SUSTAINABLE
DEVELOPMENT

An Analytical and
Descriptive Model
of Sustainable
Development for the
Environment Agency

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An Analytical and Descriptive Model of Substainable Development

R&D Project Record E2/006/1

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Statement of use
This report will be of interest to all Agency staff interested in ways of better integrating the principles of sustainable development into their day-to-day work. It will also be of use in stimulating the involvement of external experts in the analysis of improving the Agency's contribution to sustainable development in the UK.

R&D Project Record E2/006/1

CONTENTS

1.0 EXECUTIVE SUMMARY

1. In 1998, the Environment Agency of England and Wales commissioned the Environment and Society Research Unit and the Department of Geography, University College London, to develop a conceptual and visual model that will help the Agency to contribute to sustainable development. The outcome is this Report which is based on a desk study of relevant literature and three empirical studies undertaken with the Agency during 1998. The studies comprised: • interviews with senior staff; • an evaluation of the Action at Home programme designed to promote sustainable lifestyles and undertaken by Agency staff in the North West region; • and a stakeholder approach to a Local Environment Agency Plan (LEAP) conducted for the New Forest area team.

2. A review of international and national government thinking on sustainable development shows that the new Labour government in the UK places particularly strong emphasis on social welfare dimensions of sustainability and involvement of the public at all stages in a process of decision making designed to progress sustainable development. This is in contrast to earlier approaches which have been guided by economic and environmental concerns rather than social and institutional (governance) concerns.

3. Responding to this new emphasis on social welfare, ethics and governance issues, the Report reviews existing models of sustainable development. It goes on to identify two contrasting approaches to understanding the individual and society which reflect different theories and practices in social science. The new conceptual model of sustainable development presented in this Report is developed through an examination of these two ways of understanding how society 'works'.

4. The older, traditional approach is described as a 'reductionist' way of thinking about how individuals fit in society. The reductionist model reflects the 'cause and effect' thinking of the physical sciences and privileges individual, rational choices and understandings. In its review of current models of sustainable development, the Report shows that these are underpinned by the reductionist model of society.

5. The newer, more radical approach is described in the Report as a 'contextualist' way of embedding individuals within their specific environmental, economic, social and cultural contexts. Within contextualist thinking, society is seen as being composed of many institutions which are more or less strongly shaped by socially determined rules and regulations. Individuals are understood as social actors who are both shaped by, and capable of shaping, these 'hard' and 'soft' institutions that make up society. The contextualist model reflects the emerging social welfare and institutional approach favoured by the present government.

6. The Report pursues a decision-path approach linked to a series of key questions to demonstrate that the two idealised models of society generate different ways of moving in the direction of sustainable development. The models lead to different conclusions about: • the individual in society; • the role information and institutions play in engaging with the public; • the way in which the environment interacts with society; • the economic and political processes which determine how society 'works'; • and the role of expert and lay knowledge.

7.   The outcome of this analysis is the presentation of a new, contextualist model of sustainable development which is dynamic rather than static, and which conceptualises sustainability as a **process of negotiation** which seeks to identify the correct trajectory society should take.

8.   Examples of how Agency staff are responding to the challenge of developing a coherent approach to sustainable development are discussed in the Report. An extended example based on the New Forest LEAP, demonstrates how the Agency has already begun to respond to this challenge by developing a more inclusionary approach to environmental decision-making. The empirical studies provide examples of how movement towards a more contextualist model of society finds favour with a broad range of Agency staff , and the stakeholders and partners the Agency needs to work with.

9.   Based on the findings of the literature review and the empirical studies, the Report offers a new, socially-informed model of sustainable development. This model is underpinned by principles of inclusion, equity, precaution and the polluter-pays principle. The model serves to reposition the working practices of the Agency by embracing the social and governance issues of sustainable development. As a practical means of taking forward this approach , it is suggested that the Agency uses a decision pathway based on the questions raised by the reductionist and contextualist models of society to inform all their polices, programmes and projects.

10.   Increased government attention to new forms of dialogue and institutional responses to secure the increased participation of communities and stakeholders will require the Agency to work in partnership with others, and to engage the public more directly in its work. When sustainability is understood as a dynamic, on-going process of negotiation, the Agency will meet its duty under the 1995 Environment Act through the promotion of active dialogue with its stakeholders and publics. In this discursive style of decision-making, shared responsibility for the environment is acknowledged, and policies and actions can be designed to reflect the joint ownership of environmental problems and solutions.

11.   One of the main tasks facing the Agency is to ensure that this new approach to recognising the social benefits of the environment is reflected in their policies and working practices. Specifically, this will involve the Agency in:

    i. building partnerships including those with business where involvement with environmental issues remains highly variable;

    ii. ensuring that disadvantaged groups are not further disadvantaged by SD policies

    iii. engaging regional and local interests in decision-making processes; and

    iv. promoting a higher profile for Local Agenda 21 in local communities.

12.   It is increasingly recognised by governments, environmental non-governmental organisations, business, and academic researchers that existing approaches and tools for environmental protection must be augmented by new methodologies. New forms of dialogue and institutional responses are needed to secure the increased participation of communities at

international, national, regional and local levels. The Report argues that it is essential that the Environment Agency takes the initiative in translating, developing and achieving these objectives through its policies and decision-making methodologies. The Agency has shown itself to be open to innovation in its principles and working practices through exercises such as the New Forest LEAP. The challenge is to progress culture change throughout the Agency to embrace the new understanding of sustainable development.

13. By recognising sustainability as a dynamic process of negotiation, and by adopting a collaborative and inclusionary approach to environmental decision-making offered by the new model, the Agency will be able to respond effectively to the changing environmental, economic, social **and** political requirements that drive sustainable development.

14. The Report provides the Environment Agency with insights to facilitate the development and implementation of policies that will enable it to carry out its functions for environmental protection and prudent use of environmental resources within a context for sustainable development that now emphasises new social objectives and new institutional practices.

I **INTRODUCTION**

This report is the result of research commissioned by the Environment Agency of England & Wales. The research has been carried out by the Environment & Society Research Unit at the Department of Geography, University College London.

The approach adopted in this report, agreed with the Agency, reflects the difficulties of developing a model of sustainable development for the Agency purely from a desk-based study. Instead, the research team has worked closely with the Agency to identify and clarify its aims, methods and approaches, laid down in statute, given its principal aim of contributing to the national strategy for sustainable development. To do this we have used a range of research techniques in addition to a literature review.

The report is divided into the following sections. Section II sets out the aims and objectives of the research and presents a short overview of our methodological approach. Section III provides a review of the emerging policy context for sustainable development in the UK; Section IV review of existing approaches and models of sustainable development while Section V introduces ways of modelling the social and governance dimensions of SD. An assessment of the key tasks facing the Agency as it seeks to demonstrate its contribution to sustainable development is given in Section VI. The findings of the field research are presented in Section VII and are used to develop a new socially informed approach to sustainable development in Section VIII.

II THE SCOPE OF THE REPORT AND OVERALL APPROACH

In consultation with the Agency, the research team were required to develop a model of sustainable development which captures the context in which the Agency operates and demonstrates its contribution to the national strategy for sustainable development (SD).

Our research has been guided by the requirement for a visual 'map' of sustainable development that can be used within and without the Agency. The purpose of the 'map' is to provide the context in which the Agency operates and to demonstrate how, through its regulatory, educational and policy-making roles, the Agency contributes to the national aim of sustainable development (SD).

The report does not set out to present a comprehensive general model of sustainable development. Instead we have tried to determine the extent to which current models of SD address the range of social, economic, environmental factors which the Agency should take into account when developing strategic or operational policies. Our review reveals that existing models of SD tend to privilege either the environment or the economy. Our approach focuses upon the social processes that underlie current understandings of SD, how social processes can contribute to SD and the implications for the Agency's practices.

Aims

The aims of the research were to:

- develop a visual model which provides the context of SD in which the Agency operates

- develop a visual map of the Agency's duties and functions

- demonstrate how the discharge of those responsibilities contributes to the national aim of sustainable development.

Objectives

The objectives of the project were to:

- identify the relationships between the statutory requirement of the Agency to contribute to SD and the Agency's powers and duties, including its regulatory role

- develop a visual model which captures these relationships

- provide a framework to support policy discussions between the Agency and the DETR

- discuss the means by which these relationships may be communicated internally to staff at all levels and externally to the Agency's partners.

Approach

With these aims and objectives in mind, it was imperative that the research team fully understand the extent to which current practices in the Agency contribute to sustainable development. In doing so it became clear that a more detailed knowledge of how Agency staff felt their activities contributed to the national aim was required. Therefore the research team adopted a multi-layered strategy to developing a visual model. This has comprised the following:

- literature search
- review of policy documents and 'grey' literature
- observation of Agency 'sustainable development' workshops
- one-to-one interviews with key Agency staff and Board members (Bristol)
- focus groups with Agency staff in the North-West region.

Literature Search

In addition to a general review of the sustainable development literature, the research team has reviewed a selection of the very extensive literature on models of environmental governance and decision-making processes. Our aim has been to identify the potential and limitations of types of model rather than to assess the individual strengths and weaknesses of particular models.

Sustainable Development Workshops

At the invitation of the Agency, members of the research team were invited to observe a number of 'roadshows' presented by the SD Unit in the South-West and Thames regions during 1997/8. These occasions provided an opportunity for the research team to gather informal opinions from Agency staff on the Agency's functions and its contribution to the national aim of SD. While these are only informal opinions, they do serve to reinforce the findings from the focus groups held in the North-West.

One to One Interviews

In consultation with the Agency, it was agreed that the research team would interview a number of key Agency staff, including a representative of the Board. This phase of the research proved to be particularly difficult as the interviewees were often extremely busy. However, the following individuals did consent to taking part in the research:

Chris Newton   (Head of Sustainable Development)
Richard Howell   (Biodiversity)
Ronan Palmer   (Chief Economist)

David Mead   (Head of Regulation)
Derek Osborn   (Board Member & also Chair of the European Environment Agency).

These interviews were completed during the period January to March 1998. Each interview was taped to ensure that individual's concerns were recorded correctly. Each tape was transcribed and then members of the research team produced a detailed, interpretative summary of the discussions. In doing so, our aims were to identify areas where there was agreement and differences between individual accounts, and to determine future policy priorities *vis a vis* sustainable development.

Focus Groups with Agency North West Staff

In February 1998, the research team convened four focus groups with Agency staff in the North-West region. Although the focus groups were designed primarily to evaluate the piloting of Global Action Plan's *"Action at Home"* project in the North-West, it provided the research team with invaluable insights into the concerns of Agency staff charged with the day-to-day problems of contributing to sustainable development.

Each of the four focus group discussions was recorded on audio-tape. As soon as possible after the completion of the discussion, the moderator and participant-observer listened to the full taped discussion again, reconstructing on paper the running sequence of contributions to the discussion, and identifying key themes and topics. The tapes were then fully transcribed by a professional typist. Thereafter, each focus group transcript was independently read by Burgess and Collins, each of whom independently produced an account of the major and minor themes; specific contents of the discussion; the forms of argument developed by group members; and points of agreement and disagreement. After review by the two researchers, the specific contents of the discussions were coded according to the main themes in the discussions. This allowed a systematic comparison of issues where there was consensus and disagreement across the four groups.

III OVERVIEW - INSTITUTIONAL RESPONSES TO SUSTAINABLE DEVELOPMENT

Introduction

This section presents an overview of the concepts and models of sustainable development. It is not intended to be comprehensive. Instead, the aim is to determine the uses and *coverage* of existing models in capturing the range of social, economic, environmental inter-relationships which the Agency faces in its strategic policy and operational undertakings. To provide some context to the models, this section begins with a short review of how sustainable development is seen in central government.

Sustainable Development & the Agency

The principal aim of the Environment Agency, defined by the 1995 Environment Act, is to contribute, as guided by the Ministers of the Government of the day, to the national goal of sustainable development.

Although 'sustainable development' has come to dominate the international and national environmental agendas in the 1990s, the term lends itself to many different interpretations. For example, the most widely circulated definition of sustainable development is that expressed as intergenerational equity: 'development which meets the needs of the present without compromising the needs of the future' (WCED, 1987). Although the quotation gives a broad sense of what is intended, it is unspecific, making no attempt to define present or future needs, or the most appropriate spatial and temporal scales upon which action might best be judged.

In more scientific terms, progress towards sustainable development has been defined as 'improving the quality of human life while living within the carrying capacity of supporting ecosystems' (IUCN/UNEP/WWF, 1991). Whilst this statement also gives priority to enhancing the quality of the human life, it is explicit about the potential existence of environmental 'limits' and the need to respect these.

In 1992, the Rio de Janeiro Earth Summit concluded that sustainable development could only be achieved if social, economic and environmental goals were balanced in decision-making. The Earth Summit stipulated that conservation of biodiversity and promotion of human health and welfare, within a decision-making process which integrated environmental concerns with development strategies, are central to achieving sustainable development. At an international level, sustainable development has been variously defined and interpreted. As a result, achieving full collaboration among national governments will continue to prove difficult.

By 1994, the UK Government had responded to the Earth Summit, publishing, *inter alia,* *Sustainable Development: the UK Strategy* and the accompanying *Biodiversity: the UK Action Plan* (UK Government, 1994a,b). These publications built upon the earlier White Paper, *This Common Inheritance* (UK Government, 1990), and retain a broad perspective. The Strategy was characterised by a concern that SD policies should not inhibit wealth creation - indeed, it

asserted that SD *depends upon* wealth creation - and the need for partnership between all interests in society if SD was to be realised. It emphasised the traditional roles of science and scientific advice as well as the need for a 'bottom-up' approach (especially through Local Agenda 21), but with little mention of a shift in powers or resources to facilitate greater public involvement in decision making. It also promoted new fora to encourage debate, advice and involvement (the Round Table, Government Panel on Sustainable Development and the national campaign *'Going for Green'* respectively). Other national initiatives included:

i. continuation of an annual series of White Papers on policy implementation in the environmental field, which can be viewed as a positive commitment to the public audit of progress towards SD

ii. the regular use of the term sustainable development in the remits of public agencies and · in planning policy guidance

iii. the requirement that local authorities should initiate, guide and implement Local Agenda 21 programmes. All local authorities must adopt an LA21 plan by the year 2000.

The contents and policy implications of the UK Strategy have been regularly examined by the Panel and the Round Table and by a House of Lords Special Select Committee on Sustainable Development. Despite the lack of consensus on defining and implementing SD, the Select Committee was of the opinion that

'The concept of sustainable development implies a revision of the path of wealth creation and constrains the parameters of economic decision-making by a full and open recognition of the environmental costs of development. In so doing, there is a need, at least in principle, to distinguish between major life or planet threatening concerns, on the one hand, which merit imperative action, and on the other hand, more modest ·or local concerns which may be capable of negotiated trade-offs' (HoL, 1995a).

