such as those described earlier, the Stevens and Verney Committees.

In the specific area of planning, linkages between the National and Local levels are specified by the 1971 Act and attendant legislation. These are examined next.

18.3 Linkages Between System 2 and all Systems One

(see Figure 26)

As stated at the beginning of this section, the linkages of the planning system are specified by statute. The provisions which specify the linkages between National and Local Authority are shown in Figure 26

Three major documents specify these; the 1971 Town and Country Planning Act, the General Development Order of 1977 and the Structure and Local Plans Regulations 1974. Other publications (e.g. the Mineral Regulations 1971, and the

Page Numbering as Bound

Town and Country Planning (Amendment) Act 1972), together with certain clauses of the Local Government Act 1972, have a minor effect. They involve changes in fine legal detail, rather than embodying major procedural effects, and are omitted.

Rarely does an entire Part refer to one linkage only; thus for example, Part IV specifies the activity which the Secretary of State may perform in connection with Listed Buildings via the Local Authority, and then specifies, with considerable precision, the action of the LPA in respect of trees, office development etc; these therefore relate to the environmental linkages of the LPA (System 1) as well as from system 2 to system 1. The same is true of Part XV which covers virtually all linkages, from the Default Powers of the Secretary of State (an "emergency channel" from any particular divisional environment, in the case of failure by that division), to the power to make orders (Sect. 287), which has the effect of amplifying the variety of the executive functions of system 2 by embodying blanket or frequently made decisions in the Automatic element.

Interestingly, this Part of the Act also acts laterally in reconciling other elements of the Automatic control by Government. Thus the Act is valid despite "any enactment in force at the passing of the 1947 Act* or by any local Act passed ..... during the regnal years 10 and 11 Geo 6". These linkages, and those discussed subsequently, exemplify

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* The first major Act of Town and Country Planning

once again the comprehensive approach to planning. They attempt a very tight (and hence try to embody high variety) specification of every possible state which the planning system can adopt in dealing with its environment. In detailing the role of the Secretary of State (e.g. in Sections 16-21, 35-39, PartV, Part XI etc.), not only is the power of Local Authorities further constrained, but a very high functional capability is needed where it does not actually exist, namely in System 2.

18.4 Interlude

Before going on to discuss the System one linkages, it is as well to summarise the argument so far. In Part III a definition and model were derived of the purpose and activities which could be embodied by the Authority subsystem. The two major activities of that definition were "control and specification". The model described in Part I modified after Beer is a model of complex organisations under control in changing environments. The introduction to Chapter 18 briefly recapped the model and argued that the statutorily defined planning system fulfils the three criteria of divisionalisation given as being necessary before the model can be applied. Section 18.2 described the metasystem, systems 3 and 2 and its linkages, and section 18.3 has described the linkages between the metasystem and its divisions, all Local Planning Authorities. The next section, 18.5 examines in detail the statutory definition of the divisions.

18.5 The Definition and Description of System One and Linkages

The Local Planning Authorities

Although the Act of 1971 and others (e.g. Highway Act 1959) delegate authority, apparently clearly, to the Local Authority, quite in accordance with the model, this is not in fact the case. An examination of statute and practice reveals that linkages between National and Local Government are very precisely specified, as is the nature of the environment to which the system is permitted to respond. Additionally a high degree of responsibility, over for example trees, advertisements etc., is reserved to the National level or is specified tightly by it, calling for a highly developed central capability.

The following discussion centres around linkages within divisions, and between the division and its environment, and substantiates the argument outlined above.

It has just been stated that both County Councils and district Councils are defined as planning authorities by the Act of 1971 and, subsequently, the Local Government Act of 1972[1]. For the purposes of minerals planning however, we have already seen that the County is defined as the Planning Authority, as well as for certain other 'strategic' matters, and for Structure Planning.

Also the nature of the planning environment, that is, those characteristics of the social and spatial organisation of the County which the system must take account of, is closely

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1 This delegation from the County to District is provided for by ss 3, 4 of the Act of 1971 and is specified by the Local Government Act of 1972

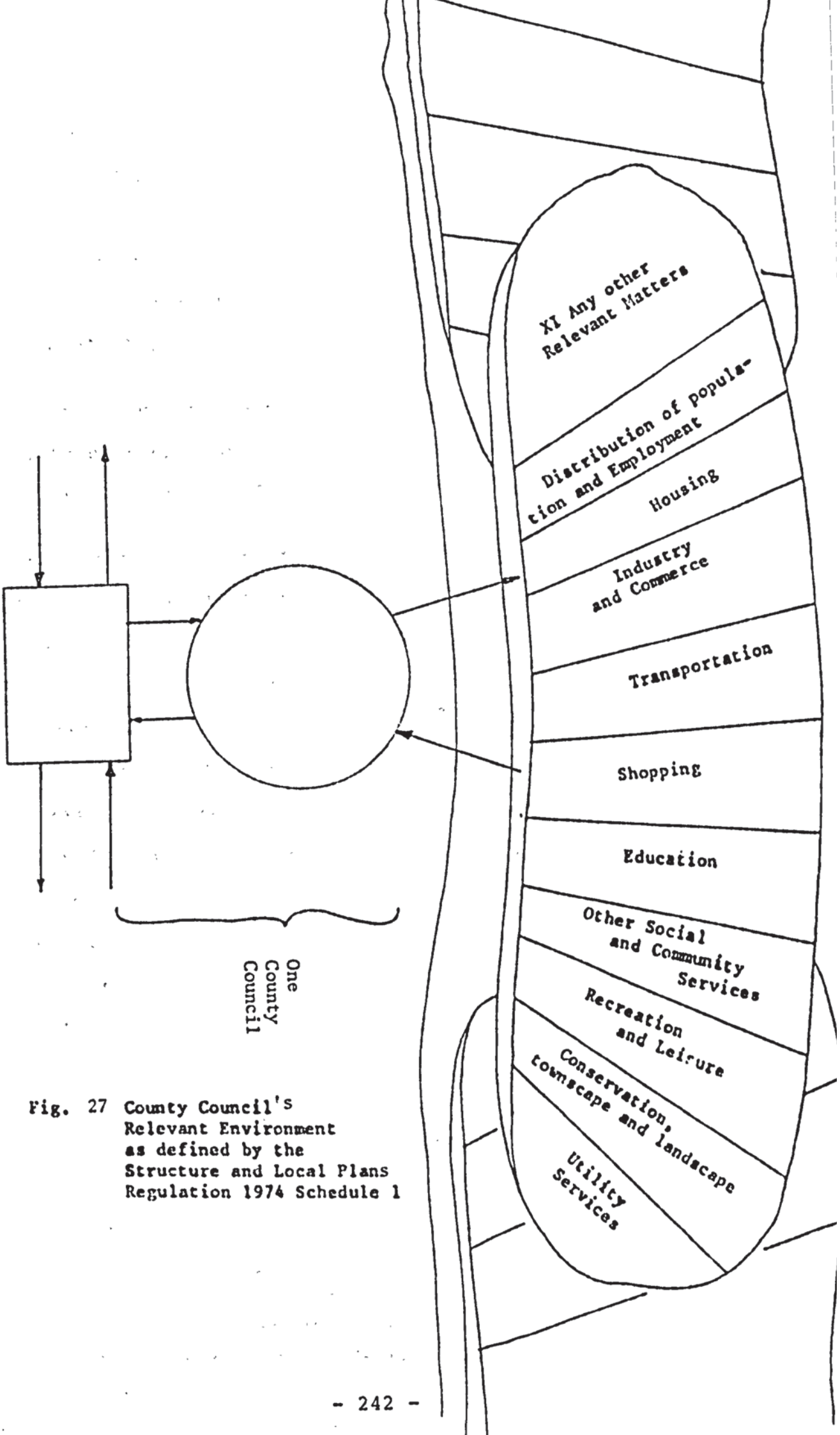

Fig. 27 County Council's Relevant Environment as defined by the Structure and Local Plans Regulation 1974 Schedule 1

specified by statute, mainly by parts IV, V and VI of the Act of 1971. Parts of the environment are also specified by Part XV, sections 278-281, of the 1971 Act and by parts of the General Development Order[1], together with the Town and Country Planning (Structure and Local Plans) Regulations 1974[3] (especially regulation 9 and Parts I and II of Schedule 1).

Figure 27 shows the relevant environment divided as directed by Regulation 9 and Schedule 1 of the Structure and Local Plans Regulation 1974[2].

The legislation, and therefore the organisation, of planning recognises two types of linkage or transaction with the environment. The first set is concerned with Structure Planning and development plans in general. The second is concerned with specific developmental control, in this case control of mineral working. The scope and nature of these transactions are also defined; these have the overall effect of reducing the variety of the environment as seen by the system. The determination of these linkages is described below. The two sets are referred to as SP and DP 1 and 2, indicating Structure Plan and Development Plan 1 and 2; and as DC and R 1 and 2 indicating Development Control and Regulation (see figure 28).

18.5.1 Structure and Development Plan Linkages (SP and DP)

(a) Inward (SP and DP2)

As a previous section[3] made clear, the predominant

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1 Statutory Instruments 1977 No. 289

2 Statutory Instruments 1974 No. 1486

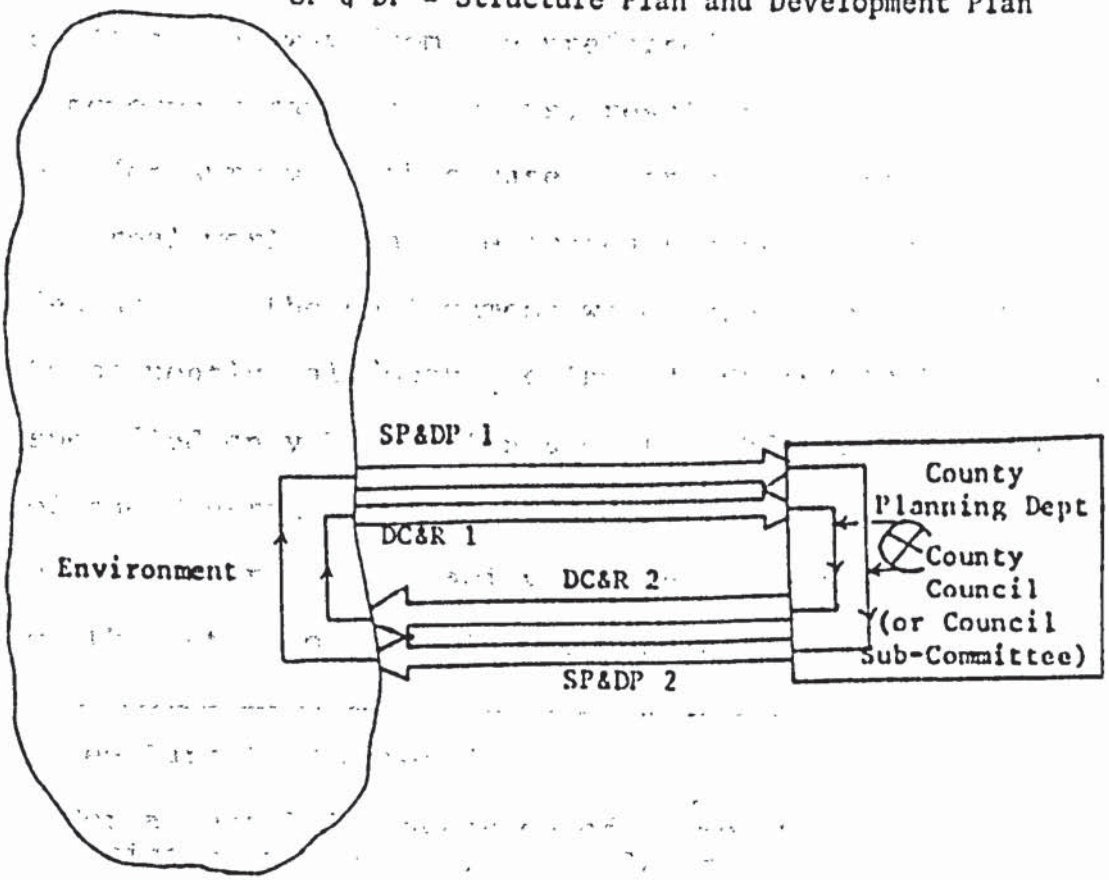
3 See the section on land-use planning

Fig. 28 To Show Linkages between Local Planning Authority and Environment Specified by Statute

Linkage	Specified by given Sections of Statute etc.
SP&DP+2	S6 of 1971 Act: Predominant theory of Planning Pure Rationality/Mixed Scanning; Results in Report of Survey; Public Participative Documents.
SP&DP 1	S8, 9(3), 26, 27 of 1971 Act: Parts II and III of SI 1486. Results in Publicity, Examination in Public, Newsletter, Questionnaires, etc.
DC&R 1* DC&R 2	See expanded tables

* DC&R ≡ Development Control and Regulation

\+ SP & DP = Structure Plan and Development Plan



theoretical strand in British planning is a mixture of the "pure rationalist" and "mixed scanning" approaches[1]. Both these approaches involve the planning body in very high variety situations. The former approach involves taking into account every feature of the area to be planned in considering alternatives. This is equivalent in cybernetic terms to attempting an isomorphic[2], or 1:1 mapping, of variety in the environment relative to the system.

The latter approach, that of Etzioni[3], recognises that some issues will have greater priority than others, and this recognition allows some reduction in the variety with which the system attempts to cope. The mapping implied here by the planning system is therefore less like a 1:1, and embodies some filtering or variety reduction. This is still a long way from the preferred state where a homomorphic mapping[4] occurs, resulting in one feature of the map (or survey in this case) representing many features of the real world. This redicates the necessity to recognise features of the environment which can be clumped together. Consequently, although the inward (SP and DP 2) linkages are specified only by section 6 of the 1971 Act and Schedule 1 of the General Development Order, the practical determinant of the nature and capacity of those linkages depends entirely on the method of planning decided on by a given local

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1 See Part II Chapter 7

2 For a detailed discussion of isomorphy see Beer, S., 1966 Decision and Control, and 1972 Brain of the Firm

3 See Etzioni 1967 and (1) above

4 Beer ibid.

authority. If the comprehensive model is chosen, as the Act virtually requires, the Authority are faced with the task of developing mechanisms to absorb all the variety of their relevant environment. In the counties observed during the study, the approach observed contained a mixture of the purely rational (comprehensive) approach and the mixed scanning approach. The inward linkage was in all cases predominantly accounted for by the Report of Survey, the nature of which has been previously described. Each Report of Survey contained a section or chapter on minerals (with the exception of Lincolnshire) which dealt in detail with the quantity, location, and type of mineral working, as well as the environmental problems and economic effects of the workings. As a generalisation it would be true to say that the size of this chapter varied proportionately with the amount of mineral working in the County, varying from twelve pages, to one County where the survey report for Sand and Gravel alone occupies a 49 page volume. In all cases however, matters such as housing, transportation, occupy the vastly greater proportion of structure plan documents, reflecting the predominantly urban historical emphasis of land-use planning.

The major point therefore is that this linkage is dominated by a very high variety device, the Report of Survey. Other devices, such as public responses to invitations to respond and interact with the planning process have generally been less significant (Drake and Thornley 1975). The most thorough review of participation in planning is probably that of Drake and Thornley; the place of public participation through

planning legislation has been expanded by Schaffer (1974).

(b) Outward: SP and DP 1 Linkages from System to Environment

Links belonging predominantly to SP and DP 1, that is from system to environment, act as stimuli to prompt a response along the channels just mentioned.

Outward links, which tend to amplify or increase the effect of the system into its environment, are specified by Section 8 and parts of Section 26 and 27 of the Act. A far wider variety of approaches to this area is found. Drake and Thornley (op.cit.), following the classification of Arnstein (1971), categorise most attempts as "tokenism" where the object is to amplify variety, not in order to communicate, but to "inform and placate"[1] the citizen. Whilst this was true of several authorities studied here, there was evidence that several authorities (especially the Peak Park, Lincolnshire, West Midlands, Derbyshire) are attempting to stimulate the Sp and DP loop, or in other words, are making an attempt to stimulate a genuine two-way learning process of the type categorised by Friend and Jessop (1969).

One problem which was apparent was the time lag between initiating the loop and receiving response back from the environment, given that the active planning process was continuing at the same time. In the counties studied there was little evidence that a really effective loop had been established with the community. Dissemination outward

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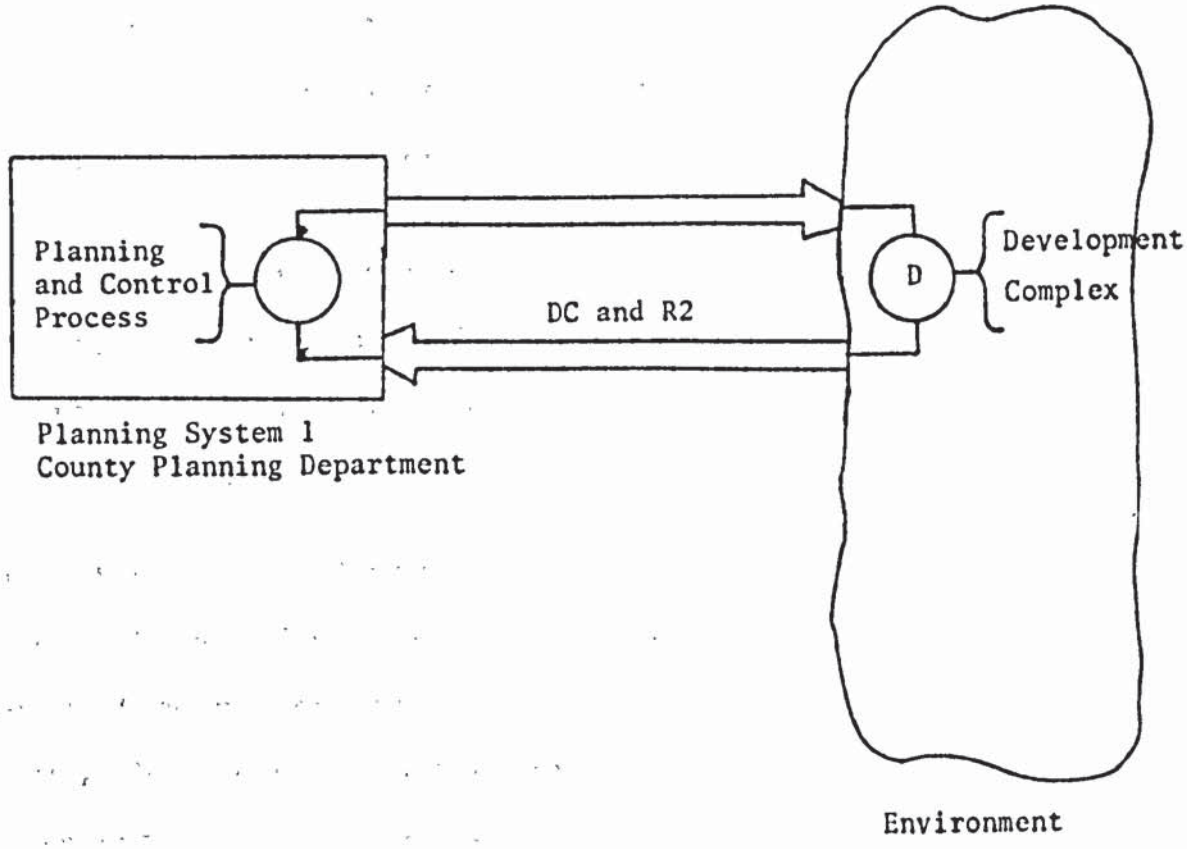
[1] Drake and Thornley op.cit. p.106

apparently was rapidly diluted and the response was fragmentary. Perhaps this was due to the variety imbalances noted above. This area is undoubtedly one which would benefit from further research.