While this makes clear the need to integrate environmental and economic issues in decision-making, the Report said much less about the *social* issues underlying the notion of SD. The Report made limited reference, for example, to the evidence provided by the Local Agenda 21 Steering Group which emphasised a different set of priorities (HoL, 1995b). Their evidence paid particular attention to equity, poverty, the use of regulatory rather than market instruments, and local decision making.

These latter priorities are, however, more clearly reflected in the position of the new Labour Government (Munton & Collins, 1998). The recent consultation paper on a revised UK strategy for sustainable development notes that sustainable development is about 'Ensuring a better quality of life for everyone, now and for generations to come' (DETR, 1998), accompanied by a set of SD objectives which, in summary, are as follows:

- Social progress which recognises the needs of everyone

- Effective protection of the environment

- Prudent use of natural resources

• Maintenance of high and stable levels of economic growth and employment.

Most significant is the ordering of these objectives and their elucidation. In particular, being able to live in and enjoy a healthy environment, characterised by having access to clean air and water, uncontaminated land and environments rich in wildlife, is regarded as one of the main objectives of sustainable development. This *social welfare* approach constructs the environment as consisting of natural assets which provide a stream of benefits or services for society so long as care is taken not to damage them. These assets include the stock of natural resources which benefits the economy (minerals, soils, air, water, wildlife) and a range of tangible and intangible 'services' which are often taken for granted. Obvious services include nutrient recycling, waste decomposition, and gaseous exchange; less tangible services include the range of meanings which landscapes, nature and places are invested with by local communities and which society as a whole values.

Thus, one of the main tasks facing the Agency is to ensure that this new approach to recognising the social benefits of the environment is reflected in their policies and working practices. Specifically, this will involve the Agency in:

i. building partnerships including those with business where involvement with environmental issues remains highly variable;

ii. ensuring that the poor are not further disadvantaged by SD policies

iii. engaging regional and local interests in decision-making processes; and

iv. promoting a higher profile for Local Agenda 21 in local communities.

It is also reasonable to expect that another aspect of partnership will be progressed as part of transparency in decision-making, namely regular and meaningful audit of change. In parallel with its current review of the SD Strategy document, the government is revising its publication on indicators. The on-going consultations on the nature of the revised document suggest strong pressure to incorporate targets as well as indicators (see also House of Lords Report); to include socio-economic indicators as well as more conventional measures of environmental condition; and to incorporate measures of 'process' as well as 'product' (see below) in the delivery of SD.

It is essential, therefore, that the Agency takes the initiative in translating, developing and achieving these objectives through its policies and decision-making processes. The consultation document makes clear that in addition to existing approaches and tools for environmental protection, *new forms of dialogue* and *institutional responses* are needed to secure the increased participation of communities at international, national, regional and local levels (see DETR, 1998, paras 91-97).

This emphasis on how institutions engage with other actors who have a legitimate interest in the environment means working in partnership with others and engaging the public as stakeholders, not just as consumers. Through processes of active dialogue, shared responsibility for the environment is acknowledged, and policies and actions can be designed to reflect the joint ownership of environmental problems and solutions.

For the Environment Agency, a key concern must be to develop and implement policies that enable it to carry out its functions for environmental protection and prudent use of environmental resources within a context for sustainable development that now emphasises new social objectives and new institutional practices.

An overriding task, therefore for the research team has been to articulate, and 'map', how these new social welfare, ethical and institutional dimensions of SD become **integral to** the decision-making structures and processes employed both within and without the Agency.

IV APPROACHES TO SUSTAINABLE DEVELOPMENT

Overview

There is a substantial and growing literature about sustainable development covering almost every aspect of interactions between human society and the environment. Despite this attention, and perhaps because of it, we are little further down the road of reaching a consensus about the meaning of sustainable development than a decade ago when the Brundtland Report was first published. Fundamentally, this is because SD is about a change in values, and in particular the promotion of a set of values that raises the status of the environment when seeking to balance social, economic and environmental aspects of decision making; and all such changes are contested. O'Riordan & Voisey (1997), for example, outline a range of positions that society could adopt which increasingly reflect less technocratic, market driven outlooks and give more credence to notions of stewardship, local empowerment and environmental justice. They even suggest that we might be at the start of a long process of value change that will inexorably lead in this direction.

It matters not, however, whether we endorse their particular view of future value change. The key lesson is that groups in the population are continually claiming new environmental rights, as well as rights of participation, *ahead* of the legislative process, and this means that SD will remain a *contested* question that will continue to engage firmly with cultural and political issues in reaching judgements about the environment.

Traditional, scientific analyses of the environment's condition can only contribute to, and occasionally be decisive in, such environmental decision making. The degree to which science can provide a definitive answer to environmental problems is further eroded by significant differences between the relative strengths of social, economic and environmental claims in different geographical locations, either at local, national or international levels. In other words, while we could argue that traditional scientific analysis forms a necessary contribution to SD decision-making, on its own it is by no means *sufficient*. Achieving integration of the economy, society and the environment is a *social* process that is guided by social values and not just by scientific judgements about environmental limits. For example, approaches that envisage integration as being achieved in the manner of a 'Russian doll' model, in which 'the environment' successively encapsulates society and the economy, will always be contested because they conceal the social processes contributing to the production and recognition of environmental problems - including environmental limits - and to their solution.

At best, then, consensus can only be reached around broad directions of change, emphasising the view that SD is more about encouraging particular *processes* of change and less about specifying end conditions or 'products' in social, economic or environmental terms. These difficulties are illustrated by Dobson (1996) who seeks to provide an analytical approach to discriminating among different approaches to sustainable development. He suggests that four questions require answering (see Figure 1):

- What requires sustaining? – nature and human-made things

- Why should they be sustained? – human welfare and duty towards nature

- What are the objects of primary and secondary concern? – the welfare of present or future generations; or nature now and in the future

- Can the objects that need sustaining be substituted? – human capital as a substitute for some kinds of natural capital but not 'critical' natural capital.

Serving to focus attention on the need for thoughtful deliberation and negotiation in the processes of agreeing in which direction SD might evolve, Dobson's analysis is also a salutary reminder that SD involves moral and ethical dimensions, as well as practical outcomes. The range of possible responses to the questions he raises and their differing 'solutions' reveals why definitions and uses of sustainable development arc so wide.

When questions of *equity* and *institutional processes* are added to this list - precisely those questions raised by the present government's preferred approach - three new questions arise, namely:

- What is being distributed? - natural and human-made things; now and in the future;

- Amongst whom? – all groups or some rather than others; now and in the future;

- How are they being distributed? – principles and processes involved and substantive outcomes.

Answers to these questions impinge directly on social welfare values and the institutional structures and practices required to secure them. At issue here are questions of how society is organised and administered or, more properly, issues of both *'governance'* and government. These are not questions that seem obvious to raise in a democratic society, but as Dobson's analysis makes clear, if we are to move in the direction of SD, we cannot 'take for granted' the fact that existing decision-making structures and practices place social justice values at their centre. It is for these reasons that in attempting to offer a model of SD we position · 'governance' - those formal and informal structures and practices through which society is seen to 'work' - as an arena or dimension of SD in its own right.

Many approaches to sustainable development implicitly address the questions raised by Dobson but fail to answer them because only when policies are implemented do the contested complexities of real situations emerge. However, these question do focus attention on those dimensions of SD which can be used to guide the decision-making process. These are shown in Figure 2.

Even though this analysis offers a structured approach to SD, answers to the questions it raises do not necessarily re-inforce one another. Their singular or combined effect on outcomes will be dependent on how, and to what extent they are given weight in decision-making and regulatory processes. Given the contested ground which sustainable development addresses, according equal status to each dimension is not a forgone conclusion, but likely to be subject to intense and shifting debate. With fundamental principles subject to discussion, therefore, it

is not surprising to find that many commentators recognise sustainable development as *a process* rather than a tangible 'predetermined' product. Determining the right direction, and the processes needed to move society in that direction, become the focus of concern.

In the context of international relations for example, greater integration with the EU has meant the bureaucratic standard-setting culture of our European partners has been progressively transferred to the UK. As the EC extended its areas of jurisdiction, it did so against the background of limited fiscal powers, inhibiting its ability to tax, borrow and spend, leading it inevitably towards a regulatory, rule-making form of governance. This is nowhere more self-evident than in the environmental arena. Such an approach contrasts markedly with the traditional practice in the UK which is characterised as devolved, administrative and negotiative (Figure 3).

Regulatory styles are not wholly negative, often allowing for discretion to bridge the gap between universal standards and local conditions, but they suffer from exclusiveness and lack of transparency in their dealings, a matter the Environment Agency is well aware of.

An appraisal of existing SD models and their ability or otherwise to address social and governance dimensions of SD, provides a point of departure from which to develop a more process orientated model of sustainable development of relevance to the Agency.

Existing Models of Sustainable Development

The UK/OECD Economic Model

In practice, models of sustainable development can only offer a schematic and simplistic representation of these complex processes. The UK/ OECD model used by the UK Government (Figure 4) provides a useful starting point by depicting important relationships between the economy, environment and society (actors/institutions).

The model implies that all three major components - economy, environment and society - need sustaining. The model positions economic sectors and institutions/actors as the main agents through which wealth and welfare are distributed and regulated. But, rather than taking environmental limits as self evident, as would be the case with 'the limits to growth' models of economic development, the model places the environment in a mediating role between the economy and society. Positioned in this role, the environment provides resources that sustain economic activity, but is also subject to pressures from these same activities. As a provider of 'services' that are often ignored, such as clean air, landscape, waste sink for example, the environment is also seen to contribute to social welfare on a range of scales: local, national and international. In turn, society takes steps to sustain these welfare services through responses such as international agreements, pollution regulation, and price mechanisms.

More complex models, such as that provided by Ekins (1997) for 'Forum For The Future' elaborate on this basic model by opening up the 'black boxes' of the three main components and the flows of 'goods' and 'bads' between them (Figure 5). It details some of the processes

and instruments through which the environment can be integrated into the activities of the economy, and political and regulatory institutions.

Best Practice Sustainable Development (Ekins 1997)

The starting point for the model is a 'sustainable way of life' which is subtended by four dimensions, namely: environmental, economic, social and ethical. The elaboration of the **economic dimension** of the Forum for the Future's approach is instructive because it makes clear the different forms which capital can take - ecological, manufactured, human and social/organisational.

- Ecological capital is addressed in terms of environmental resources and sinks, as well as the services the environment provides to enable production to take place namely, 'survival services' such as climate and ecosystem stability; and amenity services associated with wilderness, beauty and fine landscape
- Manufactured capital relates to infrastructure, technology and material goods
- Human capital comprises the abilities of people to do productive work
- Social/organisational capital reflects the ability of people to co-operate through different institutional structures, the maintenance of which contributes to a sense of social cohesion.

Economic sustainability is promoted by any activity that maintains or increases the level of any of the four capital stocks. The economic concept of 'safe minimum standards' is suggested as a means of determining appropriate rates of use of renewable resources and their services. Having much in common with the 'critical load' concept already utilised in the EU as a tool for guiding decisions about reductions in atmospheric emissions, 'critical zones' are defined in relation to the **cost** of reversing existing immoderate use of both ecological resources and ecological processes.

Touching on the important question of the extent to which manufactured capital can be substituted for ecological capital, Ekins prefers an approach which favours a 'strong' sustainability position. According to this view the substitutability of manufactured for natural capital is seriously limited by the difficulties of defining, agreeing and accepting such concepts as irreversibility, uncertainty and 'critical ecological capital'. What social process and institutional structure and practice are required to promote such an approach - issues concerning how the public and institutions are expected to behave and how rights and responsibilities are to be allocated - are only briefly alluded to. This lack of clarity on the social processes required to transform and reshape social values represents a fundamental weakness in the Ekins model.

The SPR model used by the Agency

The State Pressure Response (SPR) model used by the Agency (Figure 6) is best regarded as concerned with the environmental subset of the OECD's overall approach and as such it tends to ignore the economic, social or governance dimensions of SD.

SPR is a simple inputs-outputs model which 'black-boxes' decision-making processes and the

complexities of the environmental issues it seeks to address. As described in the Agency's Environmental Strategy (EA, undated: 11) this approach involves the Agency in:

- gathering facts about the environment

- ascertaining what the scientific and technical position is about 'the state of the environment', both nationally and internationally, and how this differs from the perceived or popular view

- forming a view after appropriate consultation about the various options for action

- informing all of those affected, of the course of action the Agency believes fit to undertake.

This linear and mechanistic model appears to be context and scale independent. It offers little indication of how the state of the environment interfaces with the social, economic and governance/political processes that inevitably influence the Agency's activities. Moreover, the model provides no guidance about what principles might guide the Agency in deciding how best to manage the environment within the wider context of sustainable development. In other words, returning to Figure 1, it is difficult to discern **what** is being sustained, **how** the Agency is to form a view about appropriate actions at different scales, and how its institutional practices - especially those involving partners and the public - are to be developed and agreed.

For example, the Agency might be expected to have a distinctive view about 'sustainable' agriculture, forestry and tourism, but the model provides no guidance about how these arenas of activity are to be agreed or acted on. Likewise, questions about equity which ask how what is being sustained is to be distributed, will require the Agency to make a judgment about the acceptability of persistent, spatial inequalities in the material 'state of the environment'. This may require the Agency to take a view about the development and agreement of local targets defined by the state of the environment in particular localities or as experienced by different social groups and how these targets will be secured. Additionally, integrating the Agency's activities with Local Agenda 21 strategies and Biodiversity Action Plans requires institutional structures and processes which provide for the active involvement of local communities and stakeholders in agenda setting and decision making, rather than consultation alone.

Potentially, the Agency can make a considerable difference to the material and spiritual quality of people's lives through how it conceives and contributes to SD. Most obviously this contribution lies through pursuing an integrated approach to the physical and natural environment of the land, water and the atmosphere. But, its true potential will only be realized when the Agency's functions are integrated with broader concerns about how the public, its partners in society, and the Agency itself are expected to respond to the social welfare issues of SD. In particular the Agency needs to address how the public is to communicate with the Agency in response to 'objective' information about SD, and to differing approaches taken by the Agency to the regulation and administration of those processes that drive **un**sustainable development.

Other physical models

The Natural Step: Other physical models of sustainable development, such as the Natural Step (Robert *et al.*, 1997), take their guiding principles from a scientific understanding of environmental issues based on the 'ecosystem' as a unifying concept. 'Natural laws' based on steady-state properties of environmental systems form the underlying tenets of the model. They are presumed to serve as a 'compass' to guide sustainable development. The economy is then positioned as a subsystem of the ecosystem, not as a system existing alongside it, much as is the case with the 'Russian doll' model described earlier.