The conclusion is drawn, therefore, that in terms of a dynamic loop to promote the dissemination of information into the environment, and to evoke a response from the environment, two things are inadequate from the cybernetic viewpoint. First of all, the nature of the relevant environment at the level of the county is far too tightly specified by the meta-system. The local authority is therefore virtually obliged to attempt comprehensivity or to "cover all the angles". To expand this, the authority has had laid down for it what it must consider as comprising its environment for planning purposes. This is defined in very great detail, in order to do this and to conform to methods which are also specified (preparation of Report of Survey etc.) the authority almost invariably resorts to the comprehensive model of planning, which involves them in incredibly high variety situations. Because, innately, planning staffs recognise the near impossibility of adhering to a comprehensive model of planning, many formulate policies (at least in minerals) in a reasonable but arbitrary way. The mass of survey data then may substantiate, post hoc, these policies rather than informing policy formulation.

Secondly, although the principle of public partcipation is proclaimed, mechanisms for the accomplishment of this, and its nature as a dynamic feedback or learning loop between planners and planned, has yet to be given a practical realisation.

Fig. 29 Showing * Development Control and Regulation Linkages (DC AND R)



Linkage	Specified by Statute
	PART IV Act of 1971 Includes specification relating to Control of areas of Environment. Buildings, Trees, Adverts. etc.
DC and R1	PART V Enforcement PART VI Amplification of control linkage; Decision Notices etc. PART X Highway Control PART XIV Special Areas GDO Exempts areas of Environment from Control of Planning Application Forms etc. PART VII Limits Effects Provision for Compensation PART IX Acquisition Rights for Interests/Owners
DC and R2	GDO Specifies forms of notification to Authority Section 20 Concerns appeals to metasystem level SI1486 Opportunity for Consultation to LPA etc. Parts of S26527

In mineral planning terms this has the effect of prompting or soliciting views from the public on what should be done in mineral planning when they may not have been provided with data or information by which to make or give an opinion.

18.5.2 Development Control and Regulation DC and R 1 and 2. The second loop or set of transactions between system and environment lies at the level of Development Control and Regulation. (see Fig. 29)

The Act of 1971 and parts of the Local Government Act 1972 also tightly define these relationships, again on the basis of comprehensivity. As the summary table (Figure 30 shows, this results in the very detailed nature of control links specified by the legislation. For example, Part IV specifies in detail the control over various elements of the environment; trees, listed buildings, advertisements and so on. Parts V and VI specify the further stages of control; enforcement, highway control, control of "special areas" etc.

The General Development Order Schedule 1[1] defines areas of developmental autonomy, that is, developments having 'deemed permission' and therefore allowed without any need to go through procedures to obtain planning permission.

The GDO also specifies the forms of notices which must be given, some of these are ssystem to environment linkages, such as that of Schedule 6 part I; notification to be sent to an applicant by the Planning Authority on receipt of an application, or Schedule 4 Part II.

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[1] Statutory Instruments 1977 No. 289, Town and Country Planning General Development Order

Most are forms specified by the system for use either to communicate with the system, or with other parts of the environment. Examples of the former category are notices under Schedule 4 Part I, and of the latter a notice under Schedule 3 Part I both of which apply to Section 26 of the Act of 1971.

Other linkages from environment to system, apart from those mentioned above which fall within the provision of the General Development Order, are generally less well specified. Representations to, or obejctions about, a development proposal may be made, and are specified by Sections 8, 26 and 27 of the Act. These sections require the developer and the Planning Authority to advertise certain types of development, and ensure an opportunity for objections about proposals to be registered.

In addition to this, parts of the Act e.g. Part III provide for redress, in the form of compensation, against action by the system, or provide that a developer may utilise an "exception route" to the Secretary of State by way of an Appeal procedure (Section 20 of GDO).

18.6 Implications of the Analysis

What becomes increasingly evident from the analysis is that the control loop is very simple, even rudimentary, consisting of application, decision, development (in the case of approval), then, if in breach of permission, enforcement notice and corrective action. The immense complexity of the Bill and subsidiary Statutes stem from the very close specification of activity and environment which they attempt. In dividing

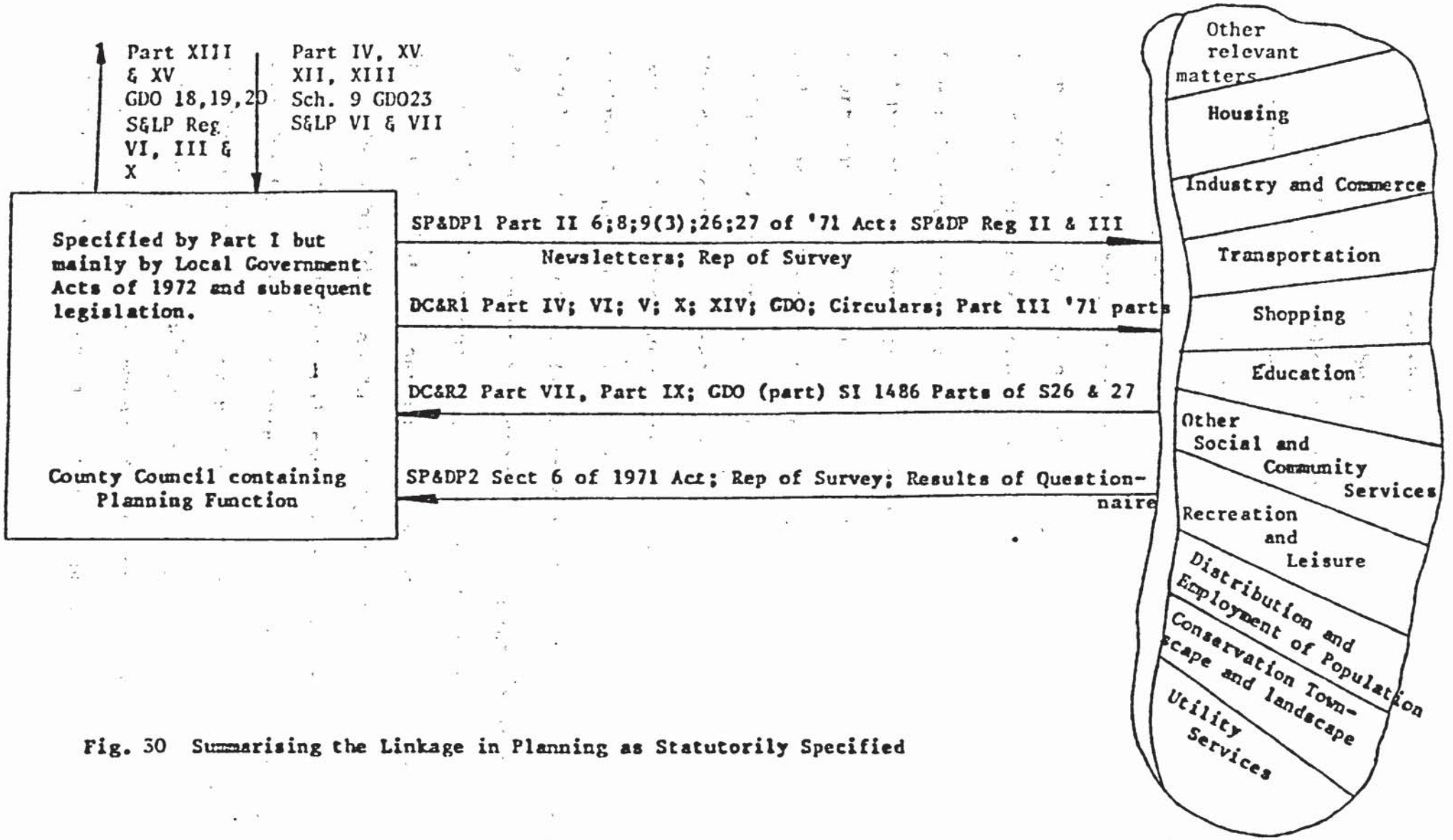

Fig. 30 Summarising the Linkage in Planning as Statutorily Specified

Sch 1 S&LP Regs Part III (part); IV; V (part); VI (part); X; XIV; Schs 3, 4, 11, 12, 13, 19, 20; GDO 11, 12, 13

the environment into the number of areas which it does (e.g. Listed Buildings, Highways, Trees, Mineral Workings, Office Development), it seeks to cover every developmental contingency, or, as argued above, to match at a 1:1 level, the variety or complexity of the environment.

Figure 30 summarises the situation described above showing which of the statutes specify or relate to particular linkages. The County Planning Authority is shown as a single box for purposes of the diagram.

The relative success of the system is due largely to the nature of most development itself. A house or factory, in short any erection, is a relatively permanent development and, even if the use changes (e.g. Brewery to Hypermarket as in Dudley recently), the structure generally does not. The rudimentary control loop at the Development Control level is therefore adequate; in general a development control loop consists in either allowing or prohibiting a development. Control is defined by Pask (1961) as "interaction with (an) environment to bring about a particular stability called the goal or objective", the goal is only "a stability" in the most abstract sense; one would, for example, hardly describe a building as "a stability" unless there was some doubt about its structural soundness. Rather one would describe it as being, within certain limits, permanent. The "stability" in planning is a balance of land use, at a higher level than that of any given unit of urban development. With a planning development (in the traditional sense of a building etc.) therefore, it is possible to define the

nature of the goal very tightly (e.g. number of windows, position of trees, drainage etc.), so that control is assured before the beginning of the work in real space is contemplated. When a traditional industrial process is an integral part of such a development, be it smelting or butchery, 'control' of the process is vested in other authority (for example, in the Factory Inspectorate or Health Inspectorate), even though permission will have been granted by the LPA.

Mineral working however, as pointed out by Stevens (para. 4.32) and as discussed earlier in this thesis, is very different. It is a process, a progressive operation in the course of which even buildings and erections (e.g. crushing plant, site offices etc.) associated with the development may move, whilst the actual focus of the development, the working face, certainly will. Whatever the goal of planning with respect to minerals may be therefore, it will need control for that goal to be achieved, and control in this instance does imply "a constructed assembly (e.g. planning section) ..... (interacting) with its environment to bring about a .... goal". (Pask 1961).

In the preceding section, the various linkages between a Local Authority and its environment were described. They were classified as being of two types; one concerned with the development sanctioning mechanism, often described as a development control mechanism.

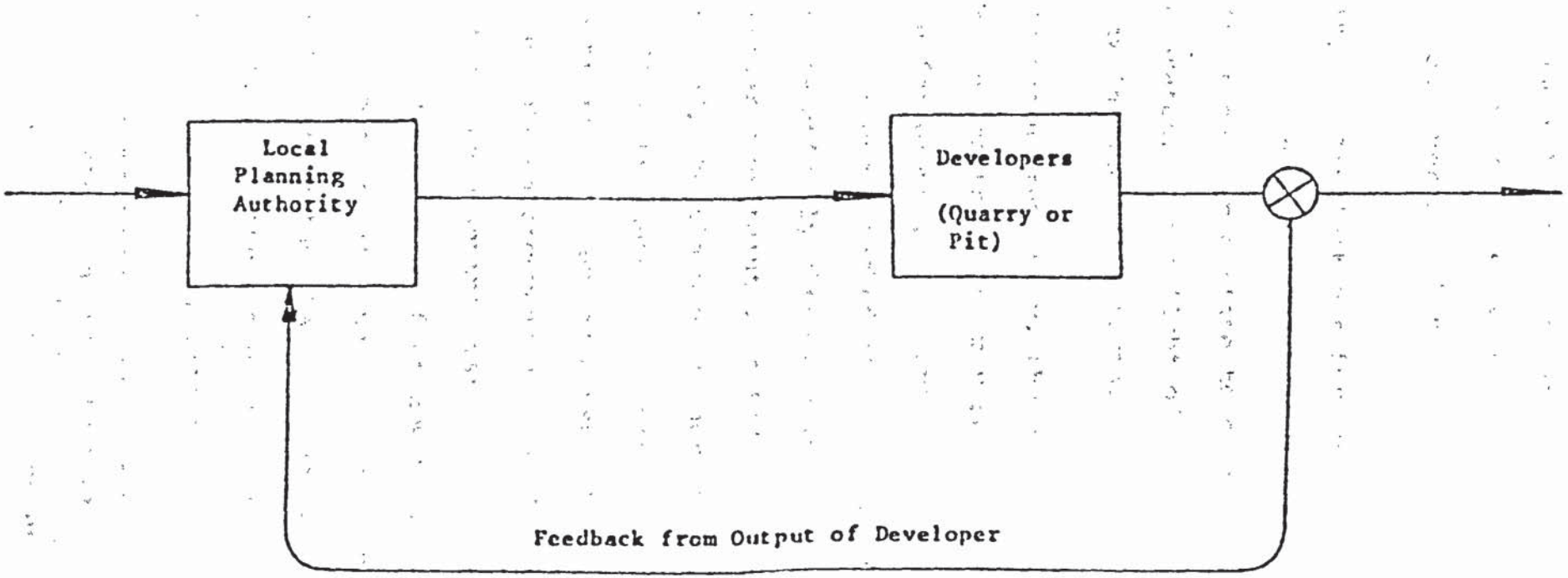

Fig. 31 (Also Fig. 13) LPA-Developer Loop as a Closed Loop Control System

The analysis above and the preceding discussion have emphasised the point that, in terms of a strict definition of control, the legislation of planning does not facilitate control of the type of continuous development process of which mineral working is perhaps the best cause.

18.6.1 Implications for Current Practice in Mineral Planning

It is now appropriate to examine how this control currently operates, in the light of the preceding analysis of planning law in cybernetic terms.

As shown previously, the control of development consists of two elements, which may be described as "pre-emptive" and "enforcement". Pre-emptive control consists of specifying conditions attached to the planning consent[1]. Viewed systematically these are intended to act as parameters, or rather constraints, on the mineral working. If, during the period, the planning authority detects that the boundary defined by these conditions has been transgressed (i.e. that a breach of planning consent has occurred) then the authority may take enforcement action ("action in breach"). In theory, then, the planning system, is a closed loop system as shown in Figure 31. In fact however, as was described in earlier sections, monitoring is at best sporadic and at worst non-existent in the LPAs studied, with one or two notable exceptions. Also the number of constraints placed on a working may be very large, ranging from 12 to over 35 in examples

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[1] Under the planning Acts there can be only three outcomes of a planning application to a Local Authority; refusal, consent and conditional consent

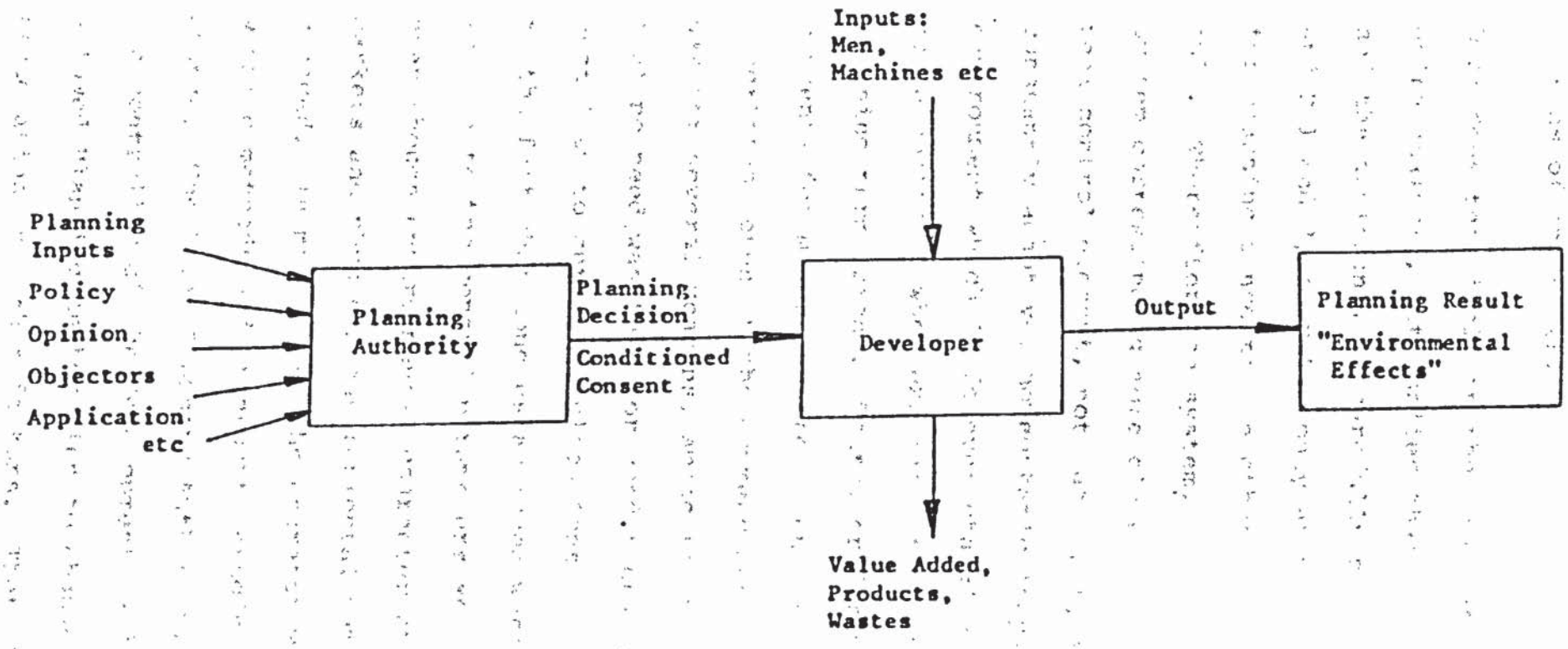

Fig. 32 To Show Planning Decision and "Control" Process as it is observed

studies, with one example of 56 conditions noted by Friedns of the Earth.

What does this imply in the cybernetic terms of the foregoing analysis, It implies that the loop between the LPA and the applicant, so carefully specified by linkages DC and R 1 and 2, operates only at the time of application for planning consent; in other words it is a decision loop only. Thereafter the system, unlike Figure 31, is an open system corresponding more closely to Figure 32, with no real control element, not, at least, in the sense of a constantly adaptive, homeostatic loop, responding to an environment which is forever changing. This analysis appears to be confirmed when examining the historical effect of planning permissions. Thirty or forty years ago, planning consents for minerals were given largely without planning conditions, even at the commencement of the working. This was for several reasons, among the most prominent being that no need was felt for conditions to be imposed. Hostility to current applications is due, in great measure to the fact that long established workings have continued working to the control parameters set forty years previously, even though environmental characteristics, towards transport, markets and physical environmental damage, have totally changed. In many cases the operator will have changed his working methods and transport methods in the face of external change. The Local Planning Authority, however is statutorily the controller of the development, and legislation has not allowed Planning Authorities to change conditions of restoration and other factors. Therefore although the

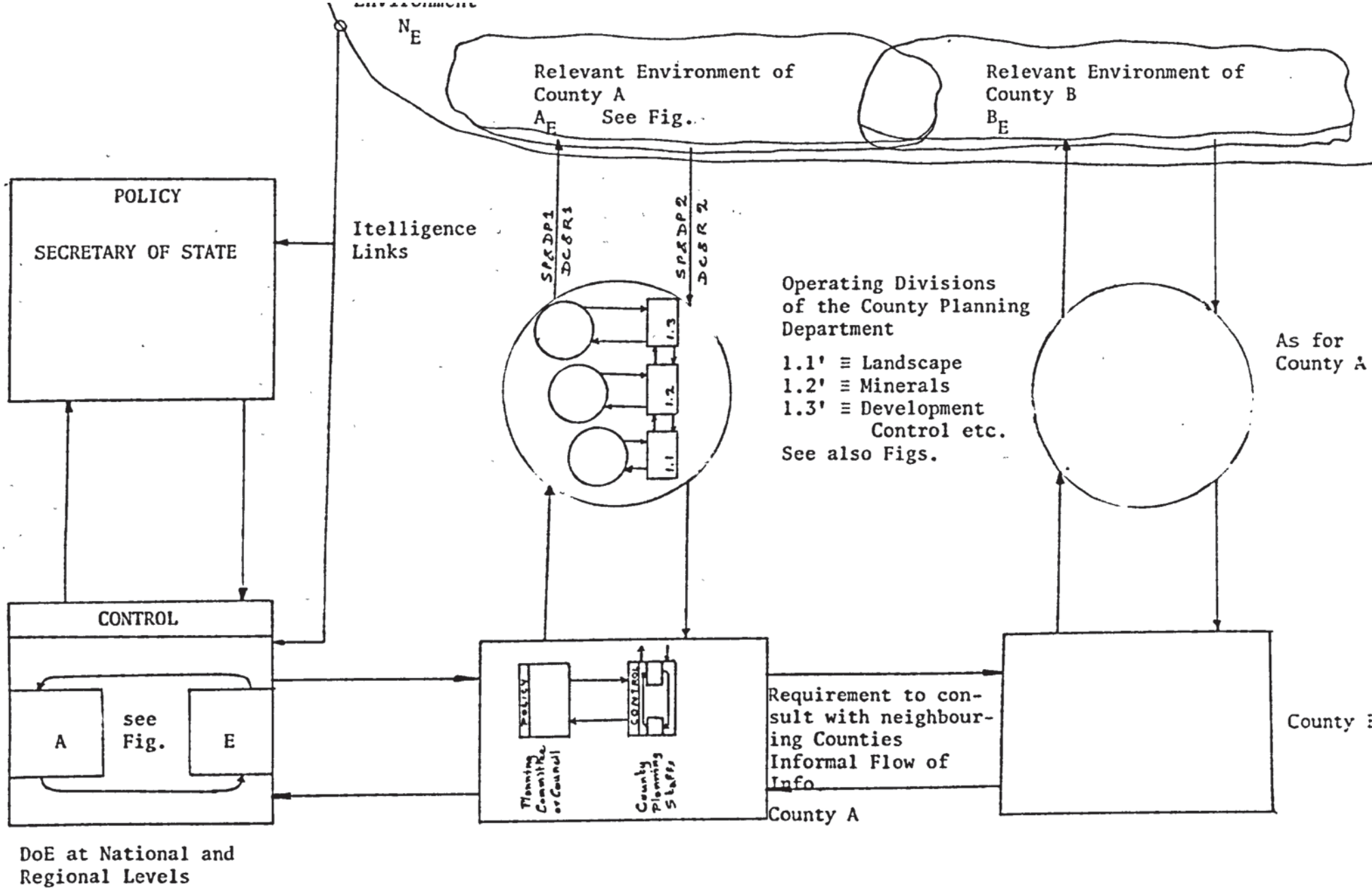

Fig. 33 Summarising the National and County Levels, considered Cybernetically

working is adequately controlled in 1940 terms, in 1980 terms, to many observers the working appears totally uncontrolled.

In this respect, the doctrine of comprehensive specification of all possible eventualities has totally failed, as from the cybernetic viewpoint it must do. Seen in this way, the modern tendency toward an even larger number of planning conditions attached to consents, represents another attempt to comprehensivity which, the analysis is correct, must also fail.

18.7 Summary

This lengthy chapter has analysed the statutory specification of the planning system according to the organismic system model of Part I. Figure 33 is a summary figure showing the overall system as discussed in this chapter.

Section 18.6 considering the implications of this analysis, has condluded that, considered in the Root Definition terms, control of mineral development is very poorly developed. Also that in fact hte system is an "open loop" system for enabling an initial decision following specification of a land use, but that in legislation and current practice, real control does not occur.

Secondly, although the system allows for specification of a land use, as required by the Root Definition, mechanism for encouraging debate over land use between groups outside the system's boundary are highly limited in their effectiveness. In the light of the very different views

described in Part III and characterised in the naming of Voters and Industry subsystem, Authority possesses no mechanisms whereby effective and continuous debate over specification of land use may occur.

The analysis described here therefore show major differences between the observed and modelled system. These differences are described further in the next chapter before drawing conclusions from the study as a whole.

CHAPTER 19

SYNTHESIS

19.1 Introduction

So far Part IV has described the statutory planning framework in cybernetic terms as a system of communication and control, based on mechanisms of homeostasis, involving feedback loops at various levels. Part III has described and conceptualised the planning system as one of specification and control of use of land named "the Authority", responsible for mediating the wishes or requirements of the other two subsystems, "Voters" and "Industry".

As the title of this chapter suggests, it compares and synthesises the findings of the preceding chapters to arrive at feasible and desired changes to the system of planning control over minerals which form the conclusions of this thesis.

The structure of this chapter follows the two levels of recursion of the model developed in the last chapter and, within those, the activities of the conceptual model developed in Part III and reproduced in this Chapter as Figure 34. After each discussion of the activity subsystems, conclusions are drawn about the implications of the model on the existing system. Although few specific references are made, familiarity with Chapters 17 and 18 is assumed.

This chapter is complex and its structure is illustrated in the accompanying Table 19.

TABLE 19 Relationship of Conclusions to Structure of Chapter 19
(Also Table 1)

Organisational Model Function at National Level	Conceptual Model Activity	Conclusions drawn (see sections of Chapter 19)
Policy and Awareness	Decision Activity 2a some 2b and 2c Dependant upon Awareness Activities 1a-1e	19.2.1 All of this Section, pp Conclusions are set out by conceptual model activity and are inset.
Control Automatic and Executive	Also dependant on Activities 1a-1e and involving	All of Section 19.2 Some conclusions carry forward others are new.
Implementation: therefore in 19.3	This is the County level and discussion occurs	
Policy and Awareness	At the County level. Awareness activities 1a-1e and also some of the Decision Activity Subsystem i.e. 2a and part of 2b and 2c	19.3.1 The Awareness Activities and Conclusions 18.3.2 Decision Activity (Policy at County Level)
Control and Implementation	Control and Implementation Subsystem	Section 19.3.3 and conclusions

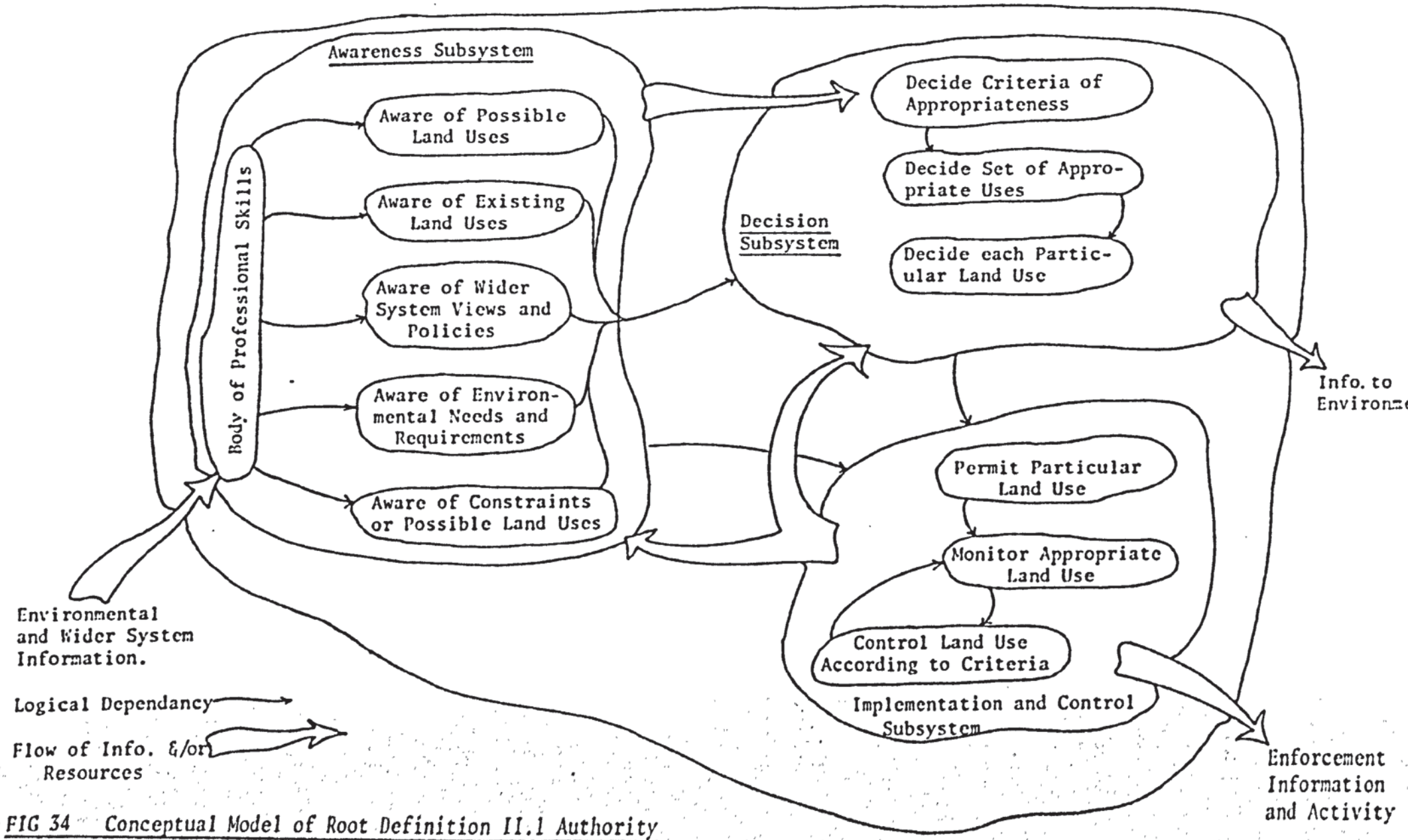

FIG 34 Conceptual Model of Root Definition II.1 Authority

The chapter deals with conclusions drawn from two models at two levels of recursion; at each level, National and County, exist the three functions of Policy, Control and Implementation. These correspond roughly to the conceptual model systems shown in Figure 34. Table 19 shows the correspondence of conceptual model activity and cybernetic model function, and the section of the chapter describing and discussing them.

19.2 National Level

It has already been argued that the County Authorities are de jure and de facto, the implementation arms of the National Government. The discussion of this level therefore revolves around the nature of Systems 2 and 3 (Control and Policy) and the interrelation of these with the Counties (System 1) and the Voters and Industry. The arguments refer only to mineral planning, and are therefore not necessarily generally applicable to all planning matters and public policy matters.

19.21 Policy (System 3)

Introduction

The earlier discussion has shown that policy on mineral extraction has been significant by its absence. Despite increasing legal formalisation of the system, enabling a firm, and perhaps over-firm, central intervention in planning matters, there has been no integrated or explicit statement on minerals, except to state from time to time that demand should be met from home supply, and that environmental matters should be carefully considered. No statement exists however, which reconciles mineral land

uses with other uses on which policy exists, for example, agriculture or National Parks. The differing departments of legislation conflict.

Formally, the system is weak at this point. The Secretary of State is both responsible for providing Policy and, via called-in applications or his Inspectors at Public Planning Enquiries, is also responsible for adjudicatory decisions which challenge that policy. In none of the Local Authorities studied was assistance received, even if sought from National level, on the question of whether or not to make a statement about mineral extraction in particular cases.

The reasons for this position are evident from the analysis of the system undertaken in the last chapter. The Secretary of state, or his staff, are responsible for both policy and control, and, by virtue of the "exception" powers at Appeals, operates at two levels of recursion.

Rather than make "policy" statements on individual cases which he may then be called upon to decide, the Secretary of State drops permanently into the Control function and makes no policy statement at all. This raises the question of what is involved in Policy, and what in Control. The cybernetic model shows an Intelligence input to Policy from the environment; the conceptual (activity) model showed two sets of activities concerned in this area. These activities are listed below.

1. Awareness Subsystem

   Aware of:

(a) Possible Land Uses

(b) Existing Land Uses

(c) Wider System Policies and Views

(d) Environmental Needs and Requirements

(e) Constraints on, or arising from 1(a)-1(d)

2. Decision Subsystem

Decide

(a) Criteria of Appropriateness

(b) Set of Alternative land uses for given area

(c) Particular Appropriate use for given area

NB: These activity groups will apply also to "lower" levels of recursion.

1. Awareness

The above lists indicate that for Policy decisions to be made about appropriate land use there has to be awareness (i.e. Intelligence) of, or about factors 1(a)-1(d). Again, the cybernetic model indicates that the channel, from environment to policy is a high variety one, it is to be expected that various structural elements will exist to reduce this state of affairs to provide policy with a meaningful but appropriate (in volume terms) set of information. The previous chapters have suggested that certain bodies do fulfill this requirement, for example, certain outputs from Aggregate Working Parties. Factors 1(a)-1(e) are discussed below to see to what extent these requirements are in fact met.

1a. Possible Land-uses

If mineral extraction is to be a member of this set, minerals must obviously be present. However, for Policy purposes, unless minerals are known to be present, they may

as well not exist. This fact is obvious, but although both Waters and the Green Book recommended a minerals map as part of the County Report of Survey (and therefore an awareness at County level) no national action was taken until 1968. Then, as a result of the report of the Inter Departmental Committee, a special unit was established within the Institute of Geological Sciences to estimate and assess the distribution of deposits of Sand and Gravel. This Unit, the Mineral Assessment Unit (now Industrial Minerals Assessment Unit, I.M.A.U.) was given the task of assessing sand and gravel deposits in a 10 year rolling programme.

This programme is still continuing, and the results are becoming available slowly, despite an average time "in press" of each report of about one year. This information is the most important because of the location specific nature of mineral deposits. Nationally this information is important here; at the National level, policy should only be concerned with geographical preference. It is argued here that this requires only location and rough quality data on minerals, not enormously detailed volume and quality information, which is more appropriate to the County level.

One further dimension of the awareness of mineral use as a possible land use is provided from the County level and from Industry, both of which hold information of varying detail on the location of minerals.

Conclusions on Awareness of Possible Land Use

1.a.1. Where minerals are concerned, an intelligence of possible land use must involve policy bodies in a

knowledge of mineral location.

1.a.2. The level of detail of this knowledge must be appropriate to the level of the system at which the policy originates.

1.a.3. Currently this knowledge is only patchily available and the slowness of gathering it may be due to

(a) excessive detail (as in the Mineral Assessment Unit Reports) or

(b) an unclear perception as to the purpose of the information: viz, is it for Policy, in which case it need be broad and undetailed, or is it for control, in which case more detail may be appropriate.

1b. Awareness of Existing Land Use

At both National and County levels knowledge of existing land uses is well developed, in the form of planning registers detailing applications, and in the form of existing maps and plans.

1.b.1. Conclusions

Mechanisms for knowledge of existing land-uses which have developed historically, are adequate and need no amendment.

1c. Awareness of Wider System Policies and Views

The owner of the Authority system and the Wider System is the same, namely the population, though the Actors are quite different. This difference is perhaps enough to account for the relative lack of knowledge of the wider system exhibited at the National level. This unawareness has two dimensions.

The first dimension is the awareness of other areas of government. Thus, despite the creation of the Department of the Environment as a "super-Ministry" which was designed to subsume the activities of the separate ministries from which it was formed, these activities are still largely directed towards separate goals, which are largely controlled vertically, with little communication occurring between them. So far as the Authority is concerned therefore, there is a lack of awareness (or Intelligence) flowing between similar levels of the Authority and other systems (e.g. Ministry of Agriculture) or even other divisions within the Department of the Environment (e.g. Countryside and Recreation)[1].

Unfortunately, though this element of Intelligence is extremely important, the nature of Civil Service organisation is such that this research has had to treat DoE as a very muddy, almost black, box[2].