Seductive in its use of generalized principles of 'natural balance', the Natural Step model employs discursive metaphors of natural systems and natural limits to guide sustainable development. In particular it is designed to enroll businesses to the cause by drawing on concepts of life-cycle analysis of products, re-cycling, eco-auditing and steady-state properties of 'economies of nature'. In a departure from the scientific credentials of its founding tenets, the model also proposes a fair and efficient use of resources with respect to meeting human needs. While attractive in principle, in practice the Natural Step model fails to elaborate on what structures and procedures are required to achieve these welfare objectives - in other words it ignores issues of governance.

Carrying Capacity Models. Sustainable Yield and Carrying Capacity models for forestry, fish and game management, are based on an ecological understanding of the necessary conditions for maintaining stable populations of biota under different harvesting regimes. They ignore questions concerned with the institutional arrangements and processes required to achieve sustainable outcomes but assume that environmentally driven outcomes are self evidently just. In detail too, the models do not address the sustainability of ecological processes and the welfare services they offer. Their extension to 'capacity studies' associated with human populations as, for example, over the question of housing (CPRE, 1997), is based on the assumption that environmental factors are, or should be, the primary regulators of population growth. This proposition contradicts evidence which suggests that economic, social and cultural factors are all implicated in the generation of and solution to human population problems.

Critical Loads Models Based on dose-response models used to determine thresholds of harmful pollutants, critical loads models have been used to guide sustainable environmental strategies, policies and practices. They have proved attractive for a number of reasons but principally because they can address, in an integrated way, how environmental resources and services can be protected and sustained. Operating at the level of the ecosystem, the models integrate biogeochemical processes and are trans-media in their application because they address loads calculated for both terrestrial and aquatic systems.

Supported by several theoretical and empirical studies, these 'effects' based models have appealed to policy makers because they provide a means of shaping abatement policy in an apparently objective manner. Coupled with an Integrated Assessment Approach and Integrated Assessment Models which provide evidence about the effectiveness of alternative investment and abatement scenarios, critical loads models *appear* to cross the boundary between natural science on the one hand and social science on the other. For example, the 60% gap closure model where a deposition target was defined by a 60% reduction of the 1980

deposition level towards the 5-percentile critical load was regarded as a 'good practical solution giving achievable targets' (Bull, 1995: 209). Seen as equitable and fair by European states because it recognized the practical difficulties of making reductions in high emissions areas, the 60% gap closure approach nevertheless ran the risk of not targeting sensitive biological sites in most need of protection. This option was therefore influenced more by the ultimate political goal of achieving some reduction in emissions rather than by the preferred solution suggested by objective scientific advice.

Equally, it is important to ask questions of the Integrated Assessment Approach which has utilized critical loads models to construct alternative abatement 'scenarios'. In particular, it is necessary to ask to what extent the processes of information gathering and making judgments are accessible and transparent mechanisms that facilitate informed and constructive debate amongst all relevant stakeholders (Bailey, 1997; Haigh, 1998). There is always the risk that the data requirements and limitations of the algorithms employed in the computer models serve to render this process a technical one understandable only to 'experts'. For example, in detail these models still contain in-built and often undisclosed uncertainties because they do not always address the complex interactions associated with multiple pollutants and nutrients or cumulative, synergistic and lag effects that inform dynamic models of physical and natural systems. In practice too, they fail to address alternative social and political scenarios based on the 'polluter-pays' principle.

Overall, experience with the use of critical loads models in developing approaches to sustainable development, indicates that social and governance practices play a determining role in securing *desirable* environmental policies and not the *preferred* solutions suggested by scientific recommendations. Nevertheless, as tools which can support an integrated assessment approach to achieving sustainable development, such models have legitimacy and authority that stems from acceptance of the proposition that the ' best available science' should be available to decision makers.

Summary

Returning to the questions posed by Dobson, to the preferred use of the SPR approach by the Agency and the economic approach to SD offered by Ekins' Best Practice models, the following points can be made:

- SPR models do not explicitly take a view about what is being sustained and what is being distributed. For example, an emphasis on ecological processes and the social benefits they provide involves a more holistic and scale-sensitive approach than sustaining individual resources alone might require. Ekins' model provides some guidance about how environmental resources and services can be integrated with the economy but at the price of accepting the foundational arguments of environmental economics which attempt to 'create' hypothetical markets for all environments and their attributes.

- Decisions about the substitutability of 'natural capital' by human-made ones, also require a view about how irreplaceable or critical natural capital such as ecological processes can be identified and valued. Only when these questions have been answered can a view be taken about what 'sustainable' agriculture, forestry and tourism might involve. Ekins' concept of different kinds of capital provides one means of addressing these issues although there is

no guarantee that all stakeholders or partners with whom the Agency needs to work, will agree to such an approach, or their outcome. The new approach to Environmental Capital (Countryside Commission, *et al.*, 1997) being piloted by the Agency in association with other environmental agencies, offers a more comprehensive and scale sensitive approach.

- Likewise, questions about equity which ask *how* what is being sustained is to be distributed, will require a view about the 'state of the environment' in particular localities or areas and the policies and practices required to address substantive differences in environmental quality. Neither the SPR model, the Natural Step model, nor Ekins' model provide guidance on these issues.

- Although scientific models can identify risks and thresholds for some substances and across some media, modelling complex ecosystems and their 'services' in an integrated way will always involve considerable uncertainties. Questions then arise about how what is important for sustainable development is to be determined, and also the appropriate institutional structures and processes needed to arrive at those decisions. Neither the SPR model nor Ekins' model address these questions and other approaches, such as Integrated Assessment that rely heavily on the 'best available science', make particular assumptions about how society should respond to attempts to objectively define environmental limits.

Addressing Dobson's analytical questions provides some insights about why both the SPR model and Ekins' model need developing and adapting to take greater account of the wider social context and issues of governance now being promoted by the UK Government.

The challenge of modelling the social dimensions of sustainable development.

As we have tried to demonstrate, the least well developed aspects of sustainable development models are those of 'Society' and 'Governance'. In this section we elaborate on what these two arenas of SD encompass.

1. 'Society' is best expressed in terms of how individuals and groups interact with each other. Most readily understood through the concept of community, such relationships include both communities of 'place' and communities of 'interest' through which shared values are experienced, nurtured and promoted. At the same time this concept of society as community constructs the individual as being socially engaged in ways that contribute to notions of 'belonging', identity and self-worth, and to concepts of 'agency' - the knowledge that individual actions can 'make a difference' to society as a whole.

2. 'Governance' is not limited to the specific formal functions of government and the political system through which a framework for law, education, health and housing for example is organised. It also includes the informal organisation and regulation of collective affairs that is · often taken for granted in society (see Figure 7). Amongst these latter for example are, voluntary organisations, churches, residents' groups, clubs and societies_plus the wide range of social networks present in any community, institution or organisation. 'Governance' therefore recognises the strong influence both formal and informal networks have on forging shared beliefs, allocating rights and obligations amongst interested parties, legitimating initiatives taken by policy and promulgating collective interests such as 'the common good'.

In essence therefore, 'governance' represents the many social and political processes by which 'social agency' is mobilised.

Both themes are fundamental to the development of LA21 Action plans, in particular, and to sustainability in general.

Key themes which underpin notions of 'society' and 'governance' therefore include:

- social and power relations between individuals and institutions/structures through which innovative change is constrained but also forged

- communications/discourses (especially relations /dialogues between expert and lay knowledges)

- the plurality of cultures/social groups within particular places, i.e. 'the politics of place' (recognising the significance of stakeholders, and the need for greater inclusion in decision-making and ultimately raising questions of social and political accountability)

- the rights and responsibilities which reside at the individual /household level and at the level of organisations (public, private and voluntary sectors) especially in terms of adopting pro-environmental behaviours (sustainable lifestyles)

- articulating cultural values and norms with particular reference to questions of justice and fairness (equity)

- deliberative forms of decision making (participatory democracy and procedural justice).

A key task facing the Agency is to capture and represent the various elements of the social and governance themes in a model of sustainable development.

V   MODELLING THE SOCIAL AND GOVERNANCE DIMENSIONS OF SUSTAINABLE DEVELOPMENT

Introduction

For disciplines such as sociology, political science and public administration, environmental issues have only relatively recently become a focus for research. It is therefore more difficult to produce 'off-the-shelf' models of the social and governance elements of SD. However within the terms 'Governance' and 'Society' in SD models, it is helpful to tease out two different sets of concerns, namely:

1. Models/theories of the individual in which individuals are construed as either:
   isolated beings ('reductionist'), or
   social beings ('contextualist').

2. Models/theories of how society works:
   'rational' models which suggest that when correctly 'informed' individuals/organisations
        make choices that are consistent with this information; or
   'reflexive' models which suggest that behaviour is more complex and contingent on, for
        example, time, place, chance, knowledge.

When taken together, the 'reductionist model' of the individual supports the 'rational' theory of how society works while the 'contextualist model' of the individual is consistent with the 'reflexive' model of society. At the risk of over simplifying what are extremely complex theoretical propositions and relationships, we conceptualise these two ways of understanding how society 'works' as two ideal types (Figure 8).

The left-hand route on Figure 8 models the **'reductionist'** view of social relations and how society works; while the right-hand route models the **'contextualist'** approach. Crudely, the left-hand route is characterised by an emphasis on the individual within a market-driven economy. The right-hand route is characterised by an emphasis on recognising that we are all members of different social groups with responsibilities for and to others, as well as having individual rights.

In the section that follows, we provide a conceptual map of these two ideal types as a means of linking together the four arenas of activity with which SD needs to engage namely: society, governance, economy and the environment. We do this through raising a set of questions that each ideal type addresses and answers. These are:

1. What kind of 'individual' does each ideal type assume?
2. How are individuals/the public expected to respond to information about sustainable development?
3. What role do institutions play in this dissemination/learning process?
4. What moral and ethical principles guide an individual's behaviour?
5. How is the environment integrated with society, economy and governance?
6. What political and governance processes sustain decision-making processes?

What knowledge guides decision-making? (See Figure 9).

Following the model to the left or the right generates different answers to these questions. We describe each of these **ideal models** of society and governance in turn.

Reductionist Approaches to SD

The left hand, reductionist route, encapsulates key assumptions/concepts theories about individuals and economic/social organisations which have dominated C20th social science and institutionalised forms of decision making. The Reductionist approach has provided a foundational paradigm for the **explanation** of human behaviour at individual and institutional levels, based in scientific reasoning. It is the perspective which underpins what may be considered 'early' or 'traditional' models/theories of sustainable development where the central aim was to readjust the balance between economic development and environmental damage. The Reductionist approach, it could be argued, has dominated decision-making because it is one with which environmental scientists and resource managers usually feel most comfortable. Its reasoning, its methodologies and its forms of evidence are taken from the model of the natural sciences. Using our key questions the reductionist model is explored in more detail.

1. *What kind of individual is posited under the Reductionist approach?*
Theoretical reasoning under Reductionist models is characterised by **linear, cause-effect relations.** Indeed, the foundational theories for the reductionist approach in social science come from psychology and, in particular, an understanding of the processes through which individuals acquire information about the world and the mental processes which develop and shape their observable behaviour. Fundamentally, the reductionist model constructs the individual as isolated from society because the key focus is on the mental processes *within* individuals. It is the dynamics of these mental (cognitive) processes that provide an explanation of why individuals behave in the ways they do. Under this reasoning, social groups and societies consist of aggregates of individuals, and the particularities and complexities of the circumstances which individuals experience and have experienced in the past, are largely ignored. In essence, the reductionist view seeks to explain behaviour without engaging closely with the multitude of contingent conditions that individuals experience, or exploring how these conditions impinge on behaviour.

The isolated individual constructed by the reductionist model is thought to internalise external social conditions as subjective norms which in turn are reflected in beliefs, attitudes, preferences, intentions to act, and actual behaviours. In other words, an individual will take what (s)he perceives to be acceptable social values/behaviours and incorporate them into his/her belief-attitude-behaviour system. In environmental terms, these behaviours may be fixed as taken-for-granted habits (keeping the tap running while you clean your teeth); or they may be understood as personal norms reflecting moral obligations or commitments where the individual acts according to conscience (changing to vegetarianism, for example).

The emphasis on **public communications programmes** - new, improved, better-targeted information about the state of the environment, the impacts of human activity on natural resources, and the kinds of actions people need to take to become 'more environmentally friendly' thus becomes an external stimulus that interacts with these internalised norms.

Likewise, the provision of recycling facilities, or insulation grants is then a means of enabling people to behave rationally.

2. How do isolated individual respond to information about SD?

The **provision of information** is the crucial mechanism which allows individuals to exercise **choice about whether or not to change behaviour.** The fundamental assumption in this model is that information (communicated in the 'correct' way) will (eventually) lead to:

- changes in individual beliefs about human-environment relations,
- changes in attitudes about what constitutes an acceptable lifestyle, and
- changes in behaviours such that individuals walk to work, recycle their cans and turn the lights off when they leave the room.

Sometimes depicted as *'the empty bucket'* approach to information transfer, the model likens people's minds to a bucket that requires filling with the correct information if appropriate behaviour is to result. Just how this correct information interacts with what people already know and experience - ' the full bucket' - is not seriously questioned.

In practice, this reductionist and rational model of behaviour also assumes that 'correct' information has authority and that members of the public *recognise* and, more importantly, *act* on this authority.

3. What role does the institution play in this 'dissemination process'?

This rational model suggests that 'correct' information about SD is trustworthy because 'science' itself is authoritative. In other words, objective, scientific information is 'to be believed' irrespective of the behaviour and practices of the institution that issues it. The process of information transfer is thus conceived as a **one way linear** process that positions the institution as the message and the messenger, and the public as being equally receptive to both. Underpinning this model of information dissemination as the basis for promoting shifts in behaviour, therefore, is an assumption that the public **trust** the 'right' information and institutions. The real question then becomes one of determining how trust is engendered because if it is absent or declines, institutions seeking to promote SD in this way will need to rethink their strategy for influencing the public. Evidence from social surveys of public attitudes suggests that trust in institutions in Britain is low and declining. Key institutions included in this trend are central and local government, businesses and commercial organisations, and the media.

4. What moral principles underpin an individual's behaviour in society?

The reasoning thus far leads into a model of the individual as **Rational Consumer** - processing many different kinds of information (assumed to be available) and making decisions on the basis of self-interest. Such behaviour is of course reinforced through a wider set of social and political relations consistent with advanced capitalism but are also underpinned by the assumption that society's morals and values are expressed through exercising **preferences** (choices) in purchasing goods and services. In other words, the reductionist route is the route of economic theorising about individuals and **markets.**

5. How is the environment integrated with this reductionist model of society?.

Under reductionist approaches, the drive is for theoretical explanations which provide *universal* explanations of human behaviour, which seek to iron out differences in human responses by appealing to underlying principles of human perception, cognition and behaviour. The **commodification** of nature through the market place is consistent with economic and market perspectives on how society should work - despite the variable and partiality of its ability to measure even preferences. Likewise an emphasis on 'outputs' framed in monetary equivalents, as opposed to process measures of 'worth' or 'achievement', tends to simplify the difficulty of determining and assessing 'benefits'.

Commodification of nature is the process of valuing plants, animals, habitats, the 'goods and services' provided by ecosystem functions by reducing them to a notional monetary value. The process operates at many levels. At a global level, for example, a group of ecological economists have put a price on the value of ecosystem functions (Pearce & Turner, 1990). Another example, at a different scale, is the expression of species value in terms of 'critical, constant and tradeable natural capitals' (Shepherd & Gillespie, 1996). A third example, at the level of individuals, would be the methodology known as contingent valuation (CV). Inorganic and organic nature appear to be highly valued as public goods but possess no markets which allow these values to be expressed in monetary terms. One way around this problem is recourse to hypothetical markets such as those constructed in CV experiments where individuals are asked how much they would be willing to pay as a way of measuring the value of environmental 'goods' and 'services'. The averaged sum is then equated to the social value of the constituent part of nature in question.

However, without the provision of compensatory mechanisms that acknowledge people's ability to pay for environmental resources and services and what people are willing to accept in compensation for environments that may be lost, polluted or eroded, market approaches lead to the costs of sustainable development being borne unequally by different groups in society - whether these are groups either defined by place, income or as producers and consumers.

6. What political/governance processes sustain this reductionist model of decision-making?

An approach to decision-making grounded in the reductionist model, thus leads to **universal strategies** for regulating society as it moves towards sustainable development. Price, for example, provides a workable mechanism to reduce levels of consumption as it is expected that individuals will behave rationally in relation to economic costs. This rationale is manifest in the notion of tradable permits and licensing agreements.

At the level of politics rather than policy, the left hand side of the diagram illustrates that the most appropriate form of political system in reductionist approaches is that of **representative democracy**. In principle, individuals are provided with information about a small number of political candidates and, on the basis of this information, they make a choice about whom they wish to 'represent them' in formal political institutions, such as Parliament. In the UK, this has resulted in a voting system which accords power to one candidate who then engages in political decision-making 'on behalf' of his or her constituents.

This approach to governance places considerable emphasis on formal (voting) democratic procedures; and it implicitly assumes that elected politicians can effectively represent all interests in society. A hierarchical distribution of power and responsibility tends artificially to

divorce elected representatives from officials in the policy process. The former develop policies while the latter implement them, usually with a considerable degree of discretion, as if they were separate issues. The process is traditionally 'expert based' and 'professional' and draws upon notions of 'rationality', 'analysis', the 'separation of fact and value', and is relatively indifferent to other forms of knowledge and understanding. It naturally leads to a centralised 'command and control' approach to policy making and resource allocation and to a rule based approach that is, for example, much favoured by the European Union.

7. What knowledge systems guide decision-making about sustainable development?
Under these formulations, the power to determine appropriate strategies resides with **experts** and institutions with specialist/ professional knowledge, methodologies and technical expertise to provide the objective information of many different kinds that reductionist approaches require. This is sometimes characterised as a **Realist** conception of the environment. The role of environmental scientists, for example, is to provide the best possible scientific evidence on the state of the environment so that individual decision-makers in government, industry and other kinds of institutions can make appropriate decisions based on objective assessments of the state of the environment.

Summary of the reductionist model

The left-hand route is thus a powerful one where dominant styles of decision-making are hierarchical, where expertise and power are contained in the hands of the few; where the general public is understood as a largely homogenous mass of individuals whose views and opinions are adequately represented through the ballot box; and who will respond 'rationally' (i.e. in their individual interest) to environmental information put before them. It follows that this approach tends to reject or marginalise other viewpoints which are not based on 'sound' 'rational judgement' and 'objective facts'.

The Contextualist model

The right-hand route of Figure 8 charts major theoretical developments in social science in the last 30 years or so which share a common base in rejecting the natural science model as an adequate perspective /approach to understanding individual and social life. A suitable label to describe this family of theories/concepts would be a **Contextualist** approach. It is fundamentally concerned with the **interpretation** of human behaviour. Rather than making a division between the individual and institutions, contextual approaches work from an understanding of relationships between individuals and social structures/institutions which individuals shape, and are shaped by. Further, as its name implies, the contextualist approach acknowledges the fundamental importance of time, place and chance for human behaviour and that of institutions.

In rejecting the dominance of the Scientific Method for studying society, sociologists, geographers, anthropologists and some psychologists have turned instead to the theories and practices of Arts and Humanities disciplines such as philosophy and literary studies, in order to better understand individuals and societies. Crucial to these endeavours are:

- *theories of meaning* - how sense is made through language and other forms of communication such as the mass media, advertising, talk and information technology and
- *theories of structure and agency* - understanding relations between individuals able to exercise choice and free will, and the institutions/structures and regulatory processes which shape their everyday lives.

The **contextualist** way of thinking is the foundation of the model we describe in Figure 8 which addresses the social welfare and governance concerns being articulated by the current government. We explore the basis of the contextualist model using our seven questions.

1. What kind of individual is posited by the contextualist model?

Contextualist thinking contrasts with that of Reductionist approaches in significant ways. Primarily, individuals are construed as **social individuals, whose lives are inextricably linked together through** language, social networks and all the activities that allow society to function - work, play, schooling etc. One way of distinguishing between this formulation of the individual and that of the reductionist approaches, is to describe social individuals as **actors** - a theatrical metaphor which is helpful because it carries useful associations of roles and performance. Individuals take on roles in a play which is scripted by an author but the actor has the power to interpret the part; and where the setting (the stage, scenery etc.) plays an important role in providing meaning for the actions. Actors are always in context - in terms of history (time) and geography (place) - and what they feel, think and do is always significantly informed by their social, historical and geographical relations. This insight is fundamental for the theories which support the right-hand route of the diagram.

2. How do social individuals respond to information about SD?

Human actors are distinguished by their capacities for thinking and reasoning, and for a reflective awareness of what they do while they do it. The concept of *communication*, as a reciprocal process always involving a minimum of two people in the act of communicating, is fundamental to the approach. Actors are able to share in the production, circulation and reproduction of social knowledges, meanings and values - often referred to as **discourses.**

Personal meanings and values, equally, are constituted in relation to those already circulating in the culture and society. Actors are constantly engaged in *reflexive behaviour* - that is, reflecting on, and adjusting what they do in the light of new knowledge and new experiences - whether this is in the home, at work or during leisure time. Practical knowledge gained through daily routines is juxtaposed with knowledge of the 'wider world' as experienced through the mass media, telecommunications, scientific endeavour, and talk with friends and relatives. In these ways people review their own understandings and behaviours in a constant engagement with society.

An emphasis on the diversity of human experiences, the role of meaning in communicative practices, and people's reflexive capabilities offers an alternative explanation for how people respond to new information about SD. Instead of information transfer being conceived of as a linear process in which there is a one-to-one relationship between the message as sent and the message as understood by the recipient, contextualist models emphasise the **multiple meanings** that are generated in what is a *two-way process of communication*. As recipients are actively engaged with society, neither the message nor its sender are taken at face value.

Instead, messages are actively re-interpreted and given new meanings. Unlike the 'empty bucket' approach to information dissemination in the reductionist route, the contextualist model accepts that *'the bucket is full'* and that all new messages are actively reworked to produce new meanings and potentially revised behaviours.

3. What role does the institution play in this dissemination process?
The contextualist model does not assume that the message and messenger can be separated. Instead, institutions, like their messages, are understood together - people form judgements about institutions based on their own experience of them as well as on other reports circulating in the community at large. In other words, the contextualist model does not assume that scientific information is necessarily authoritative or that institutions can gain authority through the objective information they seek to disseminate.

One consequence of this interactive construction of institutions is that the authority and legitimacy of institutions is seen to reside not just in the formal legal and regulatory aspects of governance, but in the multitude of informal processes through which the individual engages with society. How the public respond to new information about SD therefore is contingent on many things, including a questioning of the assumed authority that resides in objective, scientific information, and also a questioning of the moral authority that particular institutions assume. Whether the public place trust in the information and the authority of specific institutions is therefore a function of the wider social relations in which both the public and institutions are embedded. It is not a function of the presumed 'correctness' of the information or the presumed legal standing of the institution.

4. What moral principles guide socially engaged individuals?
The crucial insight which contextualist theories offer is that actors are not only shaped by their interaction with other people and society at large through work, play, education, shopping and so on, but equally, they in turn shape and change those communities and institutions. In other words, individuals and institutions, **and** 'environmental problems', are constructed through social relations. In particular, conceptualisations of governance such as those illustrated in Figure 7 are forged and fostered through informal processes of social interaction, and how these engage with those institutions (political, legal, social etc) with responsibility for areas of collective affairs (e.g. the environment). It is in the social processes that new values and practices emerge, so that notions of *'proper conduct'* come to be expressed through these commonplace practices and processes of social interaction. They directly reflect ethical concerns about what is right and wrong, fair and just, and the procedures and principles to be used to determine how a 'fair share' is to be awarded. Through these cumulative processes of formal and informal governance, the social individual is seen to be an *ethical citizen* - a much broader, complex conception of citizenship - than as a self-interested consumer.

5. How is the environment integrated with the contextualist model?.
Moving down the right-hand side of the diagram, it now becomes possible to see why questions of equity and social justice should come to characterise a new conception of sustainable development, including questions concerning both the material and symbolic dimension of the environment. Values in the environmental domain are typically shared or 'public' in character so that having access to clean air, unpolluted water, uncontaminated food and high quality, attractive environments rich in wildlife, become central concerns of SD. Moreover, how the environment is valued involves notions of what is 'right' and 'wrong' and

not just economic preference. In practice too, as environmental philosophers such as Alan Holland and Kate Rawles (1993) point out, values are not things we always argue from, but what we reason towards. For example, it is difficult to imagine and make informed judgements about the value of environments that might be lost or gained- even in circumstances where change is promoted by environmental agencies in the direction of sustainable development. Reducing these uncertainties to individual preferences is reason blind.

A case in point concerns how the impact of managed retreat at the coast is to be to imagined and assessed. The strong opposition by local people to a reductionist approach to assessing the impact of managed retreat in North Norfolk, based on a contingent valuation methodology for example, (O'Riordan and Ward, 1997), reflects not only questions about the correctness of approaching environmental evaluation in this way when there were so many uncertainties about what would be lost and gained, but also questions about fairness and the transparency of those principles and processes used to ensure just decisions. When the environment is regarded as a '**common resource**' in which existing and future generations of humanity and nature '**have a stake**', attempts to use the market as the dominant mechanism for integrating the environment with economy and society will always be contested.

The contextualist model thus acknowledges the growing evidence that the reasons why people value environmental resources are essentially moral reasons, beliefs that we have duties to other people, generations and species and that, when confronted by a choice about what to do, obligations to respond to information and knowledge of environmental problems and social dilemmas will be influenced by peoples' trust and confidence in sources of information (e.g. science) and in the regulating agencies. In this sense, how the environment is understood is as much a function of those institutions that seek to regulate it as of physical and natural properties. In these terms, the environment is a **social construction**.

6. *What political/governance processes guide decision making?*
Underpinning the contextualist approach to SD is recognition of the need to move from universal principles to a methodology for arriving at some form of agreed sustainable policy goals and processes in which all who have a stake in the future - both humanity and nature - are explicitly involved. And here, in line with the reasoning outlined above, the emphasis is on concepts of **participative democracy** advanced through communicative processes of reasoning and debate undertaken on a variety of geographical scales - the international. regional, local and very local.

It follows that one of the key social processes underpinning governance issues surrounding SD concerns the mutual learning processes that active approaches to participative democracy endeavour to, and usually achieve. Under the right-hand route, normative dimensions of sustainability - that is determining what is right and wrong - would be met through an emphasis on inclusionary communication. Such processes would establish the principles and procedures for arriving at environmental valuation and policies through reasoned debate and opportunities would be offered to **all** stakeholders to participate at **all** stages in the decision-making process.

Figure 10 adapted from Bryson and Crosby (1997) and Healey (1997), illustrates the range of institutional arrangements - both formal and informal - that provide a means of taking forward a participative approach to decision-making about SD on differing geographical scales. Specifically, the model recognises a world of unequal power relations; that power is dispersed among many interests and organisations; and that shared power can be embedded in social systems that define acceptable rules of behaviour.

The model sees policy change as taking place in three types of setting: forums, arenas and the courts. In the forum, policy makers work to communicate meanings and to secure agreement to act. Recent examples are focus group work on public acceptance of Genetically Modified Organisms (Grove-White et al., 1997) and the meaning of sustainable development to decision-makers (Burgess et al., 1998). In the arena, development and implementation work goes on, including identifying stakeholders with whom to work. Relevant examples are citizen's juries conducted to decide whether or not to flood parts of for example, (Aldred, 1998) or to decide upon waste strategies (Kuper, 1997), and the new approach to conducting Agency LEAPs detailed later in the report. In the courts, the process of legitimisation and sharing power, and building consensus for regulation occurs. Referendums and consensus conferencing are participative methods capable of supporting these processes
(Stewart, 1997) In all these types of setting, however formal or informal, processes of negotiation, legitimisation and discretion are central, and are as significant for value change as would be a particular outcome or decision. Even in the most formal setting, the courts, legal precedent - based on previous outcomes- is always subject to subsequent amendment in the light of reflection on the arguments used and constantly shifting senses of what is 'fair' or 'reasonable'.

Thus, a key outcome of engaging policy and practice with new fora and arenas is a process *of mutual learning* in which both individual participants and associated institutions come to understand one another better, new social relations forged and new opportunities for governance, such as partnerships and alliances, negotiated. In this way decision-making becomes a learning process that reconstitutes individuals, institutions and society as a whole and not a linear, hierarchical process that perpetuates existing structures.

7. What knowledges sustain the contextualist approach to SD?
The outcomes of **the Contextualist** approaches are captured in the bottom-right-hand segment of the diagram. Most importantly, they will lead to specific, local and heterogeneous strategies for action. Such approaches mobilise and draw upon local knowledges that are generated through shared experiences of place and social interaction. At the same time reasoned and deliberative debate allows strategic considerations to be addressed at different points in the decision-making process. Expert knowledge is thus not discounted but is seen as adding value, rather than determining what will often be a complex and contested decision-making process.