The second dimension is the Intelligence flowing externally to Policy at National level, namely the attitudes expressed by groups wholly external to the system, comprising its environment. Earlier discussion has highlighted the long response time and very short consultation periods which have occurred in mineral planning in recent years. The only mechanisms which have operated effectively have been exceptional devises such as the Stevens and Verney Committees, established for particular purposes. Lobbying, which occurs

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[1] See for example: DoE: A Factual Note on its Functions, Dept. of Environment

[2] For the sense of this term, see Beer, 1979, Chapters 1 and 2

at Parliamentary level, has a limited effect, presumably due to the closed nature of the bureaucracy.

Conclusions

1.c.1 The Awareness (Intelligence) channels between the environment and the National, Policy level are very limited and are scarcely formalised in statute (see Chapter 18).

1.c.2 Interrelatedness of other levels of government is poorly developed, and policies arising within one division therefore take little formal account of other policies. The only exception to this found during the research is the requirement in the Green Book to the effect that "particular regard should be paid to the Government's policies on National Parks".

1.c.3 Mechanisms whereby the views of the wider population and lobbying groups are taken account of are underdeveloped. Attention should be paid to the development of mechanisms which allow such views to penetrate government without overloading the system. (see again arguments in Chapter 18)

1d. Awareness of Environmental Needs and Requirements

This category clearly reflects into the previous one. The elements which take account of this need are only recent in development and again are a consequence of the Inter-Departmental Committee. They are, firstly, the Regional Aggregate Working Parties and secondly, the demand forecasting model of the Deparmtnet of the Environment.

The demand forecasts are based on regional construction programmes and capital budgets. They therefore reflect the likely projected demand for material. In the fifties and sixties however, they were seriously inaccurate. Now the forecasting model incorporates Government's spending and more accurate statistics on production and demand from the Regional Working Parties, though these statistics are two years out of date. They are frequently revised and may now be more accurate. This forecasting also forces account to be taken of policies on spending and road building and other capital works, though implicitly rather than explicitly.

Other recognition of needs and requirements has only peripherally been incorporated into mineral planning. One example of this is the linking of water-based leisure activity with the secondary use of exhausted gravel working. On the other hand, no attempt is made for example to express Motorway aggregate requirements in terms of the acreage required to produce that aggregate, though in fact such tonnages are calculated in some detail.

Conclusions

1.d.1 The conclusions of 1c apply equally here, since these two areas are closely linked.

1.d.2 So far as forecasting is concerned, it is possible that with the advent of sophisticated computer modelling, a more complex model may be appropriate to mirror the linking of government policy with economic activity involving minerals.

le. Awareness of Constraints

Awareness of constraints on possible land uses depends on a well formulated appreciation of the nature of such constraints: what constitutes a constraint? They are partially geographical, for example building a skyscraper on a very steep hill. They are also partially dependent on previous decisions. For example land on the margin of a motorway, or a mineral working, is highly unlikely to be used for a children's playground; the range of possible uses is therefore constrained by previous decisions on adjoining land uses.

So far as minerals are concerned other factors act as constraints, although they may not be appreciated as such. Examples of constraints in this category are previous actions of the system, as in the case of the boundary of the National Parks. In the Peak District this was deliberately drawn to include certain mineral rich areas. Subsequently the controversy over whether to allow mineral working there has, in fact, been caused by the boundary decision.

Other constraints arise from the views of other system groupings as exemplified by the Root Definitions of Part III.

Conclusions

1.e.1 Awareness of constraints depends on an awareness, discussed above, of what may constitute constraint. This is so closely bound up with other awarenesses that separate conclusions on it without reference to the foregoing would be inappropriate.

1.e.2 However, if the National (policy) level is aware of the number of factors involved in 1a - 1c, those which may constrain land use at any given time should be more easily discernible.

2. The Decision Subsystem

Awareness of at least the preceding factors necessarily goes before any decision as to Policy on appropriate land use. The course of such decision is embodied in the Decision Activity subsystem, the activities of which are listed again below.

Decision Subsystem

(a) Decide Criteria of Appropriateness

(b) Decide Set of Alternative Land Uses

(c) Decide the Particular Appropriate Use for a given land area

2a. Criteria of Appropriateness

The problem of knowing what is an appropriate use of land in any given instance may be thought to be similar to the doctrine of comprehensivity in planning, about which much has been said earlier.

In fact this is most decidedly not the case. What is appropriate in planning will vary almost continuously and so these critera must not be thought of as being concrete or hard and fast rules. They will be or should be the product of a continuous interaction between planned and planners, given the awareness detailed above. To what extent reality may approximate to this ideal is debatable. At present however appropriateness is, in practice, determined by past practice.

If land has been zoned for industrial use then in the new and original Structure Plan it is likely to be zoned again as industrial. One such example was in the West Midlands, where an application was made for permission to build a hypermarket. At the Committee stage, a member remarked that the Structure Plan zoning was industrial. The reply was given that the zoning was because the site had been a factory, but that there was no reason why it should not be a hypermarket, it merely required an amendment to the Structure Plan (which, at the time, had just been formulated). Such examples are not rare.

Conclusions

2.a.1 General criteria currently exist infrequently. Where they do exist they are usually based on past practice and are not formulated explicitly.

2.a.2 In many instances criteria are specific to a particular instance, either at National or County level.

2b. Decision of the Set of Appropriate Uses

At National level it is questionable to what extent this should occur. At present the only areas where this does happen are those designated as New Towns or Development Areas or latterly, Industrial Growth Areas. These are examples where the specification of appropriate use is occurring. These are exceptions however, and do not fall entirely within the ambit of Town and Country Planning, being the subject of separate legislation. In mineral planning it is anticipated that particular Counties may be indicated as having mineral extraction amongst the possible set of uses,

and that other Counties would be indicated as being excluded (even though minerals may exist). Any greater specification than this would fall outside the level of detail appropriate to the National level.

Conclusions

2.b.1 Currently specification of use considered appropriate by the Government does occur in New Town and Development areas.

2.b.2 In mineral planning it is advisable that only a preference for area (County or Region) is expressed, any greater level of detail being the responsibility of the Counties.

2c. Decision as to Particular Land Use

At National level this decision does not apply. Unless the application goes to a Public Planning Enquiry, it is not appropriate that the National agency should specify individual land uses.

Conclusion

2.c.1 At the first level of recursion, specific use of land is not a Policy decision, and this activity is not therefore appropriate.

3. Implementation and Control

The third activity subsystem, Implementation and Control, is not a Policy function, and is not discussed as such.

19.2.2 Control at National Level

Introduction

This refers to the system 2 of the cybernetic model, involving both automatic and executive elements. The formal nature of this subsystem at the national level was discussed in section 18.2 and 18.3 of the preceding Chapter. The comments and conclusions on Awareness hold for this subsystem as for the Policy level, though in some areas the level of detail will vary. This is discussed below. The main area of activity applying at this level is the implementation and control of decisions made by Policy, assuming policy to be a separate function.

In practice, this assumption is false. The Introduction to the discussion of Policy activity suggested that the Policy function has in fact collapsed into the control function. This explains why in practice the Department of Environment will not declare a "policy" on an individual application, because the Department may then have to decide whether or not to permit it. Similarly, the preparation of policy by often the same officers who may be called upon for a decision on particular items would be avoided if clear criteria and indications existed as to the preferred (i.e. appropriate) location of mineral working.

A circular state of affairs exists. No policy is forthcoming, therefore there are frequent "exception" cases; because of this the DoE do not announce a policy in case their control function (their "other hat") is jeopardised.

In the light of this, what should (or could) the control activity consist of at National level?

Using the activity model developed in Part III with the cybernetic model, the following section attempts to specify the appropriate level of control and to draw conclusions for the existing system.

1. Awareness in the Control Function

The activity model shows the Implementation and Control set of activities to be dependent on the same set of awarenesses as the decision system characterised as being predominantly a Policy function in the previous section. These awarenesses will be present, though the level of detail will be greater in some areas; for example with respect to minerals, national control may require to know that not only is mineral working one of a set of appropriate land uses but that the quality of stone makes it more appropriate than in a neighbouring area. Also, the awareness of these factors will be coloured by different perceptions (or Weltanschauungen) in Control than in Policy, again assuming the two to be separate.

The major activities of Control however are those listed below, from the activity model. The task here is to decide what level such activities should take given that there are automatic and executive elements and that the level considered here is the national level.

2. Decision, Implementation, and Control

   (a) Decide Particular Land Use

   (b) Permit Particular Land Use

(c) Monitor Particular Land Use

(d) Control Land use according to received policy

2a. This is the last activity in the decision activity set which was discussed in the previous section. It is not a Policy activity, because it is only in very rare cases that a Policy statement would refer to one specific piece of land. An example would be "any gold bearing land on the Malvern Hills will be mined". Even in this case the National level has to reserve this specificity of statement to isolated cases, since otherwise it risks completely constraining the autonomy of its divisions.

In the context of National land use control activity the process of deciding a specific land use will be exceptional, but will occur as part of the Executive control of the divisions, viz the Counties. It has been argued elsewhere that, at the moment, the control element nationally makes exception decisions on specific uses frequently due to the lack of policy at national level, and the resulting confusion at local level. As the law on control and the organisation of planning stands at present (i.e. the automatic element of system 2) this is almost inevitable; there is a very strong bias towards a central decision-making body.

Properly, therefore, the decision on particular land uses depends on a change of structure so that such decisions, in mineral planning and other areas, are true exception decisions.

Conclusions

2.a.1 Currently, this control is an activity of the central authority due to legislative and organisational structure.

2.a.2 It should be a truly exceptional activity resulting from an inability of divisions (Counties) to resolve the issue.

2.a.3 It will become an exceptional activity only when clear Policy exists at National level, disaggregated to Counties in an unequivocal way (but see below).

2b. Permit Particular Land Use

This activity is a control function and, at the National level, consists in overseeing the work of Counties in implementing Policy. In other words, "permitting particular land use" at the National level consists in disaggregating, or sharing out, broad decisions on criteria between the Counties. For example, if Wales was deemed to have mineral working among its appropriate land uses, the more detailed awareness of the control function within DoE would be required to allocate priorities and preferences among the Welsh Counties and then moderate mineral land use in other Counties to ensure that no over-supply or under-supply occurs. This example is obviously over-simplified, but at present no national level control in this way occurs.

(For Conclusions see also 2c and 2d

2c. Monitor Appropriate Land Use and

2d Control Land Use according to Criteria of Appropriateness

These two activities have been put together because they are

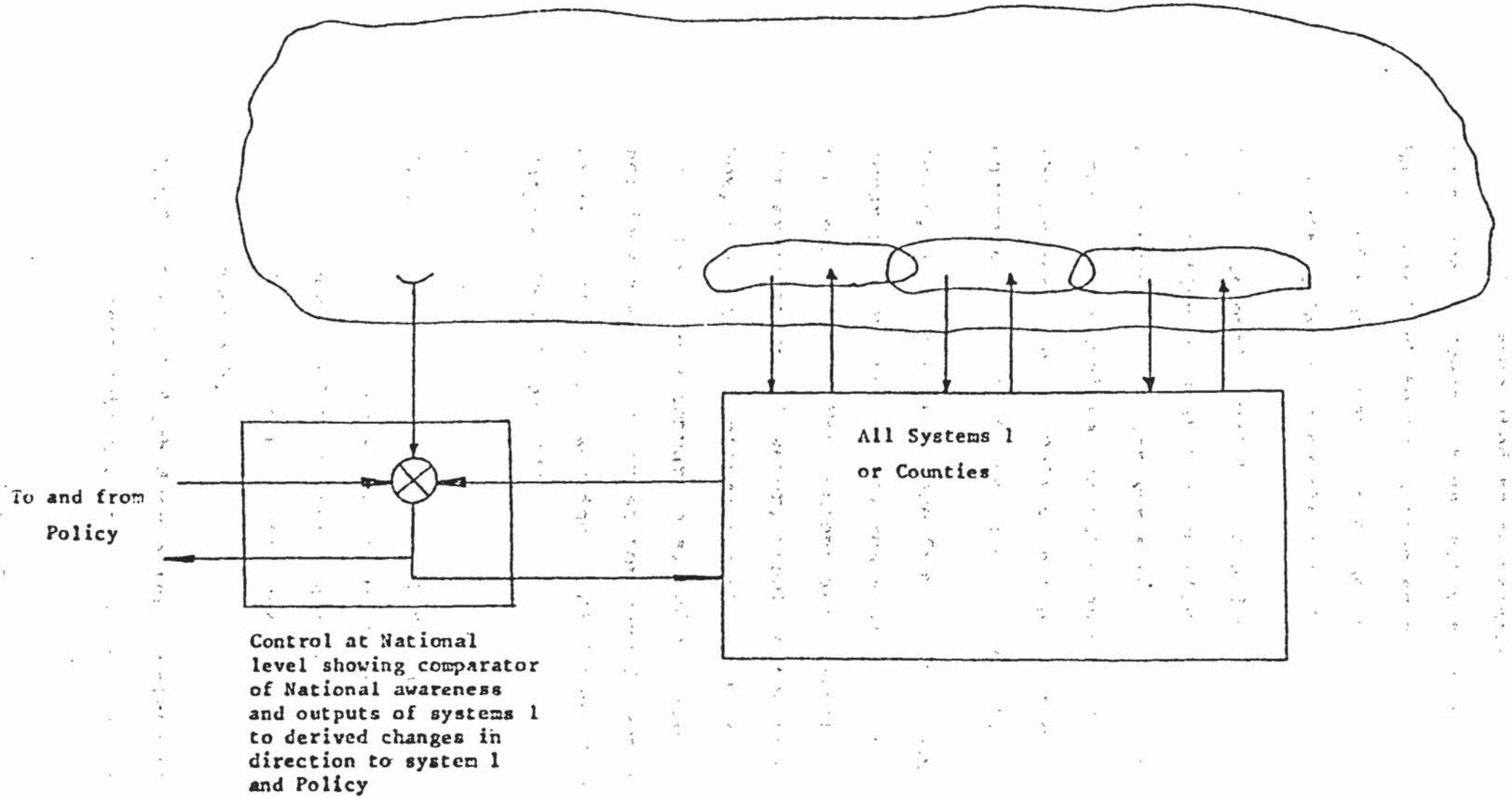


Fig. 35 Control at National Level. Showing the Comparator (c) of National Awareness and outputs of Systems 1 with received policy outputs to policy and System 1 are shown

too closely associated to be meaningfully separated at this level. Overall these activities result in information being sent back to the Awareness and Decision subsystems; this information may change the output of these sets of activities by changing the activities themselves.

At the national level both c and d involve an overall appreciation of what the Counties are doing relative to the environment. In other words some type of comparator is in operation to analyse the outcomes of all systems one against the criteria set by Policy in the light of the prevailing environmental conditions (see Figure 35).

Again, there is no evidence from the research that this does occur although not by any means all of the processes within the Department of Environment were examined or were available for examination. However, treating the Department as a Black Box, the data and information which it receives do not allow it to make these comparisons, and no directives are issued, nor does a mechanism exist for such directives, to encourage or restrict mineral working in different Counties (see Chapter 18 and Part II).

Conclusions

2.d.1 From the description of National level functions earlier in the thesis, and from the above discussion, it is concluded that there is no effective control at National level in the sense implied by a cybernetic approach.

2.d.2 Control which does exist consists of the piecemeal determination of particular applications for planning

permission which are referred to the Secretary of State.

2.d.3 This latter conclusion reinforces the conclusion of the earlier section that Policy has collapsed into the Control function, with the result that Policy is effectively non-existent, whilst Control is faulty.

2.d.4 Overall the conclusions of this level of recursion imply quite far reaching change in the structure of the planning machines as well as in its process.

2.d.5 These changes concern departmental structure within DoE and legislative changes concerning public and industrial involvement in planning.

19.3 · County Level

Introduction

This is the level of operating divisions, and each of the activity systems which was discussed for the National levels of Policy and Control is also important at this level. For the purposes of this thesis the Local Planning authority has been treated as the division of central government, this viewpoint was justified earlier; it is important to remember that there are other functions of local government (education; social services; housing etc.) which may or may not act as divisions of the respective departments of central government.

Besides the activity systems mentioned previously there is also the problem of ensuring adequate communication between

divisions of the respective departments of central government.

This section follows the pattern of the previous one and begins with a consideration of the Awareness (Intelligence) activity. It should be remembered that Awareness is an activity of both Policy and Control at the County level as it was an activity of both functions at the National level.

19.3.1 The Awareness Activity Subsystem

19.3.1 (a) Awareness of Possible Land Uses

19.3.1 (b) Awareness of Existing Land Uses

19.3.1 (c) Awareness of Wider Systems Views and Policies

19.3.1 (d) Awareness of Environmental Needs and Requirements

19.3.1 (e) Awareness of Constraints on Land Use

In addition to the individual Local Planning Authority's awareness of the factors above, as they apply to their particular environment, there will be an element of "received awareness" from the metasystem level. Currently, as has been seen in Part II and Chapter 18, very little information flows down to County level to contribute to this awareness. Latterly the Aggregate Working Parties contribute information at both County and National level, and the Department of Environment demand forecasts are available.

19.3.1a Awareness of Possible Land Uses

As at the national level this depends, in mineral planning, on an knowledge of where minerals are to

be found. Unlike the National level however, at County level this needs to be detailed, at least to the nature of the extent and quality of the deposit. The Geological Survey and commercial information are currently the only sources of such information and the level of detail assembled by Counties varies widely. Where great detail is available,for example in the Report of Survey, all this detail is passed up to the National level. Cybernetic theory would suggest that only the broad definition should be passed up, rather than highly complex detail from (in theory) each county, which would swamp the ability of the Department of the Environment to deal with it, should any serious attempt be made to do so.

In general, in the last eight years, there is probably a higher degree of knowledge about potential land uses in counties than ever before as a result of the massive effort invested after the introduction of Structure Planning. Despite this and despite the statutory requirement to submit Structure Plans to the Secretary of State there is no evidence to suggest the use of this data base in planning land-use at the meta-level. Similarly, the requirement for adjoining counties to consult on major development, does not necessarily imply an awareness of the wider system values and policies. This aspect is dealt with below.

Conclusions

1.a.1 Due to the advent of Structure Planning in 1974 there is probably a highly detailed picture in general of potential land uses in counties.

1.a.2 Despite this, in mineral planning the knowledge of quality and extent of deposits varies widely and there is no obvious attempt at consistency or uniformity.

1.a.3 Although Structure Plans are submitted to the Secretary of State by statutory requirement, as the description in Part II showed, as confirmed by Part IV there is nothing either in practice or legislation to indicate the use of this data base by National Government in wider planning of land use, or indeed to show that this immense volume of data is utilised by National Government at all.

19.3.1b Awareness of Existing Land Use

As in the case of National Government there is comprehensive awareness of existing land use through planning registers, maps etc.

19.3.1c Awareness of Wider System Views and Policies

This is an area where perhaps progress could be achieved both informally and in terms of formal mechanism. The requirement to take account of the government's wider policies is needed by Local Authorities, but, especially in minerals, there is no policy to heed. This effectively means a very high degree of autonomy for the Local Planning Authority if it has a strong policy head. In this case the LPA may act entirely independently of both National and other Local Authorities. An example of this would be Sussex, which deicded not to permit working of sand and gravel in the county, causing a greater (indirect) demand in Derbyshire to satisfy the shortfall thus created. This

unconstrained autonomy signifies again the lack of "proper" control from the national level.

Conclusions

1.c.1 The most significant element of this awareness in the Counties would be awareness of the metasystem policy or at least that segment of it required for its own use.

1.c.2 This crucial element is missing, resulting in the possibility of very high autonomy for any one Local Planning Authority.

1.c.3 This autonomy is further increased by the lack of any explicit mechanism whereby LPAs can talk to each other. The existing requirement to consult varies widely in its effectiveness.

19.3.1d Awareness of Environmental Needs and Requirements

This is a very important area at this level. Part III detailed the links between Authority and Voters and concluded that attempts to make these links effective have so far largely failed. In the context of the tripartite conceptualisation developed in Part III, this element of the awareness activity is vital for the role of Authority in determining criteria for land use. Links, not only with the Voters, but also with Industry are extremely important, since in mineral planning, Industry forms the other indispensable aspect of the environment, the three being in continuous interaction.

When discussing criteria of appropriateness in the previous

section (and the argument applies also here), the point was made that the derivation of such criteria depends on a continuous debate so that a consensus view of them could be arrived at. The need exists at this level therefore, not to produce plans, but to devise mechanisms whereby decisions on appropriateness can be made. One crucial determinant of these criteria is an involvement and awareness of the issues and needs of the Environments, opitomised in mineral planning by the views of Industry and Voters.

Given the importance assigned to this awareness activity here, the formal representation of the appropriate linkages in planning law is weak. As has been discussed, there exists a requirement for public participation in the preparation of the Structure Plan and an opportunity for public views to be expressed in the application phase. What is proposed here however, is a radically different approach which calls for continuous participation by Industry and Public with the Authority in a forum which not only exchanges views but which decides and formulates the feelings and needs of the wider environment on mineral planning. This should be regarded as an activity quite distinct from awareness (environmental or otherwise) at the level of the division of the county, where one specific application may be the subject of consideration.

Conclusions

1.d.1 The lack of policy guidance from the National level, resulting in possibly very high autonomy for a strong Local Authority, is further compounded by a weak

formal requirement for environmental awareness at the policy level (i.e. broad or Structure Planning).

1.d.2 If successful criteria for policy at County level are to be arrived at, then a well developed awareness is vital to complement policy received from above (when it exists).

1.d.3 Such awareness should be fostered by mechanisms involving the three elements (Voters, Industry and Authority) in more or less continuous debate, which again is not catered for by the current formal system.

1.d.4 The current public involvement excercises may have failed because they do not recognise the existence of different groupings within the environment. The existing methods of polls and questionnaires, though they attempt to sample, and therefore reduce variety, do so indiscriminately without recognising divisions within the environment.

19.3.1e Awareness of Constraints on Land Use

This aspect of awareness at County level is part and parcel of the activity discussed above. Constraints will change as land use patterns develop and as demand or competition for uses of land increases. In general constraints on the use of land will increase with the degree of conflict over that use.

As with awareness of environmental need, constraint awareness is seen here as being an interactive process between the three parties, albeit controlled and mediated by the Authority.

In mineral planning, given an initial policy statement by National level about mineral land use in a given County, there may be other constraints, for example the quality of the mineral deposit, the working conditions etc. but these may be specific to the controls of one given working rather than being general to Policy for a whole County.

Conclusions

1.e.1 Within a nationally defined policy for a given County, constraints will be subject to change in the same way as needs and requirements of land use discussed previously.

1.e.2 This implies that discussion or derivation of constraints will also need to be done on a continuous ("interactive") basis, whether they are constraints on County policy or on control of a specific working.

19.3.2 Policy in the Decision Activity System

As at the National level two decision activities have been assigned to the Policy function of the cybernetic model, since the decisions concern criteria of general applicability at, in this case, the County level.

The two, broad, decision activities are:

(a) to decide criteria for determining appropriate land uses;

(b) determine the set of appropriate land uses for the area (this falls partly within the ambit of control).

The third decision criteria, on deciding a particular use of land for a specific plot, is assigned to the Control and Implementation functions of the cybernetic model.

19.3.2a Determination of Criteria of Appropriateness

If it is assumed that the Ministry has announced, as a policy based on the activity model, that County A is an appropriate area for mineral extraction, then the Policy function, assumed to be the Planning Committee, has, among its tasks, to decide what the criteria are by which appropriateness is determined for mineral and other land uses within the County.

Again, and ideally, this should be an interactive process built on the awarenesses built up through the activities detailed previously. The criteria derived, when applied to any given area, may allow several possible uses of land; the precise use in any given case will be decided by the lower functions.

Conclusions

2.a.1 Mechanisms for this policy making are possible under existing legislation, which merely states that the public shall be given the opportunity to make representations, but does not currently occur in the Counties studied.

2.a.2 If Structure Planning could be made a process by which, at frequent intervals, a set of criteria was made in public, there might be a keener public awareness of, and involvement in, planning the use of land as a process.

2.a.3 The production, on a one-off basis (albeit updated every five years) of a massive document frequently in two or more volumes, does not encourage adequate public knowledge of, or participation in, the planning process.

19.3.2b Decision on an Appropriate Set of Possible Uses

This decision activity overlaps very largely with the previous one. Once criteria have been decided, then, based on detailed awareness and the nationally defined position, the Local Authority should be in a position to derive a set of possible used for land within the area.

Conclusions

2.b.1 Taken with the preceding paragraphs the concept of publicly debated appropriateness has procedural implications, for instead of saying "what will each area be used for?" the question is being put "what is the set of uses which fulfil the community-accepted criteria of appropriateness?"

2.b.2 This approach could be accommodated within existing legislation although the type of criteria may be constrained to take account of the various sectors specified by the Structure Plan Regulations (q.v.).

19.3.3e Control and Implementation

At County level, both these functions (in the cybernetic model) fall within the establishment of the planning department, whilst Policy, discussed above, is formed by the Committee of elected members: (see Figure 36).

Fig. 36 Equivalences between existing Establishment and the Model of Organisation

Existing Establishment	Model Function
National Level In theory: Secretary of State	Recursion 1 Policy: System 3
Department of the Environment Secretary of State (in practice) Officials Inspectors	Control: System 2 Executive
Establishments; Legal Services Certain Laws and Statutes	Automatic
Media; Lobbies; Statistics Exceptional Bodies (Verney etc.) Counties	Awareness: Within & between Systems 2 & 3; inputs from 1 Systems One
County Level Planning Committee (partially) (and Structure Planning Unit)	Recursion 2 Policy System 3
Planning Department Development Control and Officers and Officials	Control System 2 Executive
Services; Legislation; Legal affairs	Automatic
Media; Constituents; Statistics Statutory notifications	Awareness
Mineral Officers/Sections	Systems One

They include the activities involved in the decision as to particular land use, given the framework previously arrived at, and, at the level of the mineral planning section (in the case of minerals), the activities of overseeing and controlling the land use in accordance with the autonomy handed down.

As a division the mineral planning section contains all the activity systems possessed by the higher levels, though it is not considered meaningful to separate them. At this level the awareness and appropriateness criteria may be predominantly operationa, rather than value based. The section is therefore concerned with allowing a particular quarry or mineral working to exist on the basis of an initial set of criteria. These should be clearly understood from the outset to be likely to undergo change through time. This change however, will be one which Industry will be involved in determining, together with Voters and Authority.

Viewed in this way the planning consent becomes a starting point on a graph, the curve of which may develop in many ways. The mineral planning section and the quarry operator will be responsible for controlling the effects of the quarry to match the rate of change of the curve.

Conclusions

19.3e.1 Earlier in the thesis the development control mechanism was characterised as one of decision, but not control. Viewed as a function embodying the activity systems of the conceptual model, and as being a division of the county authority (itself

a division of National Government) the mineral planning section contains awareness decision and control activities.

19.3.3.2 This being so, it is responsible for controlling a specific mineral working within criteria and conditions derived from countywide criteria, which will have been determined by the Authority in conjunction with Industry and the Voters.

19.3.3.3 Hence the initial planning consent becomes, not an inflexible specification (as at present), but an initial framework which may change through time as criteria of land use change through debate between the three groups, and with changing social and economic conditions.

19.3.3.4 This implies procedural changes in the framing of planning consents, which would involve tripartite discussion at an early stage and which would be far more of a contract between Authority, Voters and Industry over a particular quarry, than one group giving a second group permission, as happens at present.

19.4 Summary

This chapter has brought together the four threads of the thesis into a whole, oriented toward the function of specifying and controlling land use. The way in which this has been done is summarised below.

19.4.1 The thesis has contained four major elements:

(a) Three conceptualised social groupings:

Authority

Voters

Industry

(b) One Root Definition of the controlling subsystem, Authority, chosen from among several such definitions.

(c) One Conceptual Activity model of that Root Definition, comprising an Awareness, a Decision and an Implementation and Control Subsystem.

(d) A cybernetic model of the organisation of the existing legislative and bureaucratic planning system.

19.4.2 The specification and control of land use is seen as being achieved by the activities of the conceptual model being undertaken by the Authority through an organisation based on the cybernetic model, involving interaction with the other two subsystems which, in mineral planning, for the predominant relevant environment.

Viewed in this way the activity subsystems of the conceptual model are seen as relating, at each recursive level, to the functions of the cybernetic model in the equivalence shown below

Chapter 20 has discussed each of these activities in each function at the two levels of recursion, National and County, and has drawn conclusions based on this synthesis.

CYBERNETIC MODEL	ACTIVITY MODEL
Function	Activity
Intelligence (with inputs at all levels)	Awareness Activity
Policy	The first two activities of the Decision subsystem
Control	The third decision activity and elements of the Implementation and Control Activity
Operation	Most of the Implementation Activity

Fig. 37 Equivalence between Cybernetic Model Function and Conceptual Model Activities

19.5 The conclusions of the foregoing sections stand without further elaboration, but there are some conclusions which depend logically on them and which are meta to them. These follow below.

1. The arguments above show that in general in mineral planning, the awareness activity in current organisations is underdeveloped. Although some work has been done, and continues to be done, by the Centre for Environmental Studies in London, on public participation in Structure Planning this is an area in which research could very profitably be carried out, particularly using the concepts of variety engineering and balance. The problem is more crucial at County level where the most need lies for strong links between Authority-Industry-Voters.

2. Currently there is a see-saw situation between National and County levels. Although the National level has the statutory "muscle" to make Counties conform the overall

lack of policy frequently means highly autonomous Counties which have little communication with each other or with the Central authority, unless compelled to do so by an applicant who appeals against a decision. The institution of effective policy on a regional or other basis would reduce the autonomy of many authorities but may also reduce the difficulty of policy formation at Local Authority level and the conflicts which have arisen in the past.

3. The lack of recognition of the different purposes which were reflected in the Root Definition, must be rectified in any policy. For example, if a policy was decided which considered mineral extraction an appropriate land use in a National Park, the Planning Authority of the Park would be placed in an impossible situation; their responsibility is to "enhance and conserve" the character of their area. In the criteria of appropriateness activity of the model it is likely that "conserve and enhance" would form one such criterion. Mineral extraction would not meet that definition since it has deleterious effects on the environment. If ministerial policy is that mineral extraction <u>is</u> suitable then the Park Authority are being required to make decisions which are required by statute but which are against their whole raison d'etre. In the face of this they have traditionally stepped out of the situation and have moved up one recursive level and have applied to the Minister to make the decision.

4. Little mention had been made of the Appeals mechanism, open to an applicant if his application to develop land is refused. This acts as an exception device and is valuable.

In the lack of policy however this device becomes more frequently used, because there are no overall visible guidelines. If a firm policy at National level, disaggregated by Counties in detail, were available it is possible that the number of Appeals and thus Public Planning Enquiries, would decrease.

5. The implication of many of the conclusions is that a change could be made in the nature of Structure Planning. The concept of the Structure Plan, as a broad, policy, non-map based document was extremely valuable, as many field workers agree. It became diluted by the tradition of development plans, and has not been as effective as it might have been. It has been argued above that this has been due to "lure of comprehensivity", which attempts to define <u>all</u> features of the environment, and all possible responses.

The conclusions earlier in this chapter imply another major shift, to a position where the Structure Plan, probably no longer a statutory document, acts as a frequently revised crystallisation reflecting changing criteria by which land uses should be decided. It then becomes a document which communicates the <u>trend of values</u> on land use rather than <u>predicting</u> and determining them.

Epilogue

The main object of this thesis has been to find out about mineral planning, and to either discover or impose some structuring pattern on the subject area. It has proved to be very much a piece of mapping, and as with many maps there remain substantial white areas around the edges.

The framework used has been one of Systems Theory, broadly interpreted, although it is recognised that other techniques may have been equally valid or have yielded equally interesting results. Among such techniques may be mentioned the Repertory Grid Technique of Kelly or the use of Attitudinal Survey questionnaires or of Semantic Differential tests. The complexity of the areas tackled and the diverse and subjective nature of the interactions examined, as well as the particular training of the author, made these alternatives less attractive.

This work is offered, not in the hope of providing answers, but in the hope that it has structured some lines of enquiry which did not exist before, and that the analysis it provides sheds new light on an old problem area.

APPENDICES 1-10

APPENDIX 1 Groups or Individuals Consulted or Involved in the Research

Amey Roadstone Corporation

ICI Mond Division

Redland Aggregates Limited

Trent Valley Producers Association

Sand and Gravel Association

Tarmac Limited

British Quarrying and Slag Federation Limited

Department of the Environment: Planning Minerals Division

.. .. : Regional Office East Midlands

.. .. : Regional Office West Midlands

Secretary of West Midlands Aggregate Working Party

Secretary of East Midlands Aggregate Working Party

Mineral Officers of:

- Derbyshire
- Leicestershire
- Lincolnshire
- Nottinghamshire
- Northamptonshire
- Peak Park Joint Planning Board
- Shropshire
- Staffordshire
- Warwickshire
- West Midlands County

Friends of the Earth Limited

Council for Protection of Rural England (also represented 13 other Conservation Bodies)

Mining Environmental Reserach Unit Imperial College

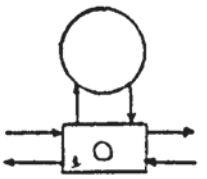
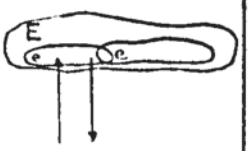
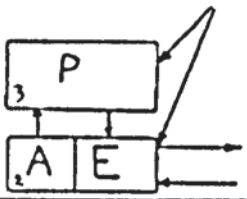
Mr. R. Bate formerly University College London

Chairman West Midlands Economic Planning Council

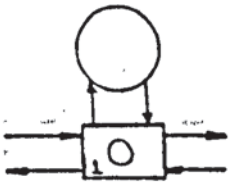
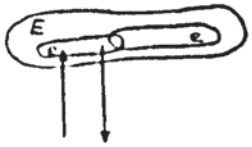
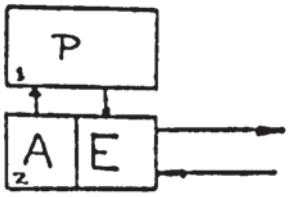
Joint Unit for Research into the Urban Environment

of Aston University

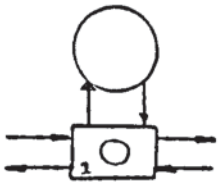
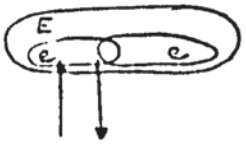
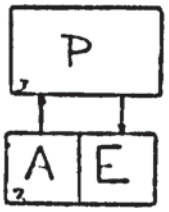
APPENDIX 2 Showing the Cybernetic Analysis of Planning Law

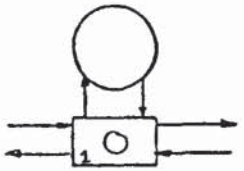
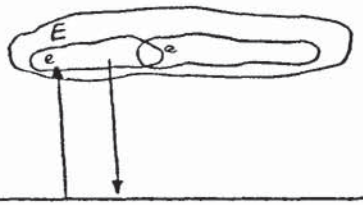
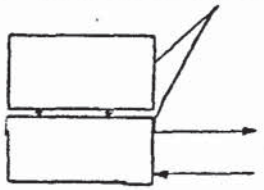
System / Act of 1971 Section & Part No. / Component referred to			
Part I: Administration S.1 LPAs 2 Joint Boards and Committees 3 and 4 Delegation 5 London authorities	Defines Systems 1 and links to other System 1		
Part II Development Plans 6 Survey 7 Preparation 8 Publicity 9 and 10 Approval and Modification 11-15 Local Plans 16-21 Supplementary provisions		Specifies relevant environment and linkages outward and inward Variation and Adaptation of Linkages Disaggregation of Environment to next lower level	17.Sec. of State may take of the role of the LPA & make a Structure Plan or Report of Survey or require a 2° LPA to do so
Part III Control 22-23 Definitions 24-28 Applications 29-34 Determination of Application 35-39 Secretary of States Powers 40 Deemed Permission 41-44 Duration of Permission		Duration and Autonomy of System 1 effects	Linkages of System 1 to System 2

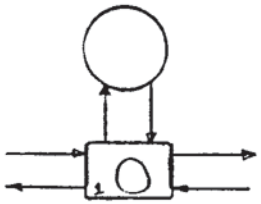
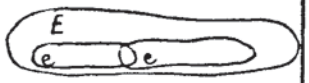
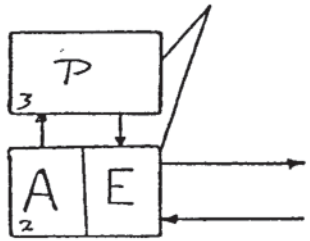
APPENDIX 2 (Continued)