Summary of the Contextualist model

The key points of the contextualist model may be summarised as follows:

- ethical tensions and biases can be identified at early stage in policy formulation

- dominant ideologies can be challenged and knowledge claims tested

- disposition to behaviour incompatible with sustainability principles can be identified

- interplay between universal and unique elements of SD will mould new policy goals

- trust in institutions and their practices is fostered

- new values and norms of behaviour become internalised through progressive reflection and argumentation, leading to increased legitimacy

- natural resource institutions and regulatory processes can be designed to reflect and respond to moral criteria, and to scientific evidence

- legitimation and co-operation are fostered

- policy and implementation processes are informed by each other.

Summary of the reductionist and contextualist models of SD

A fundamental distinction between the two models discussed in this section is the way in which they approach ethical and social welfare issues. Under the reductionist model, questions of ethics and social welfare are **implicit,** embedded in the assumptions made about how individuals act and how society works. Therefore ethical and social dimensions are not normally actively considered under the left-hand route except by proxy, such as economic efficiency for example. The contextualist model contrasts sharply by taking an **explicit** position on what constitutes proper conduct in human-environment relations. At each stage, the contextualist model takes a normative view of what should occur when moving in the direction of sustainable development. The fundamental importance of engaging actors in discussion to explore their different understandings and to reach a judgement about what should be done is to ensure that conflicting norms and values are given voice, and properly evaluated.

The challenge for the Environment Agency is to engage in processes of environmental regulation and decision-making which enables and makes explicit the reasoning towards sustainability values. Through transparent, inclusive processes of decision-making, the value judgements about nature and the attention given to both analytical reasoning underpinning policy choices as well as the deliberative processes of discussion, argument and persuasion will become clear.

The questions used to illustrate how each ideal model of SD understands society and governance provide an indicative 'tool kit'. This can be employed by strategic and operational task groups in the Agency to help determine what is, and should be, done if they are to address the social welfare and ethical dimensions of sustainable development and therefore contribute to the national aim of SD.

Before illustrating how more socially informed models of SD can be used both within and without the Agency, the report turns briefly to an account of the Agency's remit and contribution to SD, and to some of the concerns expressed by senior staff at a time when the Agency is seeking to meet its statutory requirement to contribute to the nation's sustainable development strategy.

VI   THE ENVIRONMENT AGENCY'S REMIT & CONTRIBUTION TO SUSTAINABLE DEVELOPMENT

The statutory remit of the Agency requires it to translate the broad principles of sustainable development into its everyday activities (see Figure 11). At a strategic level, its policies seek to reflect the principles of SD while at the level of policies and plans, the key challenge is to ensure that its potential to deliver SD objectives is fully exploited.

Under the Environment Act 1995, a number of existing organisations including the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulatory Authorities for England and Wales and parts of the Department of the Environment, were merged to form the Environment Agency for England & Wales. Under Section 4 of the Act the Agency is required 'so to protect and enhance the environment, taken as a whole, as to make a contribution that Ministers consider appropriate towards achieving sustainable development'. The emphasis in this principal aim is on protecting and enhancing the environment, on the need to consider the environment as a whole by adopting an integrated approach and on placing the Agency's activities in a sustainable development context. In working towards this aim, the Agency is required to ensure that the likely costs of its activities are taken into account together with potential benefits.

Ministerial guidance, provided under the Act, expands these aims into a set of seven statutory objectives. These state (Section 6.6) that the Agency should:

> i) adopt across its functions, an integrated approach to environmental protection and enhancement which considers impacts of substances and activities on all environmental media and on natural resources;

> ii) work with all relevant sectors of society, including regulated organisations, to develop approaches which deliver environmental requirements and goals without imposing excessive costs (in relation to benefits gained) on regulated organisations or society as a whole;

> iii) adopt clear and effective procedures for serving its customers, including by developing single points of contact through which regulated organisations can deal with the Agency;

> iv) operate to high professional standards, based on sound science, information and analysis of the environment and of processes which affect it;

> v) organise its activities in ways which reflect good environmental and management practice and provide value for money for those who pay its charges and taxpayers as a whole;

> vi) provide clear and readily available advice and information on its work; and

vii) develop a close and responsive relationship with the public, local authorities and other representatives of local communities, and regulated organisations.

With these aims in mind, guidance is then provided on the action the Agency should take, as follows. The Agency should:

- take an holistic approach to protecting and enhancing the environment as a whole, ensuring the optimum benefit from its actions

- take a long term view of the consequences of its actions

- have a special regard for protection and enhancement of biodiversity and the protection of the global atmosphere

- foster good environmental management in industry and commerce

- develop close and responsive relationships with local communities, for example through Local Agenda 21 groups

- develop expertise in managing environmental knowledge.

The key themes which emerge are the integration of activities across the environmental compartments, the need to assess long-term consequences of action (or of inaction), the requirement to consider costs together with benefits in taking decisions, and the desirability of closer relations with business and the public. As seen by Government, these form the principles of Sustainable Development for the Agency, and the boundaries within which it is expected to act. At present, they contain a particular focus on the economic as opposed to the broader social aspects of sustainable development.

However, in a consultation paper on the UK SD Strategy (DETR, 1998), the new Government has been at pains to draw out these broader social aspects. The principles of sustainable development, as they are now emerging, are illustrated in Figure 11, where equity and governance have become more prominent as issues in their own right and the "regulatory" aspects of sustainable development have become increasingly focused on risk management and on bringing responsible agents to account. They continue, however, to map onto the principles from the Ministerial Guidance, and bear on the full range of Agency functions from policy to practice. The focus on the social is particularly challenging for the Agency: in terms of its expertise, the Agency has a highly developed capacity in the physical and natural sciences, but its expertise in the social sciences is broadly confined to the economic and managerial.

One key aspect of the guidance is the link between the Agency and external bodies. Figure 12 illustrates some of these links. It is clear that the Agency, in delivering its remit is aware of the need to build these relationships and to use them in support of its sustainable development policy. There is, in these relationships, scope for tension with the Sponsoring Department. The Agency is bound, by the aims of sustainable development, to create lines of communication with external bodies parallel to it, and to those used by the Sponsor

Department. Departments of State find this kind of parallel track difficult to manage as it can lead to the development of powerful coalitions beyond the reach of Departmental co-ordination. The guidance, then, has institutional as well as technical implications for the Agency.

Following the guidance, the Agency has developed a detailed set of aims and objectives and begun the process of translating these into specific targets corresponding to the Agency's core functions. The Agency's vision, a 'better environment for present and future generations', is focused around the following core themes:

- climate change
- air quality
- water resources
- biodiversity
- freshwater fisheries
- integrated river-basin management
- conservation of land
- managing waste
- regulation of major industries.

It proposes that the Agency's contribution should be achieved within each of these themes through a combination of:

- regulation
- monitoring
- partnerships
- policy formation
- education.

This document, taken together with the internal guidance provided by the Agency for its staff, presages a series of transitions for the Agency, some of which have been more completely realised than others. It marks the recognition that the Agency's contribution to the National Aim of sustainable development will be realised through transitions which are complicated by the need to meld staff from several previously separate agencies with their own cultures and practices in the field of environmental protection. The transitions involve a shift:

- from a focus on Agency Functions to a focus on the key environmental issues or themes

- from a focus on inputs to the environment (emissions, for example) to outputs (the quality of the environment taken as a whole)

- from a purely regulatory relationship with industry, agriculture and the public to one built on mutual co-operation, shared information and co-determination in decision making

- from working principally within the boundary of the organisation to forming networks with other key actors.

- from urging others to adopt sustainability to leadership by example.

None of these transitions will be achieved easily and the process by which the current organisational structures can be moved from a functional basis to a topic basis will itself require considerable investment of time and effort.

Consistent with the view that managing change within organisations is as much about responding to the concerns of staff who are themselves part of that change, as with implementing changes themselves, the report now turns to the findings of the empirical studies. First, we provide a brief overview of the principal concerns expressed by senior staff as they attempt to respond to SD in their professional capacity. Second, we provide an evaluation of one initiative taken by the Agency in the North West Region designed to encourage their staff to adopt more sustainable lifestyles by working with Global Action Plan's (GAP) 'Action at Home' programme (AaH). Third, we report on the considerable progress made by the Agency in promoting a more participative approach to the production of Local Environment Agency Plans (LEAPs).

VII FINDINGS OF THE FIELD RESEARCH

INTERVIEWS WITH SENIOR AGENCY STAFF

The interviews conducted with senior staff were designed to explore common concerns that Agency staff had already encountered, or anticipated encountering in their attempts to develop a coherent approach to sustainable development. The interviewees gave full and frank accounts of the Agency's current thinking on many of the key issues identified above. Key themes or issues, which one or more of the interviewees considered important for defining and enhancing the way in which the Agency delivers sustainable development, are as follows:

Policy Development

- recognition that SD is a process rather than an end state

- the need to address issues of equity (inter and intra generation) in the Agency's activities

- an awareness that concepts of irreversible change and critical capital, and questions of substitutability will need to be addressed

- technology might provide a means of controlling pollution but does not necessarily contribute to SD

- agreement that other than the SD team, Agency staff and Board members in general have an unfocussed view of SD; although they are aware of the term and its general meaning, they do not always see how it can be applied to their particular circumstances

- there is an opportunity - if not an imperative - to develop a particular view about SD because of the Agency's holistic and integrated concerns

- a requirement for the Agency at all levels to develop its understanding of the 'social' aspects of SD

- national policies concerned with sustainable development about which the Agency could be expected to hold a view were mentioned. They included climate change and agriculture, nuclear waste disposal, energy procurement, and endocrines — genetically-modified organisms were not mentioned

- Regional Economic Agencies could be regarded as both a threat and an opportunity for the Agency.

Policy Implementation

- partnerships are seen as a key mechanism through which to achieve the Agency's aims

- developing indicators which have the support of other partners and sectors will add to the Agency's credibility

- the merits of integrated control of pollution were acknowledged, but this approach was better developed for some functions than others

- justifying the integrated control of pollution to front-line staff who were concerned with individual sites and factories had proved difficult. In part this was because resources were 'ring-fenced' by function and not by issues, and in part because the cumulative effects of numerous separate decisions were not apparent in routine practices

- the Agency has a defensive attitude to the public who are often regarded as dissatisfied customers rather than groups with a legitimate interest in the environment.

Organisation

- more complete integration of the core values and practices of the Agency's precursor organisations

- an issues based approach was thought helpful but had not been worked through

- the importance of communicating what SD means to Agency staff, its partners and its customers

- although the Agency already has many 'stakeholders' represented on their regional committees, it does not have a clear view about how to benefit from their knowledges and experiences.

Discussion

The interviewees, to greater or lesser extent, recognise that SD is a *process* of decision-making underpinned and guided by a number of core principles, such as the precautionary principle.

From the interviews it is clear that the Agency is confident in being able to identify existing pressures, monitor states and formulate suitable responses using a variety of techniques in terms of the existing State Pressure Response model. However, a number of the interviewees admit that reviews of current Agency activities do not necessarily shed light on what sustainable development might mean for the Agency's future policy programme. In short,

current Agency activity, although it may be shown to be contributing to sustainable development, does little to uncover or communicate the principles and the underlying *meaning* of sustainable development as a new mobilising concept. As such, the Agency wishes to extend its understanding of what the term 'sustainable development' means for the Agency in terms of its operational procedures, policy development and policy implementation.

It is also very apparent that the Agency is less certain of the position occupied by the 'social' aspects of sustainable development and how these may affect the Agency's functions at different levels. This suggests that a key role of the model developed by the research team should identify and communicate how the incorporation of the social imperatives explicit and implicit in the concept of sustainable development are central to achieving the Agency's overall aim. This conclusion is particularly relevant in view of the drive to engage with stakeholders and widen the inclusion of groups in the decision-making process; and the requirement to recognise the needs of present and future generations.

Support for more inclusionary forms of decision-making is already apparent in the Agency's strategy documents. The Agency has begun to fulfil the commitment made in its *Environmental Strategy* to resolve complex and extreme conflicts by building consensus. The discussion document, *Consensus Building for Sustainable Development* (EA, 1998), explores communication and consensus building techniques and emphasises the importance of understanding stakeholder concerns for effective consensus building.

However, discussions with the interviewees suggest that the Agency's conception of the aims, processes and results of opening up the policy-making arena remains limited. The public are constructed more as a constituency which has to be listened to rather than as stakeholders who have a right to inform and benefit from the EA's activities. The limited scope of this position is particularly important in terms of Local Environment Agency Plans (LEAPs), but also in building fruitful partnerships with all stakeholders. If the Agency fails to integrate local concerns into the LEAP then the EA runs the risk of losing public support. A clearer sense of what LEAPs are designed to achieve, the processes of engaging with publics, and the likely outcomes is required. There is considerable uncertainty about how to address ethical issues such as equity and environmental justice, and about the appropriate scale for pursuing these dimensions of sustainable development.

On organisational matters, the main theme to emerge is a residual concern that the organisations and employees merged to form the Agency, have yet to fully accept the mantle of the Agency's more integrated approach and working practices. During the course of this project, the research team has had considerable contact with Agency staff at all levels and from different regions and would concur with the interviewees' comments. This suggests that any model of sustainable development would need to address conceptual and practical dimensions of sustainable development capable of enlisting Agency staff, as well as their external partners and the public.

One practical approach to demonstrating how SD might be encouraged amongst Agency staff is provided by the Action at Home programme undertaken in the Agency's North West Region.

I SUSTAINABILITY AS AN IDEA AND PRACTICE AMONG NORTH -WEST AGENCY STAFF

Introduction

In 1997, staff in the North-West Region of the Environment Agency took part in Global Action Plan's *Action at Home* (AaH) programme. Staff in four area offices in the North-West region (Warrington, Sale, Preston and Carlisle) were recruited to the programme.

Participants were recruited as individuals who are willing to accept that changing their own behaviour in the home will make a difference to society as a whole. Information about sustainable practices is normally delivered to them by post, but in the case of the North West Region was also supported by meetings with enthusiastic AaH 'champions' in the region's local offices. Consistent with the underlying assumptions of the reductionist model of the individual and society, this approach expects the individual - when correctly informed - to behave rationally and in accordance with the practical changes outlined in the information packs.

An evaluation of the effectiveness of the AaH project provides useful insights about the willingness of the Agency's own staff to accept the reductionist model of SD (Burgess & Collins, 1998). The following analysis is based upon four focus group discussions held with staff who had participated: one in each of the area offices. Participants for each area were recruited by key EA staff with the assistance of the GAP Programme Managers.

Emerging SD Themes from the Action-at-Home Programme.

Five main themes from the focus groups' discussions have a direct bearing on the development of the SD model.