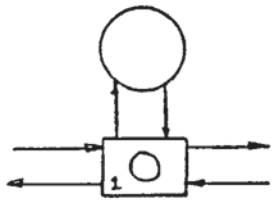
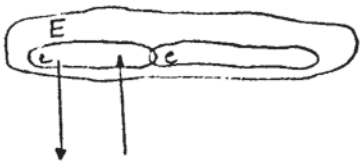
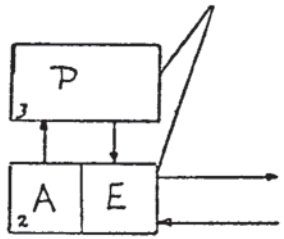
System / Act Component of 1971 referred to Section and Part No.			
45-46 Revocation and Modification of Permission 47-50 Reference to Inquiry or Commission.	Adaptation and Change of Systems 1 in response to possible environmental change Exception mechanisms to deal with environmental perturbations		
Part IV Additional Control in Special Cases 54-58 Buildings 59-62 Trees 63-64 Adverts 65 Wasteland 66-72 Industrial and 72-86 Office Development		Very narrow and strict specification and amplifiers of control ability for specified areas of the relevant environment	
Part V Enforcement under III and IV 87-95 Development 96-101 Buildings 102-103 Trees 104-107 Waste Land 108-109 Other and 110-111 Supplement-ary Control		'Final Caso' Control and enforcement amplifiers of control capacity	
Part VI Acquisition and Appropriation of Land 112-115 Compulsory Acquisition of Land 116 Compensation and Miscellaneous Provisions 122-131 Powers over land held for Planning purposes		Amplification of Control capacity over segments of relevant environment	

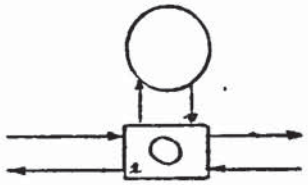
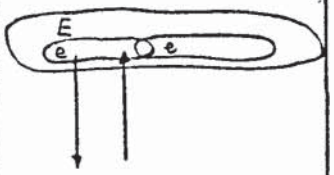
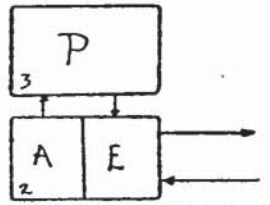
APPENDIX 2 (Continued)

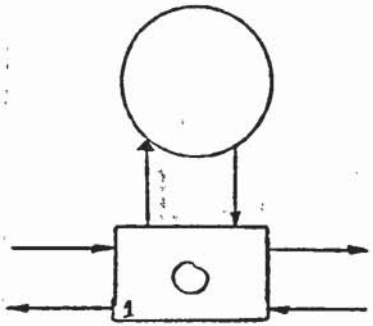
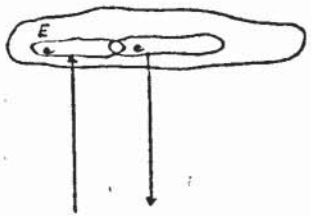
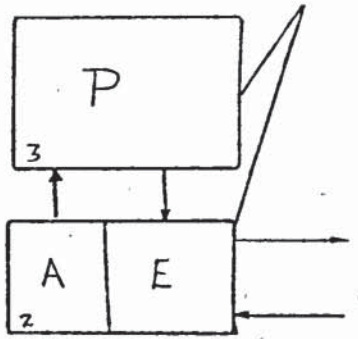
System / Component referred to / Act of 1971 Section and Part No.			
Part VII Compensation for Planning Decisions Restricting New Development 134-145 Unexpended balance of established development value 146-151 Right to Compensation 152-159 Measure of Compensation 154-157 Claims for and payment of Compensation		Amplifiers limiting Systems One's effects Further buffers (Amplifier of Environmental Variety against systems one effect on the environment	

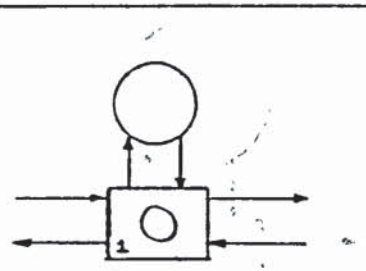
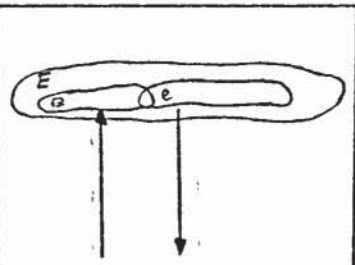
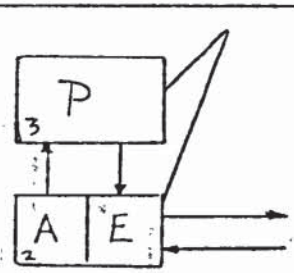
System Component / Acts of 1971 Specified or Referred to Part No. or Section No.			
Part VII Continued: 158-161 Subsequent Recovery of Compensation 162-163 Supplementary Provisions	Specifies System One Conditions for abolishing Environments action		
Part VIII Compensation for Other Planning Restrictions 164-168 Modification or Revocation 169-177 Other Restrictions		Adaptive mechanism	
Part IX Provisions enabling Owner to Acquire Purchase of his Interest 180-191 Interests affected by planning decisions and orders 192-207 Interests of Owner-Occupier affected by Planning proposals		Enabling or amplfying mechanisms for elements of relevant environment	
Part X Highways 209-211 Stopping up and diversion of Highways 212-213 Conversion of highway into footpath or bridlepath 214-Extinguishment of Rights of Way 215-217 Procedure for making and confirming orders 218-221 Supplementary Provisions		Specifies "relevant environment" to be highways and specifies the available control procedures available	

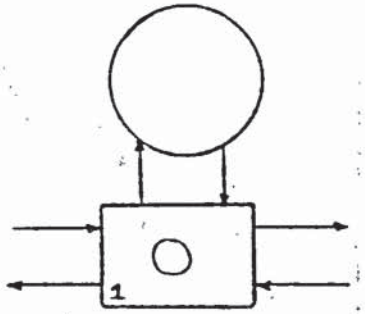
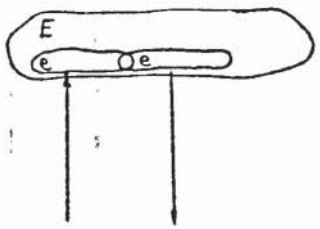
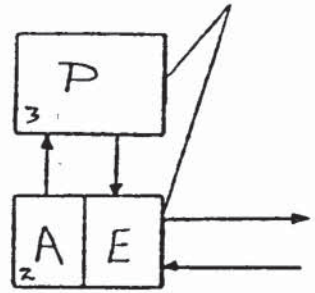
System Component / Acts of 1971 Specified or Referred to / Part Number or Section Number			
Part XI Statutory Undertakers 222-224 Preliminary 225-236 General Provisions 237-240 Compensation 241- Supplementary provision re. Adverts			This part of the Act exempts Stat Undertakers from System One Control Making them subject to control by System 2 or System 3
Part XII Validity of Planning Instruments and decisions and proceeding relating thereto	Specifies the legality (and hence absolute nature) of any order, decision or action made under the Act		
Part XIII Financial Provisions 250-252 Grants for Development etc. 253 Grants for research and education 254-256 Contributions to certain expenditure 257-259 Recovery of Compensation etc. 260-263 Expenses and Receipts of Ministers	Specifies financial and other dependencies between S1 and S2		Nature of S1→S2 and S3 Mechanisms
Part XIV Application of Act to Special Cases 264-265 Minerals 266-268 Crown Land 269 Isles of Scilly 270-272 Local Planning Authorities 273-275 Other Special Cases		Special Control Measures for Specified Areas of Relevant Environment	

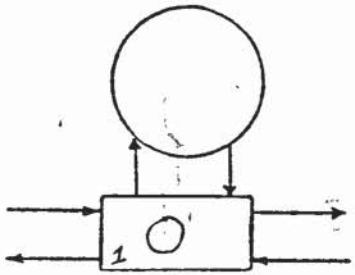
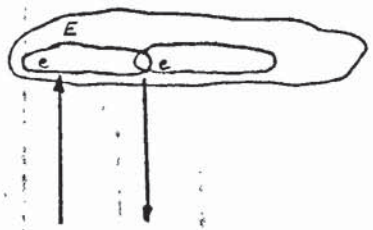
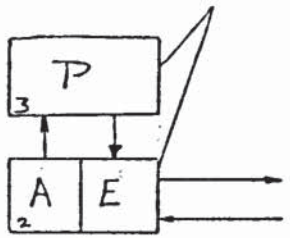
System Component Act of 1971 Specified or Part Number or Referred to Section Number			
Part XV Miscellaneous and Supplementary Provisions	Affecting Links from	Default Powers of Sec. of State	
Section 276	E S1 and M3 Si		
277 Designation of Conservation Areas 278-281		Defines areas of R. Env. Specifies Relevant Environ-ment & (280 & 281) gives right of entry	Specified by Sec. of State
282 Holding of Local Inquiries 283 284 285 Offences by Corporation 286	Sec. of State shall direct that Local Inq. be held	Service of notices ref. 282. Power to require intelligence. Amplifier of intelligence at 2 levels Prosecution of Directors etc. as well as corporation Filters by combination of application	
287-295			Specification relation to A of System 2 Automatic control

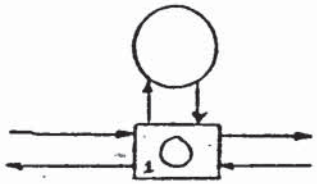
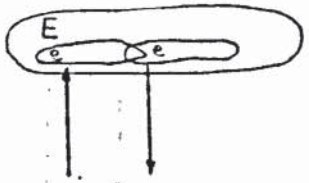
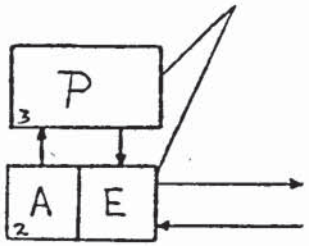
Acts of 1971 Part Number or Section Number \ System Component Specified or Referred to			
Sch. 1 Sch. 2 I II Sch.3 LPA in Gt. London	Specifies form of Joint Board specifies delegation by LPAs to next lower level and spec. sub-committees (at their discretion) therefore specifies 2 levels of recur. specs. majority constitution. Joint Comms. for relevant environments overlap Specifies provisions of Schd. 2 but for London		Relations between Secretary of State and London Councils
Sch. 4 Development Plans Gt. London	Pt. 2 specifies that Boroughs shall not review same matters Also Gt. London Council	viz not have same relevant env. or disaggregated one	provide for Spec. by Secretary of State
Sch. 5	Provision temporarily in force until superseded: specifying surveys, and therefore E, e, A & E and O, prior to passing into effect of Part II of the Acts.		
Sch. 6 Modifications Pending Repeal of Schedule 5 of the Act			
Sch. 7 Development Plans: Covers the Transition from Sch. 5 to Part II			
Sch. 8		Development not constituting new development	

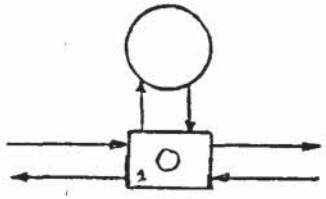
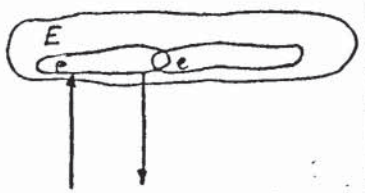
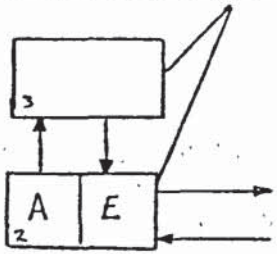
System Component Specified or Referred to: / Statute Circular, Instrument Part/Schedule/ Section Paragraph number			
Act 1971 Schedules, Continued Sch. 9 Determination of Appeals by Inspectors	Determination of algedonics at O. level		Delegation and enforcement within algedonics function of E
10. "The responsible Minister or Ministers			of specification/ Definition of Head of E/Part of P
11. Control of Works for Demolition		Specification of Application and Definition of Environment	
12. Exceptional Case of Office Development in London 13. Development of Offices in Met. Region Outside London	Concerning Permissions granted before the passing of 1965 Act applying to Areas of London and of Metropolitan district outside London		

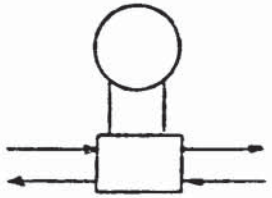
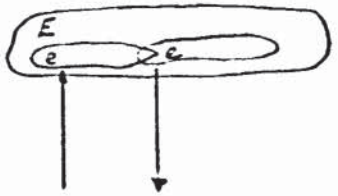
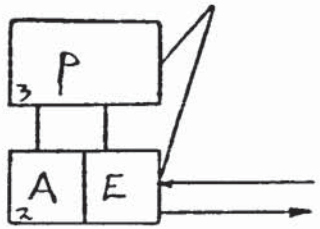
Statute, Circular, Instrument, Part/Schedule/ Section Paragraph number — System Component Specified or referred to:			
14. Established Use Certificates		Exception if needed, of permission for certain developments defined by the General Development Order	Affected only if the application is referred to the Sec. of State
15. Adjusted Claim holdings			Specification of relation of applicant to Central Land Board
16. Implementation of Act 141 17. 142		Value of Development and Development Residue	
18 and 19 Rebuilding and Condition 20	Provision for Listed Buildings by way of Purchase Notices Specification of procedures for footpaths and bridleways		
21. Refs. to Section of the Act	Refers to sections where provisions are referred to but not listed		
22. Enactments exempted from 287(b)	Filters or restricts the P General Acts listed.	A loop in respect of the public General Acts Listed	
23. Consequential Amendments			Specifies updates of previous statutory Aspects in A

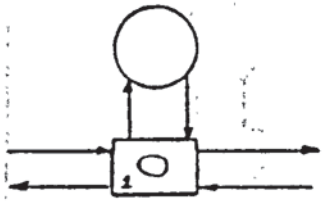
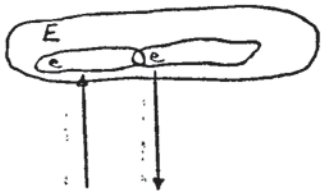
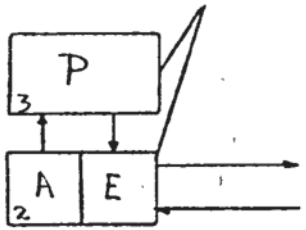
Statute Circular, Instrument Part/Schedule/ Section Paragraph number — System Component Specified or referred to:			
24. Transitional Provisions			Safeguards on continuity of all links in Systems 1 → 3 and Environment
25. Repeals			Repeals of existing enactments
The General Development Order 1977. Stat. Instrument No.289, 1977.		Specified by Ss. 24,25,26,27,31,34, 36,37,42,53 & 287 and Sch. 14 of Act of 1971	Forms part of A and filters Environment for E
1. Application Citation and Commencement		1.Specifies overall Environment 2.Exempts deemed permissions	
2. Interpretation		Defines areas of relevant Env.	

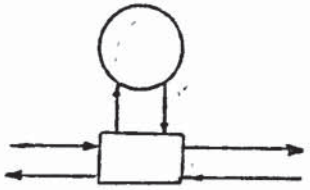
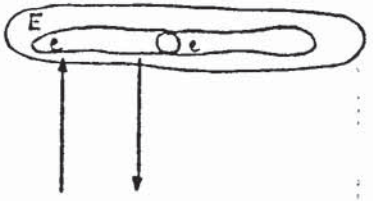
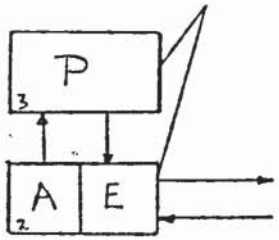
System Component / Statute Circular, Instrument Part/Schedule/ Section Paragraph number — Specified or Referred to:			
3. Permitted Development 4. Directions restricting permitted Development	May restrict GDO but SOS must approve except in case specified in (3), viz I-IV of XXIII classes	Areas of Env. controlled by exception only	
5. Planning Application	Amplifies/capacity of LPA to deal with Environment		
6. Other forms of Application 7. General Provisions on Applications	Amplifier with respect to outline permissions etc. Jointly specifies part of Automatic control of System 2	Specifies internal links. 1. Specifies division per relevant Environment 3,4 Publication and 5 and 6 LPA's response. 7 specifies the form of response	

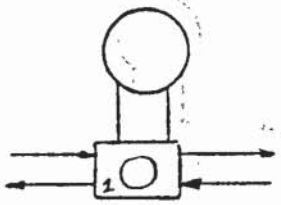
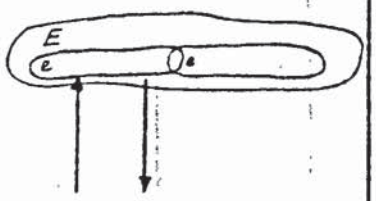
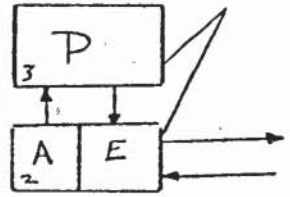
System Component / Statute Circular, Instrument Part/Schedule/ section Paragraph number — Specified or Referred to:			
8. Notices under Sect. 26 of Act 71 defining classes for the purposes of that class		Developer acts as amplifier for LPA in making relevant environment aware of intended development	
9. Certificates under Sect 27.	Specifies precise form of notice for element of O		
10.Directions restricting granf of permission	Restricts control by O, at SoS's pleasure, of any class of development		
11.Highways (T.M. and other)	Specifies that where the highway is a matter of concern to the Metasystem the Metasystem shall be notified		
12.Local high authority	L.H.A. may block LPA if deleterious effect is anticipated		
13.Application of Byelaws	Blocks some mechanisms if operate		

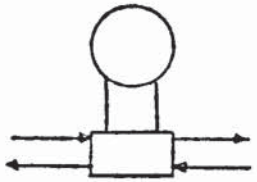
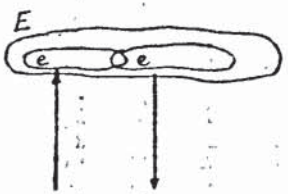
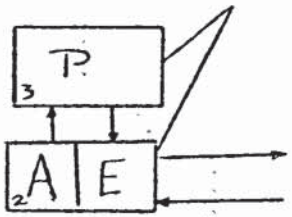
Statute, Circular, Instrument, Part/Schedule/ section, Paragraph number \ System Component Specified or Referred to:			
14. Development Plans		Specifies changes or permissions given which are contrary to S.P.	
15. Consultations		Specifies consultations for various cases of development	
16. Application with respect to County Matters	Shall give DC opportunity to make recommendation		
17. Parish and Community Council	Specifies links to Pa.C and CC		
18. Listed Buildings		Provisions affecting Listed Buildings	
19. Notice of reference to SoS	Direction by SoS that an application or class of application be referred to him; N.B. no mechanism exists for LPA voluntarily referring cases to the SoS		
20. Appeals		Appeals to SoS within 6 months with all plans and correspondence	
21. Register	Intelligence Amplifier to Environments of Development		