1. Motivation among Agency Staff to take Action:

Table 1 categorises participants in the AaH programme in terms of the strength of their motivation. The support which individuals gave to AaH, including acknowledgement of the positive role played by the Environment Agency in initiating and supporting the programme depended upon which group individuals were most closely associated with.

Table 1: Characteristics Of The Three 'Motivational Groups' Undertaking AaH

	1 Very Motivated -'Enthusiasts'	2 Motivated - 'Dabblers'	3 Not very Motivated - 'Coerced'	4 No motivation 'Unknowns'
Reasons to adopt AaH programme	positive associations and contact with 'nature' concerns about 'excessive' levels of consumption professional concerns and interests	nothing to lose, possibly something to gain by following the programme professional concerns and interests	individuals either 'required' to participate in AaH by their managers; or because they had positions in management and should be seen to be green.	Not recruited into focus groups
Focus of concerns	intergenerational concerns, especially for children's future. concerns about inequalities between the UK and less developed countries	some personal interest in acquiring more information stronger motivation to save money on household expenditure	only undertook AaH because of the Agency programme; would not ordinarily join	
Commitment	some inspired by AaH, including the programme managers	may give up easily if benefits do not accrue quickly will only undertake easy, low or no cost actions	resistance to the process - refusing personal responsibilities	
Outcomes	willing to undertake more action to change practices at work willing to undertake political action because national issue and dislike waste	anything is better than nothing; achieving change in one aspect of behaviour is a success	will not undertake changes in personal lifestyle until institutions demonstrate their commitment to change first	

Individuals in Group 1 tend to be strongly motivated by ethical and environmental concerns. The majority, however, in Groups 2 & 3 are motivated by a combination of personal and financial interests. This is of particular relevance to the design of programmes of information on SD in the Agency for its own staff. We would draw particular emphasis to peoples' preferences for more group-based activities in the workplace.

In other words many participants actively constructed themselves as 'social individuals', much as in the contextualist model of SD, but all participants looked to the Agency itself to provide an enabling context in which any commitment to sustainable lifestyles should be pursued. In this sense, much as is the case with the general public, individual members of staff express differing levels of prior concern and commitment which should not be taken for granted when seeking to promote behavioural shifts.

2. The Role of Identities in Pro-environmental Behaviours

The connections between their personal and professional identities were fundamentally important for staff. Working for the Agency is generally reflected in people's sense of worth and commitment to environmental goals, while also implying certain kinds of responsibilities for individuals. Many people in the groups commented on the need for them to be more pro-active in their everyday behaviours because they worked for the Agency. Participants construed both their own and the Agency's identity in socially engaged terms and, significantly, in terms which sought to bolster their own, and the Agency's moral authority.

But in a reciprocal relationship, the Agency was also expected to impart an ethos to staff about its own concern for the environment - (a good example of the structure-agency debate rehearsed above). The strength of identification varies across grades of staff; but not in any obviously predictable way. So for example, staff who were thought to possess 'special knowledge and expertise' did not necessarily express a strong identification with the ethos of the Agency. In practice, all participants believed that *action* by the Agency - of which individuals are a part - rather than a sole focus on exhorting individuals to take responsibility, was required.

3. Tensions Between Personal (Domestic) and the Professional (Work) Practices

> *'I think the Environment Agency actually does have a lot of environmental waste, I find it really difficult to come to work and see such waste of paper and resources, and then try and improve it at home when I spend so much time at work. It's quite difficult.'*

During the meetings in the North-West, there was discussion about the opportunities for engaging in collective actions in the workplace through, for example, discussions and work-based events or initiatives. This was in contrast to the more solitary nature of trying to undertake individual action at home. Indeed, many participants felt that their (individual) actions at home were being negated by the (in)actions of their employer.

Issues raised by staff were mainly wastage of paper, failure to conserve or reduce energy use (electricity in particular), and, especially strongly, issues to do with transport policies of the Agency. Participants were vociferous in their opposition to the relocation of EA offices to

motorway junctions and the car leasing scheme, resulting in (unwelcome) increased car journeys for many staff. There were strong criticisms that the Agency was exhorting, if not pressurising, staff to become more sustainable at home while not adjusting any of its own practices. By touching on the need for the Agency to earn legitimacy as the guardian of the environment through its actions and not just its assumed authority, participants positioned themselves as more supportive of the contextualist approach to SD than with the reductionist model.

4. Barriers to Action

With reference to the social and governance dimensions of SD models, staff discussions highlighted again, the dimensions/barriers to action.

These included:

- uncertainties about the efficacy of suggested actions
- uncertainties about the scientific validity of environmental information
- not knowing which institutions were trustworthy
- anger about being so deeply implicated in a consumer society
- powerlessness to resist advertising and commercialisation
- lack of choice because of the structures of society (having to drive to work; no/poor public transport, out of town shopping centres etc.)
- lack of inclusion at work (management culture doesn't listen to ideas from 'below')
- financial and time resource limitations at home
- the intangibility of global problems.

Many of these concerns are encapsulated in the following extracts from one of the focus groups. Here the participants comment, firstly, on the contingent nature of information and expertise on which 'rational' actions are predicated and, secondly, on the abstract nature of many environmental issues, which further undermines individual commitment.

F. I think the thing that worries me is, how certain are we of what we're doing? Because we change our attitudes, one thing that comes to mind is the eggs scare, and the beef scare, and then they say don't drink too much alcohol but now alcohol's good for you. Depending on the mood of the day and the politics and what they find out, how do we know what we're spouting today won't change? They go on about the global effects, global warming, and it could just be that that is how it would have gone anyway, how can we know that a million years ago, presumably there weren't people driving around in fast cars to cause global warming and made the ozone layer bigger and pole caps melted and then it all froze over again. How do we know that what we are trying to preach is really true.?

M. It's making it real for people, that's why a lot of people only get involved when it's "in my back yard", because they can actually see something happening, that piece of land being developed, if you can see there used to be birds nesting on there and they're not going to be there anymore, it makes it real, whereas when it's just something on the telly or something in the school room or something on the planning list, it's just an abstract thing, you can't see or experience a real loss or difference, so you're not going to be motivated to make a real effort with it. You can't, you don't see your impact on the global atmosphere, it's just abstract. I don't know how you get over that and make it real for people. [Carlisle]

Even where individuals expressed willingness to engage in pro-environmental behaviour, lack of support either in the workplace or from governing institutions such as local authorities inhibited this drive. Without access to mechanisms for contributing to changing working or domestic patterns to benefit the environment, enthusiasm among participants was quickly eroded.

Taken together, the diversity of these responses and their engagements with economic, governance, uncertainty and ethical concerns, demonstrates the contingent nature of behaviour and decision-making and a concern for collectivities rather than individual choices.

5. Understanding of 'Sustainable Development'

Finally, there was little spontaneous discussion about 'sustainable development' in the focus groups. Reasons for completing AaH seemed self-evident: to save money/reduce household expenditure on the one hand; and to reduce consumption, reuse materials and recycle waste products on the other. There was little awareness of the Agency's role and remit in progressing sustainable development but, considerable sensitivity to the environmental consequences of excessive waste production/landfill.

Conclusion

Staff were clearly critical of both the reductionist approach upon which the AaH programme is based, and the reluctance of the Agency to develop and demonstrate its own contribution to sustainable practices. In turn, this dissatisfaction reflected badly on the participants as social individuals wanting to make a difference - to be ethical citizens - and as employees of an institution that actually could make a difference - the responsible institution. This reciprocal construction of the individual as the institution and vice versa, is a clear indication of participants engagement with the contextualist model of SD. It is also a demonstration of how the Agency can better respond to the concerns of their staff. By adopting a more reflexive approach to managing institutional change, ie change directed to produce positive environmental benefits in partnership with staff, the Agency can come to better understand what SD might come to mean for its own internal structures and practices.

II LOCAL ENVIRONMENT AGENCY PLANS

In seeking to demonstrated how the Agency should move towards a more contextualist approach to the social dimensions of SD when involving the public and other partners, we report on the considerable progress made in the conduct of Local Agency Environment Plans. The Agency is charged with completing over 131 LEAPs by 2000. In a previous R&D project on community involvement in LEAPs, *A Method for Community Involvement in LEAPs*, (Baker Associates, 1997) concerns were raised that methods of participation and consultation in use by the Agency might not approach the sophistication and effectiveness of techniques used by Local Authorities and other agencies which undertake consultation over environmental issues. In particular, the report found the Agency's approach to participation and consultation has tended to be 'top down', with effort mostly directed towards providing information to the public and asking them to respond to it. As the report states (page 47):

"The majority of participation work has been focused on "information giving" and "consultation". There has been some input to "deciding together" (consensus building), but the lack of on-going commitment has made this rather weak. Input to "joint action" (partnership building) has been primarily through the functional staff, but the relationship of this to the overall process has been unclear to partners."

This picture of the Agency suggests that it is operating largely within the 'reductionist' model, where 'rational' action is presumed to follow the provision of information. To tackle effectively the cross-agency issues identified in LEAPs, the Agency is already aware that it will have to work in partnership with other local organisations.

Partnership can be defined as existing *"when a number of different interests willingly come together on a basis of mutual trust to achieve a common purpose"* (*ibid.*). The implication for the Agency's consultation processes regarding LEAPs is that the processes must be directed much more towards consensus and partnership building than information provisions and consultation. As the report went on to note:

"Current efforts to involve the general public are curtailed and limited to information provision. Consultation focuses on partners, the participative groups and significant others, and on statutory consultees. The process of deciding together will normally involve the partners and those groups who wish to be involved, and acting together will be primarily with partners, though a long term aim should be to involves the groups further" (*ibid.*, p52).

The report concluded that consultation in respect of LEAPs should focus on those organisations whose interests are directly affected by the issues and with whom the Agency is likely to have to work to implement the LEAP, with much less effort directed towards consulting the 'person in the street'.

Members of the Environment & Society Research Unit at the Department of Geography were approached by the Environment Agency to develop ways in which more consultative and inclusionary processes of dialogue could be established to prioritise issues in a LEAP for the New Forest Area (Clark *et al.*, 1998).

The objectives of the project were:

- to set out a method for prioritising issues identified within LEAPs
- to improve the consultation and involvement process of the key stakeholders within a LEAP area

by providing the Agency with a consensus and coalition building methodology which recognises the constraints of limited resources.

The outcome of the project was to realise the following benefits:

1. **education:**
   - for the stakeholders about the role and remit of the Environment Agency

- for the Agency about the roles, concerns and priorities for other stakeholders

2. partnerships
- to create partnerships with these stakeholders to ensure that policies to address issues identified in LEAPs are carried out in collaboration with them

3. prioritisation
- to determine, on the basis of what stakeholders want done, an order of priority for the issues set out in a LEAP

4. consultation
- to improve the method of consultation from formal written comments to consensus building with major stakeholders.

Based on reviews of methods of economic appraisal and of the use of stakeholder group approaches, and the consultants' extensive experience of group discussion methods, the researchers devised an experimental procedure for prioritising issues within a LEAP. The process involved the active participation of key stakeholders in the LEAP area. This procedure combined a decision analysis approach to policy, plan and project appraisal - a form of multi criteria analysis (MCA) - with one of the practices used in the new approaches to consultation; namely, the use of a stakeholder group. It thus meshes deliberative discussion with the systematic approach of MCA - an approach better described under the title Stakeholder Decision-Analysis (SDA). During a series of workshops the stakeholder group works through the stages of SDA, learning about the issues, developing criteria for assessing them, and assessing each issue against each criterion.

The approach is innovative not in its elements but in their combination. Formal techniques are frequently used in dealing with decisions involving multiple objectives. The use of stakeholder groups to work on environmental policies and projects is becoming more common, and decision conferences using structured group processes are a well-known management tool within organisations. However, we know of no other work which combines stakeholder group deliberation with a formal systematic appraisal technique in the context of determining priorities for environmental action. The new approach to Environmental Capital being piloted by the Agency (Countryside Commission, 1997) and others is in broad agreement with the contextualist approach, but makes no prescription about *how* priorities for action should be determined. By developing a formal method for deriving priorities - Stakeholder Decision Analysis - the project was thus ground-breaking.

The procedure was tested using the New Forest LEAP. A stakeholder group, comprising individuals representing the majority of organisations who have an interest in the New Forest LEAP, was recruited (see Figure 13). The group's overall task was to review and prioritise the issues addressed in the New Forest LEAP Consultation Draft. Working together, they were asked to identify costs and benefits associated with these issues, and to work through the SDA process to rank the issues in order of priority. A detailed account of the testing of the methodology on the New Forest LEAP, and an evaluation of the process including

stakeholders' responses, is available in the Project Record (Clark *et al.*, 1998). The main elements of the methodology are described below.

Outline of the main elements of the methodology

The purpose of the methodology is to enable the prioritisation of issues in a LEAP. The methodology is a process which combines a deliberative procedure with a systematic technique and is carried out by a stakeholder group. The overall approach therefor is consistent with the contextualist model of society and governance outlined above.

The stakeholder group

The LEAP stakeholder group is the group of people who work through the process. Stakeholders are defined as anyone who has a stake in what happens but a stakeholder group does not necessarily comprise everyone who has a stake. Its composition depends on the purpose for which the group is convened and the tasks required of participants. The technical nature of the LEAP, its geographical coverage, the range of organisations interested in its outcome, its focus on particular aspects of the environment, and the Agency's desire to build partnerships with organisations with whom it would need to work to address many of the LEAP issues, indicates a rather more 'expert' group than might be convened in other contexts. However, it is not appropriate to confine membership to technical and environmental experts. It is essential that the group includes people with a wide range of interests and knowledge, particularly local knowledge.

The LEAP stakeholder group is therefore comprised of key interests (organisations with a remit covering the LEAP area and/or key activities within it) and does not include, for example, representatives of geographically local interests such as local residents' groups, or individual members of the public. Roughly equal representation from each of the three main sectors of activity in a LEAP area (statutory, voluntary and private) will normally be appropriate.

Multi criteria analysis

An outline of the principles of MCA is provided in the main report. In summary, the MCA technique used is a mathematically simple one which involves summation of weighted scores. A mathematically simple technique is used for two reasons. First, the numbers involved do not warrant complex mathematical treatment. Second, it is important that the technique is easily comprehensible to all members of the group and is therefore transparent.

The process begins with the stakeholder group selecting a number of criteria, weighting each according to its relative importance. Each issue contained in the Draft LEAP is then scored against each criterion and its score multiplied by the weight for that criterion. Weighted scores are summed for each issue to give a final score. The higher the score, the higher the priority that should be given to that issue. The scores are used to place issues in a number of priority groups.