System Component / Statute Circular, Instrument Part/Schedule/ section Paragraph number — Specified or Referred to:			
22. Established Use Certs.		Retrospective Control or Sanctioning	
23. Direction and Notices			Power to modify actions of LPA
Revocation and Savings	States Statutory Instruments revoked		
Statutory Instrument No. 756 Mineral Regulations 1971	Modify certain elements of various relationships specified by Acts of 1962 and 1968		
No. 1486 1974 S.P. Regulations Part II Publicity in Connection with S.P. and Local Plans Part III Consultation		Amplifier Charges and sale of copies of documents Period for representations Shall consult anyone the SoS or LPA think or direct	

System element / Statute, Circular, Instrument, Part/Schedule/section, Paragraph number — Referred to or Specified			
Part IV Form and Content of S.P. 7 and 8		7 names area or areas. 8 may prepare separate proposals for urban area. Shall be prepared as if it were an SP	
9. Policy and general proposals		9(1) shall refer to matters that the D.P.A. think appropriate (2) Policies must be easily distinguishable (heavy type) (3) Shall contain reasons for policy	
10. Matters to be contained		Additional specification as contained in Part II of Sched. I	
11. Action Areas	Action Areas must be actioned within 10 years		

Statute / Circular / Instrument / Part/Schedule/ section / Paragraph number — System element referred to or specified			
12. Diagrams and insets		Not in a map base but on diagram form with key	
Part V Form and Content of Local Plans		As for S.P. but map-based and specific land use based	
S.P. and L.P. Regulations PART VI Approval Withdrawal rejection of S.P.s 19. Submission to SoS	One duplicate shall be submitted to SoS		
20. Notice of Submission		Advertise Submission and invite objection or representation	
21. Notice of return		Advertise return of S.P.	
22. Notice of resubmission		Advertise resubmission	
23. Withdrawal of S.P.		Withdrawl Advertise	
24. Examination in Public		SoS shall Advertise 6 weeks in Advance	

Statute / Circular / Instrument / Part/Schedule/ section / Paragraph number — System element referred to or specified			
25. Proposed Modifications			SoS shall notify LPA of intention and consider objections
26. Notification of SoS Decision			Notify both LPA in writing and public by advertising
27. Copies of Notices	CPA shall send copies of all notices to SoS		
Part VII Adoption/Abandonment Approval or Rejection of Local Plans	As for S.P. except that if L.P. is in record with S.P. SoS not involved. All stages must be advertised Local Inquiries for Objectors		
35 Action following decision to adopt in L.P.	L.P. shall resolve to accept it and advertise and send Rec. Del. a copy of notice to SoS		SoS may order Local Inquiry having advertised
36. Adoption or Abandonment		Notices shall be Advertised	

System element referred to or specified / Statute Circular Instrument/Part/ Schedule/section Paragraph number			
37. Approval or Modification	May hold Local Inquiry	Notices shall be Advertised	
38. Documents to SoS	Copies of Plan, Plan Adopted and all Notices of Adverts.		

APPENDIX 3 County Planning Authority Organisation Charts

Leicestershire

Lincolnshire

Nottinghamshire

Northamptonshire

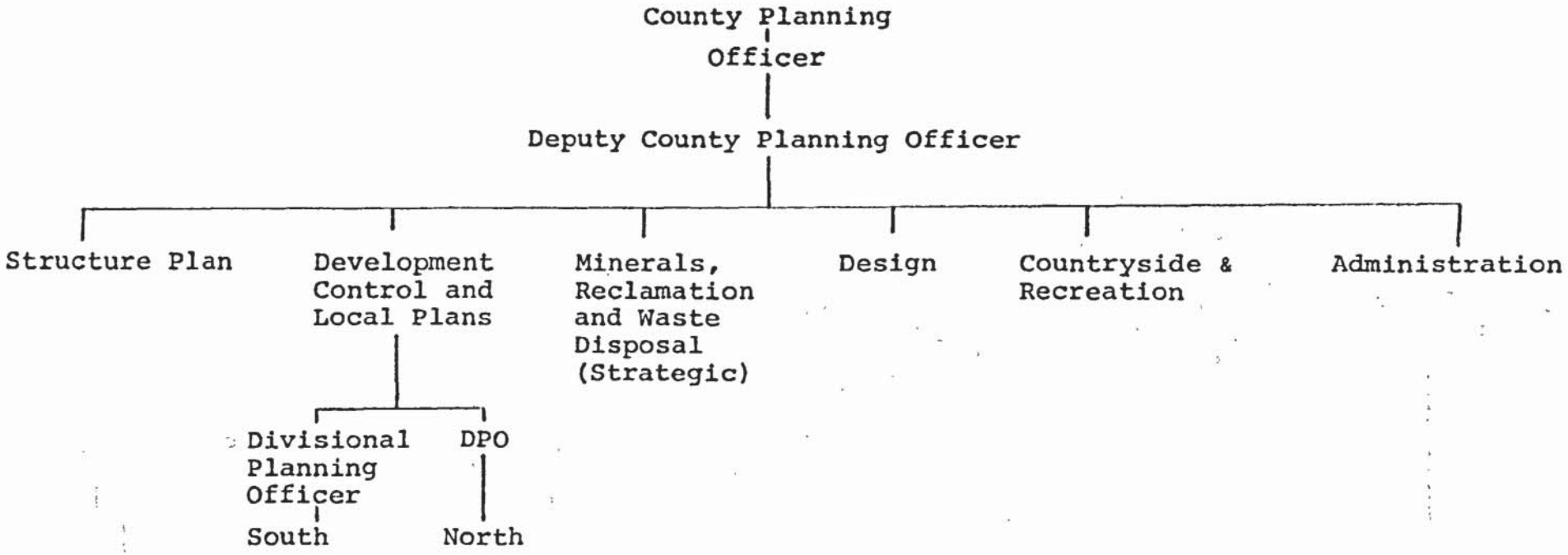
Peak District National Park

Staffordshire

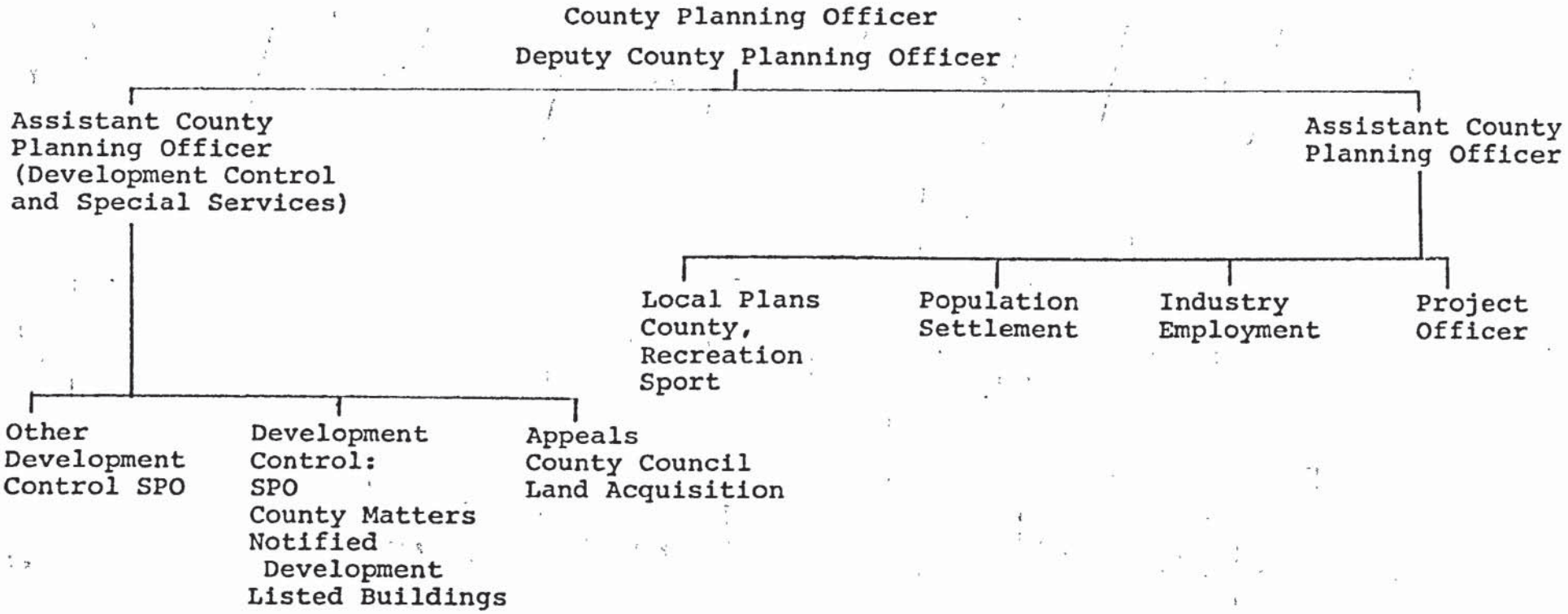
Warwickshire

West Midlands

LEICESTERSHIRE



LINCOLNSHIRE



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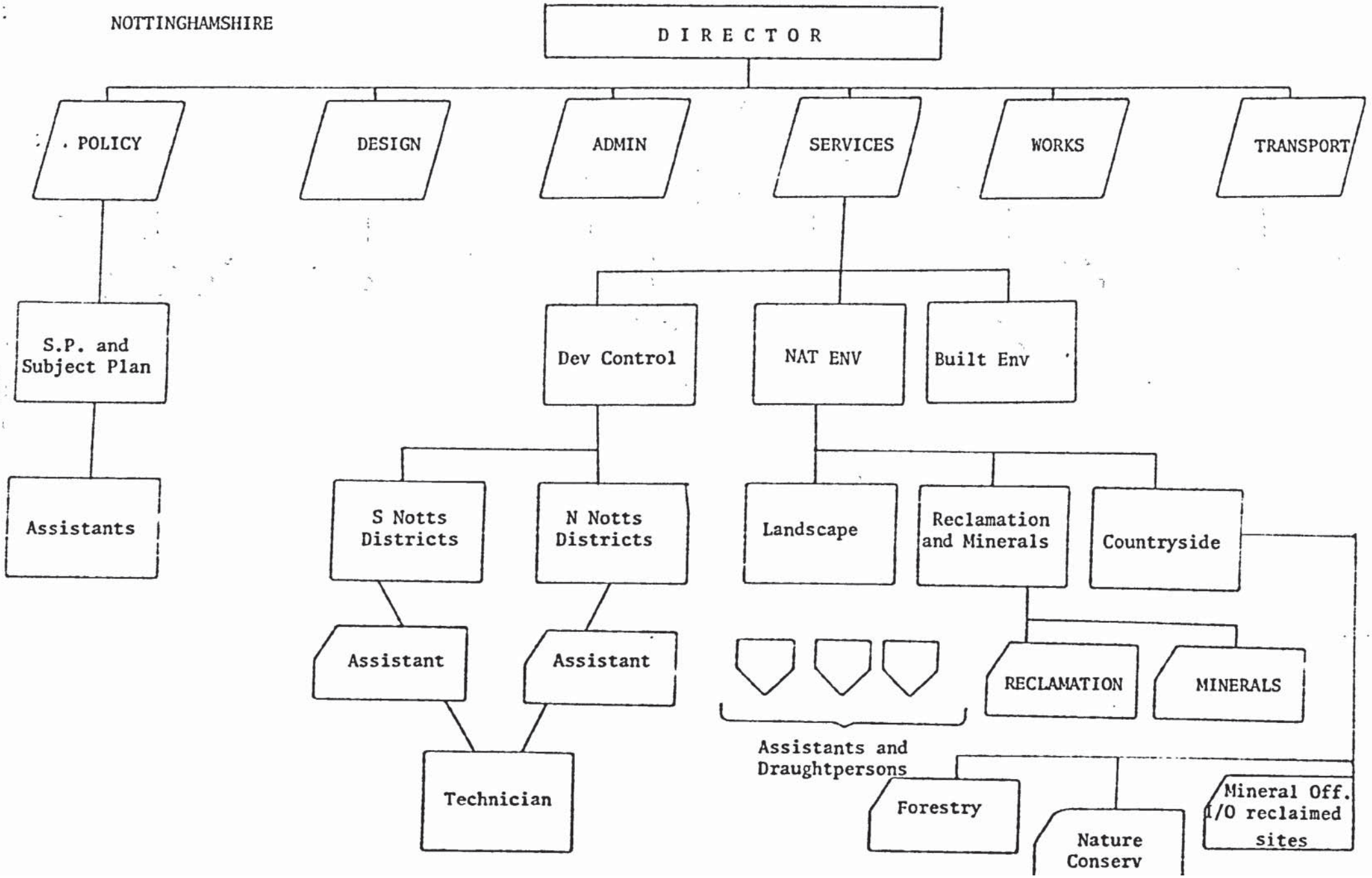
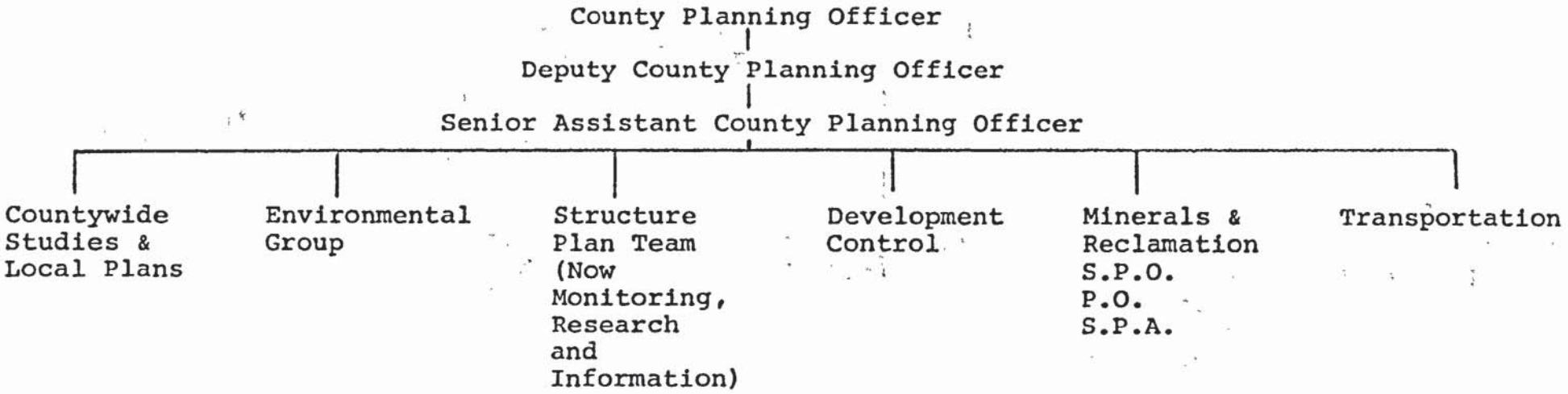
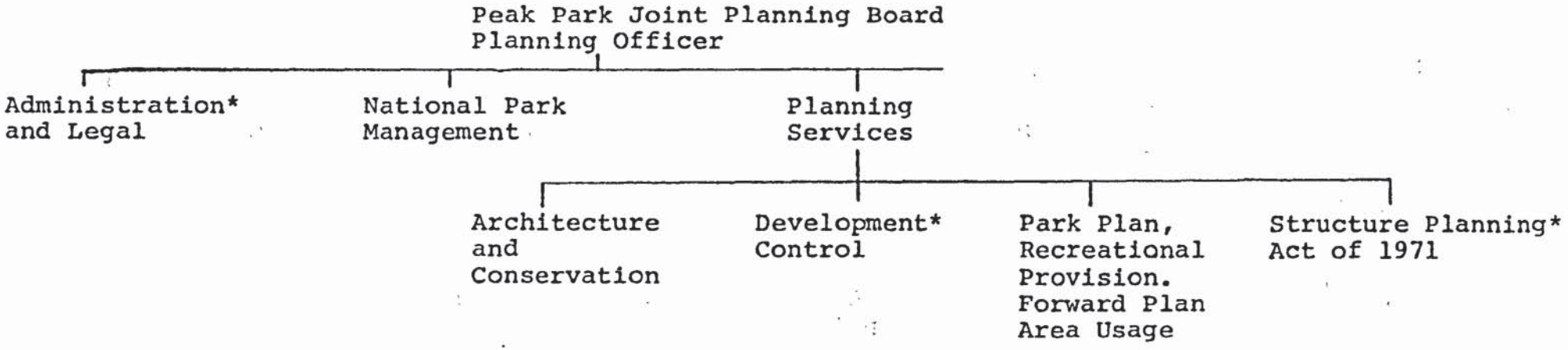


NORTHAMPTONSHIRE PLANNING DEPARTMENT

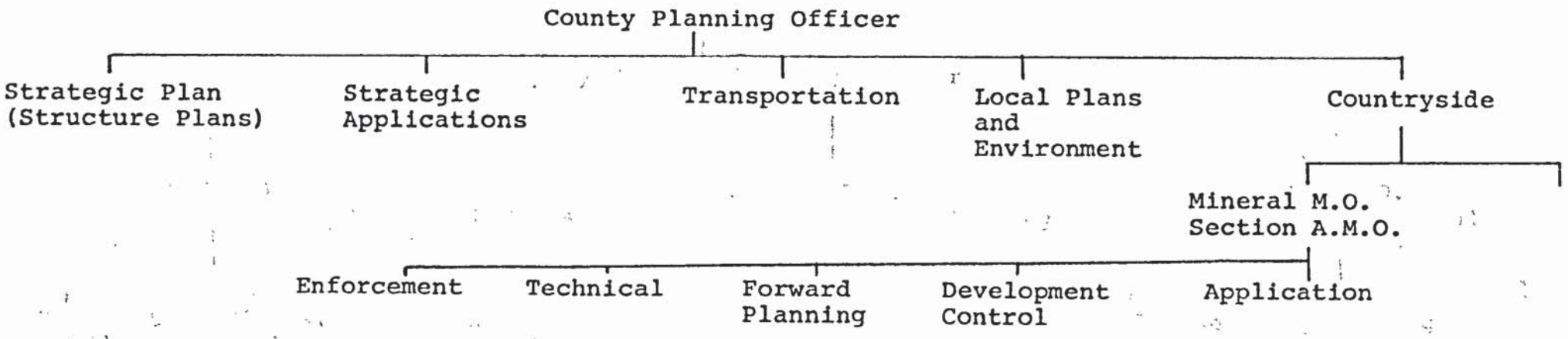


PEAK DISTRICT NATIONAL PARK

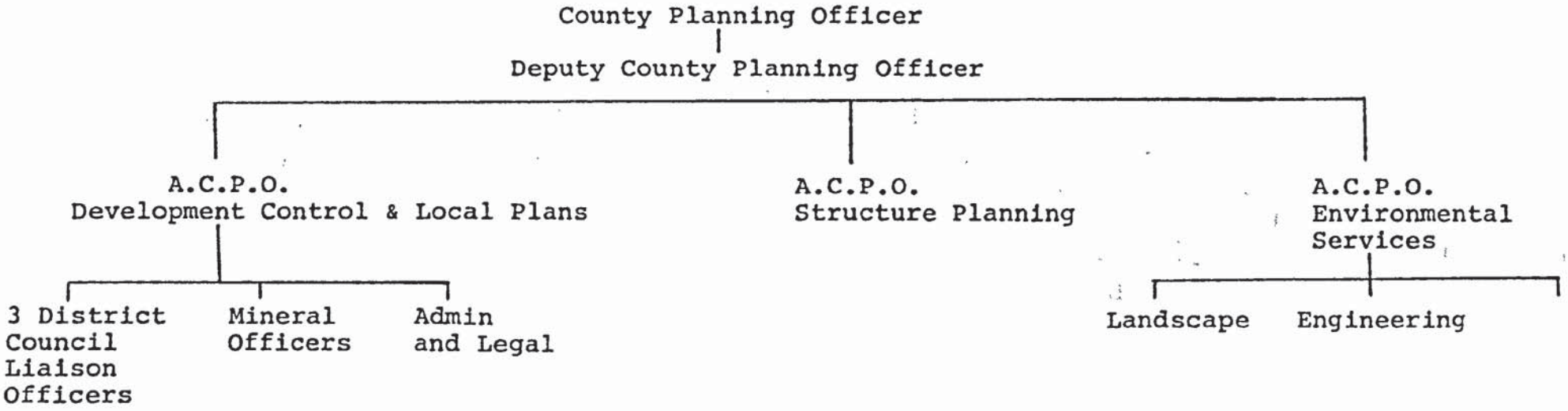


*Mineral Inputs

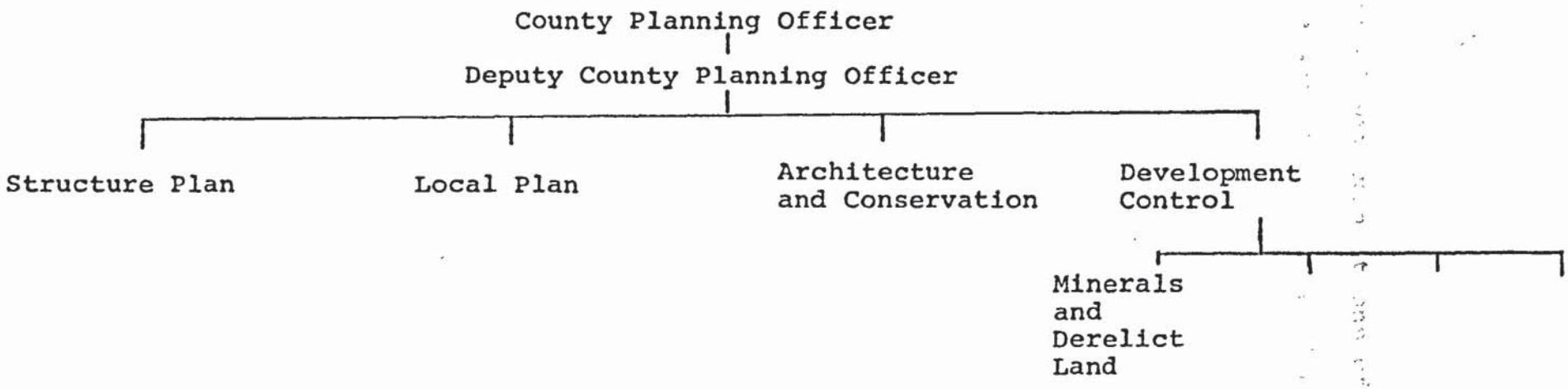
STAFFORDSHIRE



WARWICKSHIRE



WEST MIDLANDS



APPENDIX 4

Summarised Recommendations of the Committees under the Chairmanship of Sir Roger Stevens and Mr. Ralph Verney

APPENDIX 5

Two Sample Reports of a County Planner to the Planning Committee.

APPENDIX 6 Sample Planning Conditions Attached to Workings

"The working shall be progressively excavated in accordance with the submitted Plan B"

"Topsoil shall be stripped and stored to the satisfaction of the planning authority and subsequently re-used in the restoration"

"The development shall be begun (or completed) within ..... years"

"Tree planting will be started within ..... months"

"The working shall be phased according to a scheme to be agreed with the L.P.A."

"Approval for plant and ancillary works shall be sought notwithstanding the provision of the General Development Order"

"All plant and machinery will be removed at the end of working"

"A seeded berm shall be constructed to a specification to be agreed"

"No road transport is to be used in connection with winning the mineral"

"Where adjacent land is in agricultural use the margin shall be battered at a slope of 2:1"

"Nuisance or damage by weeds shall be prevented by all possible means"

"Existing trees and hedges (or drainage channels) shall be preserved as far as possible.

"The site shall be progressively restored and back-filled"

"Cranes shall not work adjacent to British Rail property"

"A landscaping scheme shall be agreed with the L.P.A."

"The building shall be painted Montara Green (or grey etc.)"

"The permission shall expire when minerals have been exhausted and when restoration is complete"

"No quarrying shall occur until a satisfactory access has been agreed"

"The hours of working shall be limited to....."

"Until the buildings coloured blue on the enclosed plan have been removed, there shall be no quarrying after a date two years from the date of this notice"

"A Woodland Management scheme shall be submitted within..... months"

"Such a Woodland Management scheme shall be implemented within..... month of being agreed"

"No material shall be deposited in the working other than that agreed by the L.P.A."

APPENDIX 7

The following questions were used to structure interviews with Local Government Officers:

1. What is the Organisational Structure of the Planning Department?

2. How many staff of what grade participate in Mineral Planning?

3. Which sections and departments do they work in?

4. What proportion of their time is spent on mineral matters?

5. What links exist between Structure Planners, Local Planners and Development Control?

6. Do the same staff take part in Mineral Structure Plan work as in Development Control work?

7. What is the normal processing procedure for Planning Applications?

8. Are there additional forms used for minerals?

9. What does the list of consultees consist of for mineral matters?

10. At what stage does contact (formal or informal) with the operator occur?

11. What form does such contact take?

12. How was the mineral Structure Plan arrived at?

13. What intelligence was available?

14. How did the elected members make their decision on the policies put to them?

APPENDIX 7 (Continued)

15. What degree of input or involvement do you derive from the:

    (a) regional

    (b) national agencies

    in the course of:

        (i) applications

        (ii) structure and other plan formulation?

16. What methods or means of monitoring development do you use?

17. What period commonly passes between site visits?

18. Is there any regular form of contact between planners and operators?

19. Do you undertake mineral planning by individual workings or by mineral (e.g. all limestone or sand and gravel)?

20. What value do you place on the Aggregate Working Parties?

21. What value do you place on the Stevens and Verney initiatives?

Note: The questions above were put, not always in order, during discussions with mineral planning officers so that answers in some form were forthcoming to all questions. The discussion frequently generalised away from specific points, and the questions then served a useful purpose in guiding the argument back on track.

APPENDIX 8 Panels and Committes of the Sand and Gravel Association and its Representation in other Bodies

Finance and Executive

Legislation and Planning

Round Transport Committee

Industrial Relations

Technical

Public Relations

Taxation Panel

Joint SAGA/BQSF Industrial Relations Committee

Joint SAGA/BQSF Training Committee

Joint SAGA/BQSF Health and Safety Committee

Joint SAGA/BQSF Accounting and Financial Legislation Panel

SAGA is represented on:

1. Confederation of British Industry
   - (a) Grand Council
   - (b) Minerals Committee
   - (c) Wages and Conditions Committee
   - (d) Safety Health and Welfare Committee
   - (e) Rating and Valuation Committee

2. National Council of Building Material Producers
   - (a) Council
   - (b) Executive Committee
   - (c) Technical Commercial Legislation Committee

3. British Standards Institution
   - (a) The Association is represented on 25 BSI Committees

4. Asphalt and Coated Macadam Associations

   (a) Technical Committee

5. British Road Federation

   (a) Council

6. Concrete Society

   Minerals Committee

7. Freight Transport Association

   National Users Meeting

8. Ceramic, Glass and Minerals Products Industry Training Board

9. Joint Working Party with the Transport and Road Research Laboratory

10. Aggregate Working Parties

    All eleven regional working parties

11. Sub Regional Sand and Gravel Working Parties of the South East

    All four of these working parties

12. Anglian Water Authority Recreation Advisory Panel

13. East Midlands Sports Council

    Water Recreation Panel

14. Eastern Council for Sport and Recreation, Water Committees

15. Greater London and South East Council for Sports and Recreation. Water Sport and Recreation

    Advisory Panels

16. Southern Council for Sport and Recreation

    Water Recreation Committee

    Sport and Recreation Advisory Committee

17. Yorkshire and Humberside Council for Sport and Recreation

    Water Space Committee

18. Areas and sections of SAGA

    (a) East and West Yorkshire and North Nottinghamshire Area

    (b) East Midlands Area

    (c) Essex Area

    (d) Greater London Area

    (e) Lincoln and Rutland Area

    (f) Norfolk and Suffolk Area

    (g) Northern Counties Area

    (h) North Western Area

    (i) Oxford Reading and Farnham

    (j) Scottish Area

    (k) South Eastern Area

    (l) Southern Area

    (m) South West England and South Wales Area

    (n) Trent Valley Area

    (o) West Midlands Area

    (p) Large Producers Section

    (q) Marine Section

APPENDIX 9

Remarks on Future Research in Mineral Planning using Systems Theory, and general Recommendations

9.1 Introduction

Chapter 18 compared and contrasted the implications of the analysis with the current state of affairs in mineral planning. This Appendix briefly discussed recommendations for changes in the way planning in minerals occurs and for areas where it is considered that further research could be profitably carried out. The recommendations for change occur in four areas:

1. Mechanisms for increasing communication between Governmental Departments.
2. Mechanisms for the formation of criteria of appropriate land use, again at local and national level.
3. Mechanisms for enabling public debate and policy formation.
4. Mechanisms for ensuring inter-County communication.

9.2 The Problem of Inter Government Departmental Communication

The results of the Inter Departmental Committee (for example the establishment of Verney and I.M.A.U.) showed that there could be highly profitable results from cross boundary discussions. The current formal system (e.g. of inviting the Ministry of Agriculture to comment on mineral matters) maintains the contact outside the boundary, rather than remporarily enlarging the system.

One way of achieving this increased level of awareness could be to establish a working party of members of government

departments having a mineral interest, e.g. Department of Industry, Agriculture, Environment, Trade.

As this area was not fully accessible it is one where very limited scope exists for recommendation. However, if effective policy is to be made, there must be adequate awareness of complementary and overlapping policy and of the plans and intentions of other ministries.

9.3 Criteria Formulation

Both at national and local levels, this is perhaps the most important and difficult area of the thesis. The implication is for a major shift in both the intention and method of planning. It implies a shift from a periodic, deterministic, approach to land use planning to a dynamic, heuristic, approach. The position can be summarised in the question; "for whose benefit is land used?" The answer is, the community. The three groupings used in the analysis are no more than polarisations of this larger group.

Recommendations here however are about how the criteria for decision as to the appropriateness of land use shall occur.

Several things help to reduce the complexity of this problem, at least as far as minerals are concerned. Firstly, three interest groups have been identified. Therefore a sample of each of these must be involved. Secondly there are now, in the Social Sciences, techniques available which measure the degree of congruence over different views.

It is recommended therefore that these techniques (for example the Semantic Differential or the Delphi type study) be examined to see if they are of value in assessing the extent of agreement over statements which may form criteria of appropriateness either at County or National level.

Such techniques should be used on a panel of members drawn from each of the three groupings, with a suitable control.

Obviously such an experiment will require further research to formulate both appropriate statements and to select an appropriate panel and an appropriate test.

Such research should involve a team comprising social and systems scholars as well as professional planners.

9.4 Mechanisms for Increasing Public Debate and Participation

This area is the subject of some research at the Centre for Environmental Studies in London, and in Sheffield. It is an area where the author has no experience whatever, and, except for perceiving a need for such mechanisms to be designed, he feels it inappropriate to make recommendations.

Obviously such mechanisms together must constitute a forum where Voters and Industry are enabled to become involved, away from the special issues involved with one particular application. The detail of issue discussed or debated will vary depending on whether the debate occurs at national or local level but the emphasis should be on involving them in the system, even though, strictly interpreted, they form the environment of the authority system.

9.5 Inter County Communication

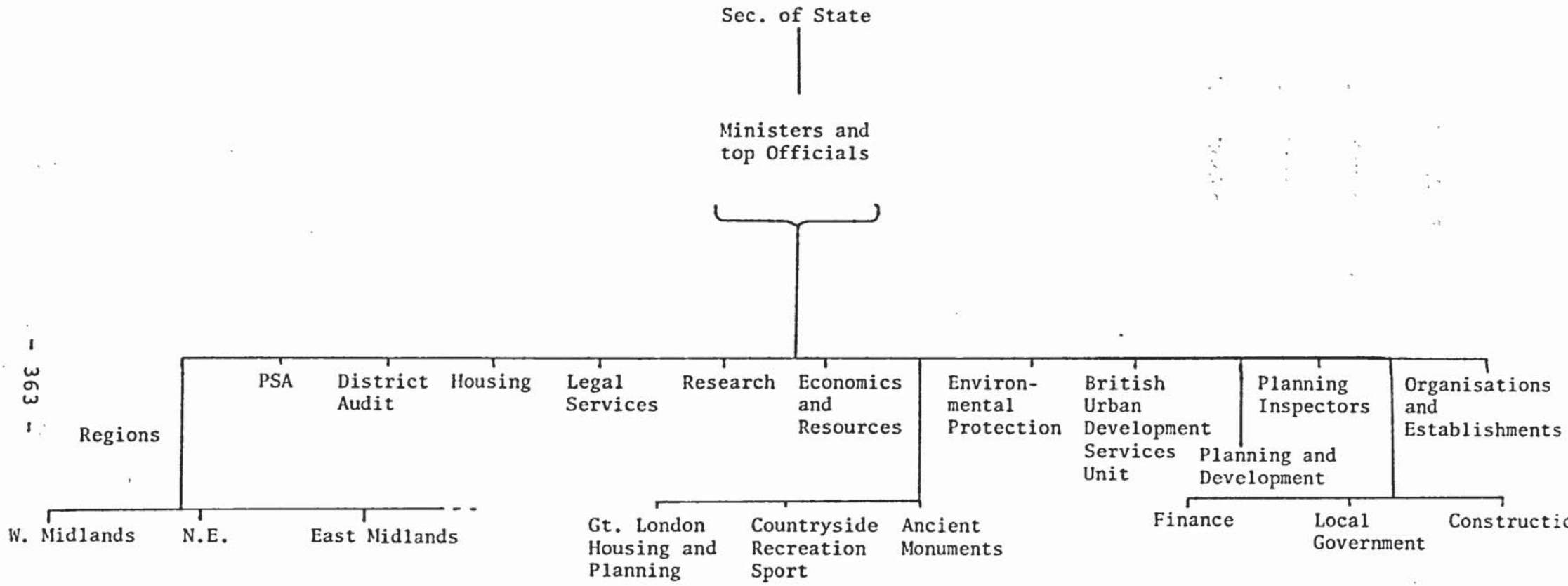
Statutorily, counties are required to consult each other when a development in one county is likely to affect the other in some material way. Roadworks would be a classic example. In structure planning, account must be paid to the policies of neighbouring counties. The form which such linkages take varies and is invariably informal. There is an argument in favour of such arrangements; the system should "self-organise" an appropriate channel. This attitude disregards political and bureaucratic attitudes however; counties will go their own way if possible, and there are therefore two aspects to communication between them.

The first is that of control. As discussed in Chapter 18 the responsibility of control is to break down broad policy between counties so that their autonomies are clear and well defined. Currently legislation does not specifically provide for this though it does allow the Secretary of State to make amendments to Structure Plans. It is recommended here that the legislation should be examined if the implementation of previous recommendations occurs, to ensure that policy can be communicated effectively to the counties.

The second aspect of the matter is the straightforward transmission of information between Counties. To a certain extent, and with some degree of success, the Aggregate Working Parties already achieve this. However, it is recommended here that a formal channel should be established for communication on mineral matters. To be effective it is likely that one County would be a member of two such

meetings, so that a network of groups would exist with an overalpping membership so that flow would occur between groups as well as between members of groups. As with the preceding recommendations, this idea needs considerable further research before it could be put into effect.

In each of the four areas discussed above, detailed research is needed before the recommendations could be implemented. Such research may show some of the recommendations to be ill-founded or erroneous.



Appendix 10: Structure of DoE

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26. Lincolnshire

27. Leicestershire

28. Nottinghamshire

29. Northamptonshire

30. Shropshire

31. Staffordshire

32. Peak Park Joint Planning Board

33. Warwickshire

34. Worcester and Hereford

35. West Midlands

Interim Reports of:

36. East Midlands Aggregate Working Party

37. West Midlands Aggregate Working Party

38. North Wales, Aggregate Working Party

Also received and utilised were consultation documents and papers from:

39. Friends of the Earth

40. Council for the Protection of Rural England

41. Sand and Gravel Association

42. British Quarrying and Slag Federation

43. Department of the Environment

Case Study Material was utilised from:

Lincolnshire

Leicestershire

Northamptonshire

Nottinghamshire

Shropshire

Staffordshire

Peak Park Joint Planning Board

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