The result of the multi criteria analysis - the total scores for each issue and the consequent ranking of the issues - is sensitive to the assumptions made about weighting the criteria and translating qualitative assessments into quantitative ones. It is thus possible to examine not only how particular 'reasons' and their 'ranking' affect the overall outcome but also to reflect on how judgements of a particular kind or by stakeholder group affect the outcome. This iterative and reflexive process of decision making provided by, Stakeholder Decision Analysis is wholly consistent with the premises of a contextualist model of SD.

The workshops

The stakeholder group tackles the MCA in stages by working through a series of tasks during four workshops. The tasks are structured so as to focus group deliberation and discussion while at the same time giving each group member maximum opportunity to question, challenge, learn and contribute to the identification of issues, development of criteria and assessment of issues against criteria. The sequence of tasks is summarised in Table 2.

Table 2: The workshop sequence

Prior to Workshop (individuals)	• Identify costs, benefits and risks of issues in the Draft LEAP
Workshop 1 (group)	• Review the issues in the Draft LEAP • Produce a comprehensive, inclusive list of the costs, benefits and risks associated with the issues proposed in the New Forest LEAP.
Prior to Workshop 2	• Develop criteria against which the issues in the New Forest LEAP might be assessed.
Workshop 2	• Produce an inclusive list of criteria • Assess the issues in the New Forest LEAP through deliberation of criteria
Prior to Workshop 3	• Score each criterion on the list produced in Workshop 2 on a scale of 0 to 100.
Workshop 3	• Evaluate each of the issues against each of the 10 criteria in the final list.
Prior to Workshop 4	• Review the list of issues ranked in priority groups according to the results of the MCA
Workshop 4	• Review the ranked issues list as a group and to review the process.

The key stages are represented in Figure 14.

OUTCOME OF THE LEAP MCA PROCESS

Benefits of using the methodology

The **major benefits** of using this approach in general and this methodology in particular are as follows:

1. It is inclusionary of a wider range of organisations and individuals than are normally consulted in the early phases of the LEAP planning process.

2. The process brings stakeholders together for deliberation in a group. This allows areas of potential conflict to be identified and explored before the LEAP is implemented, something that the solicitation of comments from stakeholders in isolation cannot achieve.

3. Through the process stakeholders can come to better understand the role and remit of the Agency and the Agency can come to better understand the roles, concerns and priorities of stakeholders.

4. The process facilitates networking and partnership building between the Agency and potential partners. When done well, this form of stakeholder involvement in the early stages of the LEAP planning process enhances goodwill, improves intelligence gathering, and reduces potential conflict between the Environment Agency and its direct and participatory partners.

5. The non-confrontational structure of the workshops allows stakeholders to explore their differences and find areas of consensus on which to build. Individuals are able to acknowledge the validity of different perspectives on environmental matters, and are encouraged to work co-operatively and to seek a negotiated outcome where no one perspective dominates.

6. Through the intensive deliberations of the group the issues in the draft LEAP are given a fuller and more testing appraisal than would otherwise be the case during public consultation.

7. The development of criteria encompasses a fuller range of evaluative dimensions for judgement than would otherwise be the case.

8. The criteria are applied systematically to each of the issues, so each issue is evaluated on the same terms, terms which are agreed by all participants in advance.

9. All stages of the decision-making process are open and transparent. Every member has maximum opportunity to question, challenge, learn and contribute to the identification of issues, development of criteria, and assessment of issues.

10. The legitimacy of the product - the list of issues in order of priority - derives from the legitimacy of the process. The results can be more easily endorsed by the stakeholders because they have been achieved through a process that is seen to be fair, and to which they have contributed and have some ownership.

11. Results are achieved within a limited time because deliberation is focused through structuring the process into a series of discrete tasks.

12. Agency membership of the stakeholder group and the availability of Agency experts at meetings allows the Agency to participate in the process but not dominate.

These outcomes are illustrated in Figure 15.

Conclusion

The Stakeholder Decision Analysis used to prioritise actions in the New Forest LEAP is a practical method for working with stakeholders in an inclusionary and deliberative way. It is recognised by stakeholders as being transparent and easily understood; as being capable of embracing questions of ethics, indeterminacy, and responsibility; and through thoughtful and open debate as being able to accommodate facts and values. It thus provides a means of taking forward the contextualist model of SD into those formal and informal arenas of governance with which the Agency needs to engage.

VIII TOWARDS A NEW, SOCIALLY INFORMED APPROACH TO SUSTAINABLE DEVELOPMENT - RECOMMENDATIONS

Taking the lead from our review of existing approaches, the practical experiences of Agency staff and the vision of SD being promoted by government, we seek to develop a new socially informed approach to SD which:

- actively embraces contextualist rather than reductionist approaches to understanding society

- develops a more deliberative and inclusionary approach to governance issues and the behaviour and structures of institutions so that ethical positions about sustainable development can be made more transparent

- gives equal consideration to the claims of the economy and the environment as arenas which support sustainable development

- positions sustainable development as a process of legitimation rather than a predetermined known state.

Some principles which underpin this approach (see Figure 16) are:

- *inclusion* - processes which allow the voices of those groups often excluded from conventional consultation approaches and who have an interest in sustainable development to be heard and acted on;

- *equity* - deliberative processes which acknowledge the need for public accountability, 'what ought to be', and the fair distribution of environmental goods and bads both now and in the future;

- *precaution* - decision-making which acknowledges sources of uncertainties especially in the field of environmental harm and maintaining the integrity of ecosystems and their functions, but also in terms of what is important to stakeholders and how the environment can be valued;

- *polluter- pays* - responses to reducing environmental harm and promoting sustainable development which move the burden of costs to the polluter.

The shift in emphasis required from the existing bias towards economic and environmental models to models which address societal and governance issues is shown in Figure 17. Figure 18 maps existing models in use by the Agency onto our model. It is apparent that:

- the current SPR model used by the Agency is located in the sector where environment and economy overlap

- the new approach to Environmental Capital is located in the sector overlapping with society.

- Integrated Assessment Approaches provide the potential for embracing all four dimensions but, so far, they tend only to be applied at the national and international scale and are not as inclusionary as our approach suggests they should be.

In Figure 18 highlights the apparent failing of the SPR model to engage directly with a wide range of relationships which potentially affect the Agency's activities - notably the Agency's comparative isolation from issues of governance and society that shape how the Agency responds to pressures on the environment.

Figure 19 illustrates the new relationships required with governance, economy and society if this model is to be taken forward within the suggested framework. In comparison with Figure 6, it is important point to note the linkages between the generation of environmental pressures as a *direct result* of patterns within 'governance' and 'society'. *Environmental change is driven* by social and economic pressures, and is not the result of abstract 'naturally' occurring forces. It is therefore imperative that governance issues, which regulate the force and direction of the drivers are taken into account in addressing sustainability issues.

Figure 20 maps the Agency's current processes and approaches onto the model. Clearly the Agency is already contributing to processes of sustainable development most notably through:

- compliance with its regulatory duties, integrated pollution control and monitoring

- a willingness to employ Multi-Criteria Analysis for project evaluation rather than relying exclusively on Cost Benefit Analysis which demonstrates awareness of the difficulties and uncertainties surrounding environmental assessment

- the development of partnerships with key players in the economic sector which should allow a more precautionary approach to be pursued and the encouragement of preventative rather than effects-led approaches to pollution control

- adoption on the national and international level of an Integrated Assessment Approach. Gaining legitimation and credibility on a more local level could also be achieved through the LEAPs process.

Practical implementation of the proposed model.

In taking forward this socially informed model of society and governance into the working practices of the Agency, we suggest the following:

- Figure 9 lists the 7 questions raised by the reductionist and contextualist models of society and governance. These are all questions that can be asked of any 'policy' 'programme' or

'project' likely to be developed by the Agency. By focusing attention on current Agency thinking and asking what Agency thinking **should** be, these questions serve to put in place the same reflexive process of active learning that the contextualist model builds on.

- In practice we recognise that providing simple answers to the sequence of questions raised by the idealised models of reductionist and contextualist approaches to SD is difficult. A more realistic situation is envisaged (albeit diagrammatically) in Figure 21. Answers to the key questions in Figure 9 will shift the decision path from one side of the diagram to the other. What this 'decision tree' ensures however, is that the Agency **routinely** engages in a process of critical, reflective debate about the delivery of SD in its functions and operations. On some occasions the reductionist model may seem to be appropriate, but we would suggest that as measure of the Agency's commitment to the social dimensions of SD, all its programmes, policies and projects should be subject to the scrutiny and debate the contextualist model proposes.

- Figure 22, based on the formal and informal institutional arrangements suggested by Bryson, Crosby (1997) and Healey (1998) has been annotated to show how a range of inclusionary methods of engaging with the Agency's partners and the public can be utilised in the Agency's activities. For example, community panels, citizen's juries, focus groups and stakeholder decision analysis as utilised in the New Forest LEAP, are appropriate in fora and arenas. Referendums and consensus conferences are both procedures for adding legitimacy to decisions undertaken in the courts (Stewart 1997).

Examples of how the socially informed model of SD can be taken forward

<u>Shoreline Management Plans</u> with which the Agency is involved are plans that have no statutory power. This is also the case with Biodiversity Actions Plans for example. The significance of such plans depends upon informed consent and widespread support amongst all interested parties. Legitimacy in the consultation process then becomes a vital concern and an equally potent factor in securing support for subsequent implementation. This is especially so where there are ambiguities in compensatory arrangements associated with managed retreat, for example, where opportunities for powerful lobby groups to influence the decision-making process are bound to arise.

At present, the process of environmental-decision-making involved with these kinds of plans does not routinely identify all stakeholders for the task in hand, but tends to rely on representative spokespeople. Moreover, when consulted, the public are often regarded as a source of information and not as partners with legitimate interests. Likewise, reliance on conventional approaches to Cost Benefit Analysis and contingent valuation procedures to determine **what** nature is to be valued and **how** it is to be valued, fails to address in a transparent and principled way the full range of social welfare and ethical dimensions of SD. A more flexible approach based on Stakeholder Decision Analysis such as that developed through the New Forest LEAP, would reap wider dividends.

Under these circumstances, a more inclusionary political process, such as that proposed by the contextualist model is to be preferred. The adoption by the Agency of this more flexible approach, and reported on by O'Riordan and Ward (1998) for the North Norfolk Shoreline

Management Plan, records that 'this shift has proved most effective in building trust in shoreline management' (p.273).

Contentious Licensing : In circumstances where the statutory and regulatory function of the Agency is perceived to be contentious, for example in considering the renewal or issuing of environmental licences, adoption of a contextualist approach to SD through involving the public in a wider process of decision-making is already being seen by the Agency as beneficial. Pilot studies recently conducted in five different regions involving contentious licences associated with industrial activities such as cement works, power production, sewage treatment and an atomic weapons establishments were designed to explore the benefits of an extended processes of public consultation.

The pilot studies revealed variable responses to the public meeting as the preferred mechanism for public consultation and highlighted the need to train staff in the skills required for handling large and often hostile meetings. The pilot studies also identified the need to take account of the specific local context in deciding upon what mechanisms of public involvement should be used. As the report notes (p.3), 'perceived contentious issues commonly concern health effects *rather than environmental effects*' (our emphasis). Demonstrating that the environment itself is a contested concept, such studies show that while the Agency itself may not recognise such concerns as 'their responsibility', members of the public construe 'environmental effects' in much wider terms. Under these circumstances the Agency needs to respond to public concerns in a flexible and responsive manner. Otherwise, as the study reports, the public become rapidly disillusioned with yet more meaningless consultation exercises.

In practice the value of these pilot schemes serves to demonstrate that the ability of the Agency to carry out its licensing functions in a way that is respected by its partners and the public alike is strongly linked to questions of trust and legitimacy. Moreover, because trust is more easily lost than gained, the Agency needs to take the socially informed model of SD right to the heart of the organisation so that this approach to SD infuses policies, programmes and practices on a continuing basis.

In conclusion, when seen as a process rather than a predetermined outcome or defined 'end-point', sustainable development demands a new approach by the Agency which needs to he based on a collaborative and inclusionary approach to environmental decision-making. We believe that the socially informed model of society and governance, through its explicit concerns with equity, precaution, inclusion and the polluter-pays principle, provides a way forward for the Agency. Adoption of this approach, both within and without the Agency, will secure greater legitimacy for the Agency in the multiple arenas in which it has to work. And, through legitimacy will come greater public trust. Best regarded as a continuous process from which the whole organisation can learn, rather than a one off event, an on-going commitment to approaching SD in this way will allow the Agency to respond effectively to the changing social values **and** political requirements that drive sustainable development.

BIBLIOGRAPHY

Aldred, J. (1998) 'Land use in the Fens.' Ecos 19(2) 31-37.

Bailey, P.D. (1997) 'Integrated Environmental Assessment: a new methodology for scientific policy?' Environmental Impact Assessment Review 17 221-226.

Bryson, J. and Crosby, B. (1992) 'Policy planning and the design of forums, arenas and courts.' Environment and Planning B 20(2) 123-252.

Bull, K. R (1995) 'Critical loads - possibilities and constraints' Acid Rain 95(1) 201-212
Carter and Lowe (1998).

Clark, J., Burgess, J., Dando, N., Bhattachary, D., Heppel, K., Jones, P., Murlis, J. and Wood, P. (1998) Prioritising the issues in Local Environment Agency Plans through Consensus Building with Stakeholder Groups. R & D. publication W4-002/1, The Environment Agency, Bristol.

Coate, A. and J. Lenaghan (1997) Citizens' Juries: theory into practice. Institute of Public Policy Research: London.

CPRE (1997) Making sense of environmental capital. Michael Jacobs for CPRE: London

Countryside Commission (with The Environment Agency, English Nature , English Heritage) (1997) Environmental capital- a new approach. Land Use Consultants and CAG for the Countryside Commission: Cheltenham.

Department of the Environment (1996a) Indicators of Sustainable Development for the United Kingdom, HMSO, London.

Dobson, A. (1996) Environmental sustainabilities: an analysis and typology, Environmental Politics, 5, 401- 428.

DoE (1996b) The Environment Agency and Sustainable Development, DoE, MAFF, WO: London.

DETR (1998) Opportunities for Change, Consultation paper on a revised UK strategy for sustainable development, DETR: London.

Ekins, P. (1997) 'Making sustainable development operational for Forum for the Future's Best Practice Sustainability Data Base' Keele University: Keele.

Environment Agency 1998 'Proposals for additional public consultation when granting contentious environmental licences' Draft Report. Environment Agency: Bristol.

Environment Agency (undated) An Environmental Strategy for the Millennium and Beyond, Environment Agency: Bristol.

Grove-White, R., Macnaghten, P., Mayer, S. and Wynne, B. 1997 Uncertain World-Genetically Modified Organisms, Food and Public Attitudes in Britain. Lancaster University Lancaster.

Haigh, N. (1998) Roundtable 4: challenges and opportunities for IEA - Science-policy interactions from a policy perspective. Environmental Modelling and Assessment 3(3) 135-142.

Harrison, C, Burgess, J. and P, Filius (1998) Environmental communication and the cultural politics of environmental citizenship. Environment and Planning A (30) 1445-1460.

Holland, A. & Rawles, K. (1993) 'Values in conservation'. Ecos 14(1) 14-19.

House of Lords (1995a) Report from the Select Committee on Sustainable Development. Volume I - Report, HL Paper 72 Session 1994-95, HMSO, London, p10.

House of Lords (1995b) Report from the Select Committee on Sustainable Development. Volume II -Oral Evidence, HL Paper 72 - I Session 1994-95, HMSO, London, p595-610.

IUCN/UNEP/WWF (1991) Caring for the earth: the second world conservation strategy, International Union for the Conservation of Nature and Natural Resources, Gland, Switzerland.

Kuper, R. 1997 Deliberating waste: the Hertfordshire Citizens' Jury, Local Environment 2(2) 139-53.

Munton, R.J.C. & Collins, K. (1998) Government strategies for sustainable development, Geography, 83(4) 346-357.

O'Riordan, T. & Voisey, H. (1997) The political economy of sustainable development, Environmental Politics, 6, 1-23.

O'Riordan, T and R. Ward 1997 'Building trust in shoreline management: creating participatory consultation in shoreline management plans'. Land Use Policy 14(4) 257-276.

Pearce, D.W. & Turner, R.K. (1990) Economics of Natural Resources and the Environment, Harvester Wheatsheaf: London.

Robert, K.H., Daly, H., Hawken, P. and Holmberg,J. (1997) A compass for sustainable development. Int. J. Sustainable Development and World Ecology, 4. 79-92.

Shepherd, P. & Gillespie, J. (1996) Developing definitions of natural capital for use within the uplands of England, English Nature Research Reports No. 197, English Nature: Peterborough.

Stewart, J. 1997 'Further innovation in democratic practice'. Occasional paper No 9 School of Public Policy: University of Manchester.

UK Government (1990) This common inheritance: Britain's environmental strategy, Cmnd 1200, HMSO, London.

UK Government (1994a) Sustainable Development: the UK Strategy, HMSO, Cmd 2426.

UK Government (1994b) Biodiversity: the UK Action Plan, HMSO, Cmd 2428.

World Commission on Environment and Development (1987) Our Common Future, Oxford Press.

FIGURES

Figure 1: Key Questions of Sustainable Development
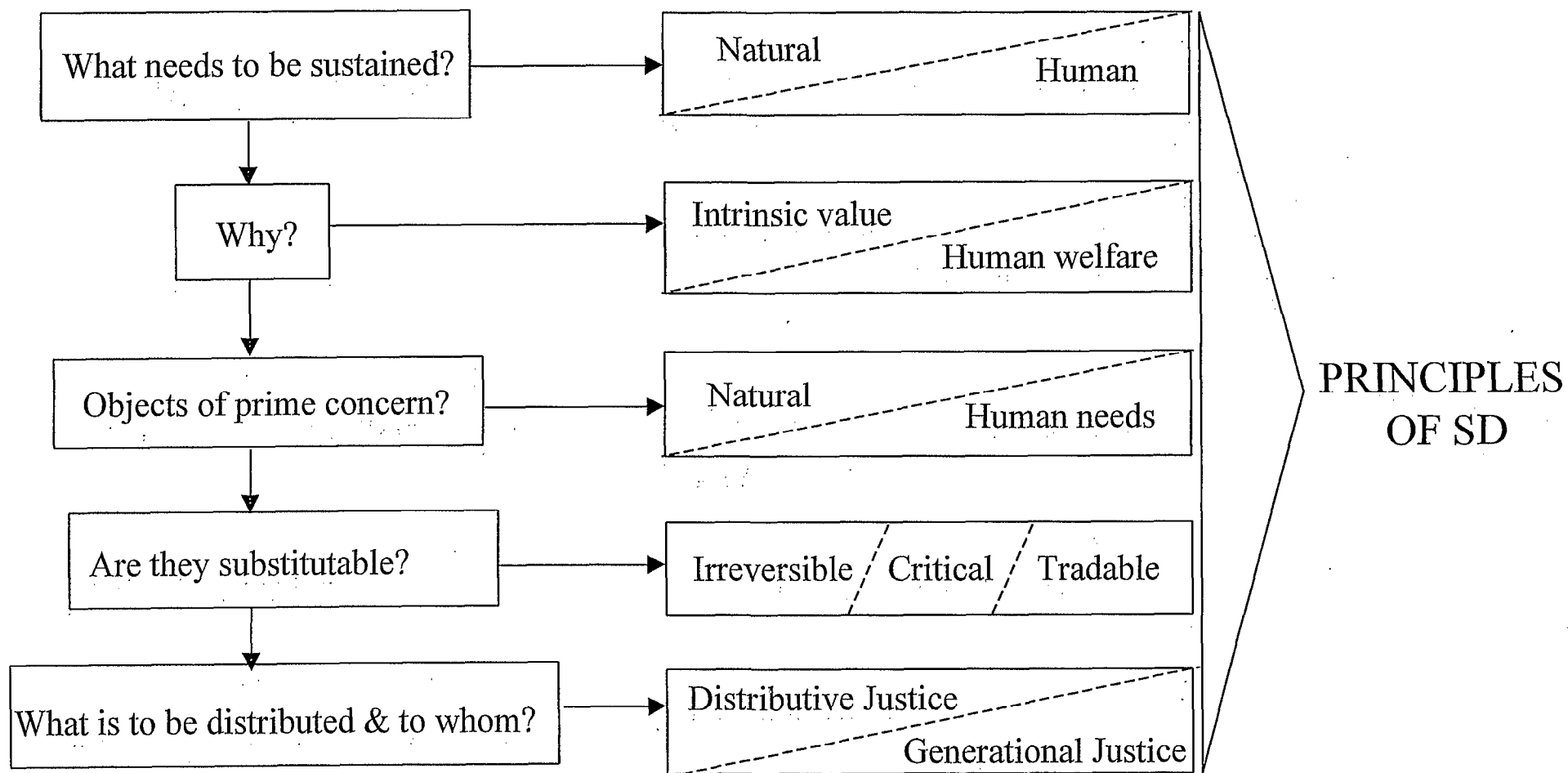
Figure 2: <u>Key Dimensions of Sustainable Development</u>
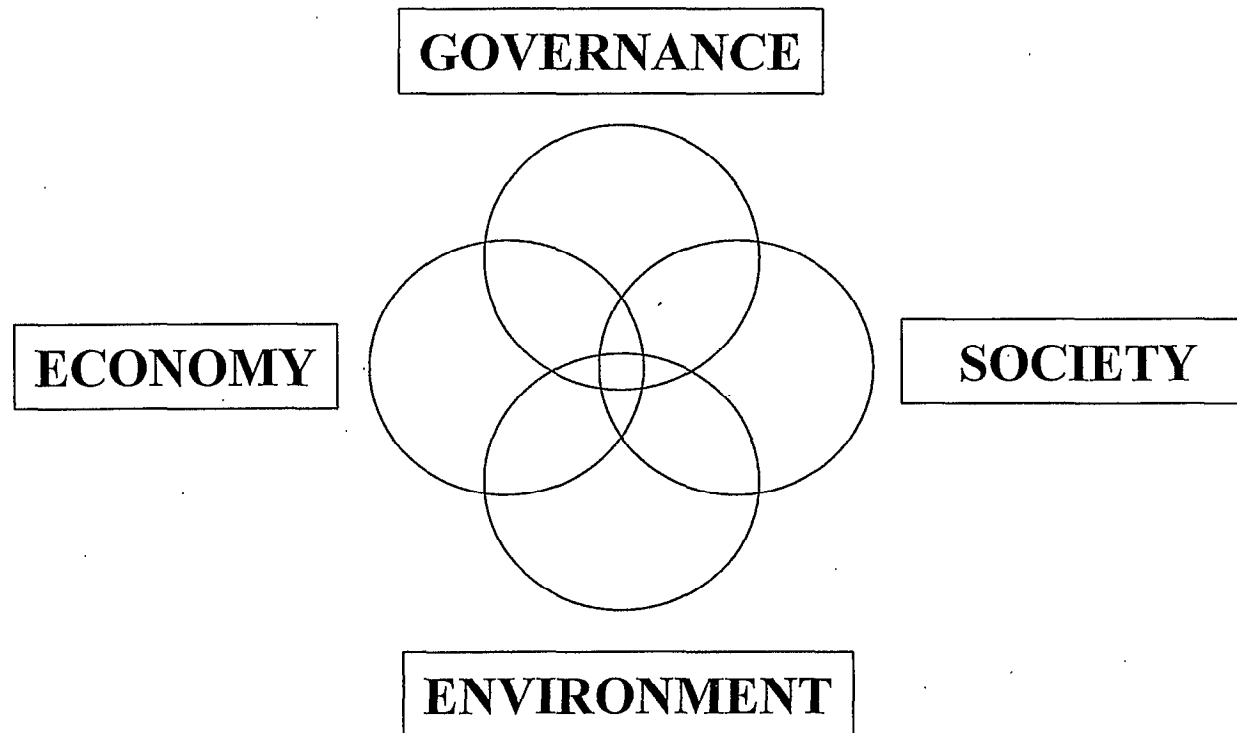
Figure 3: <u>Traditional Delivery of UK Environmental Policy</u>

Accretion of Common Law, statutes, agencies, procedures, policy

Relatively closed policy communities, especially in
relation to major economic interests

| Devolved & decentralised regulatory system | Administrative rather than judicial procedures |

Negotiation, persuasion and
cooperation, especially
with private interests

ENVIRONMENTAL POLICY
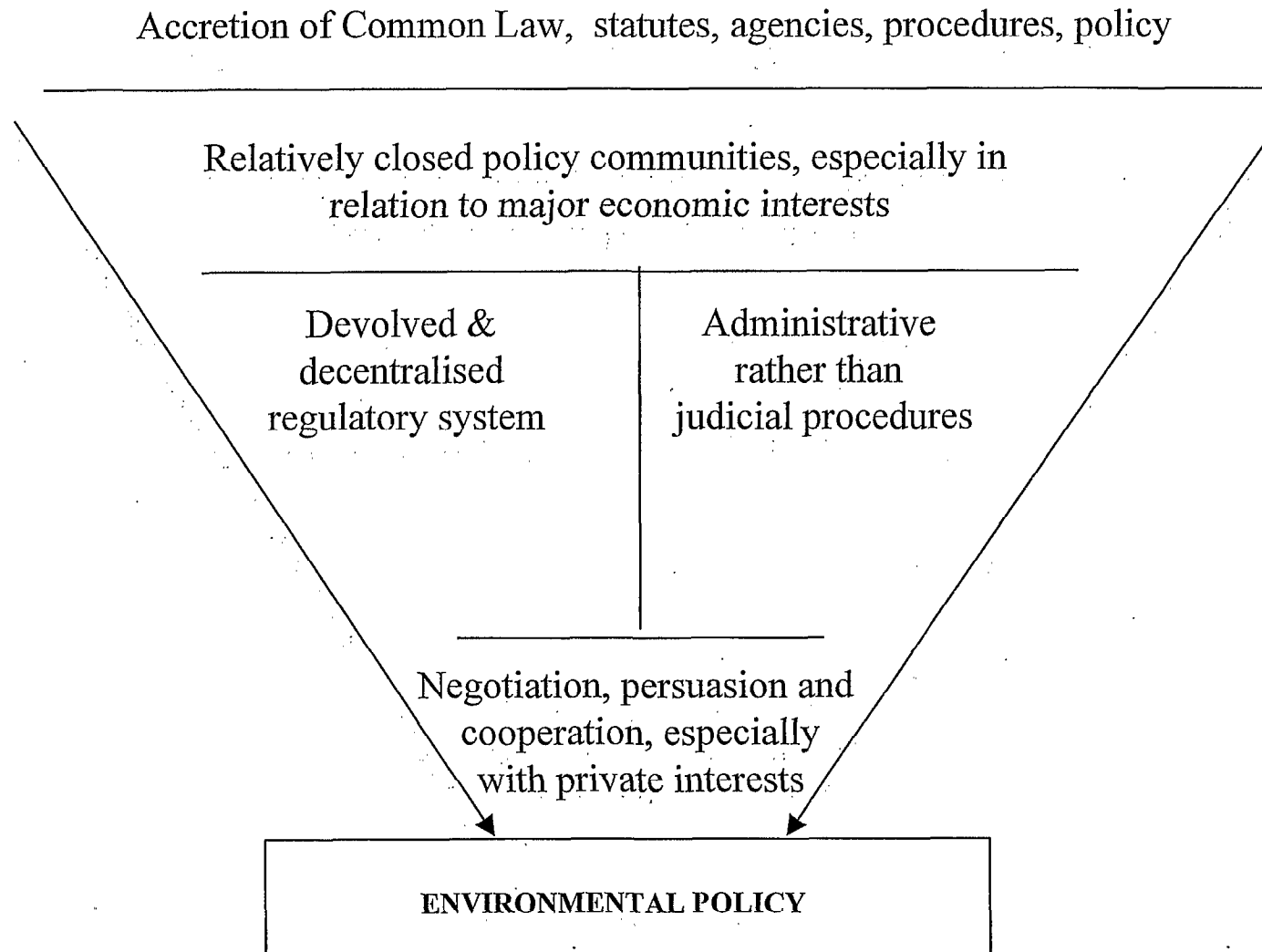
Figure 4: __OECD Model (Adapted)__

ECONOMY	ENVIRONMENT	ACTORS

Wealth & Welfare

| transport

energy

industry

agriculture

trade

leisure

households

others | air

water

land

wildlife

natural
resources | administrations

households

enterprises

international |

Pressures →

Resources ←

Welfare →

Responses ←

Responses

Figure 5: Ekins' Economic Model

Ekins/Forum for the Future

Figure 6: State – Pressure- Response Model

Figure 7: <u>Governance</u>

Set of Process which seek to:

PRINCIPLES

- Influence social construction of shared beliefs
- Establish principles upon which resources allocated
- Articulate rules of behaviour for actors
- Establish a language of collective interests eg 'common good'
- Allocate and regulate rights and obligations
- Legitimate initiatives taken by polity

PROCESS

Figure 8: Approaches to SD

How should the Agency decide what to do?

What is the Agency's Conception of Society?

REDUCTIONIST

Objective Information

The Rational Consumer

Moral Principle of Individual Choice

The 'Market'

Homogenous strategies

Expert Driven

Representative Democracy

CONTEXTUALIST

Subjective Communication
- constituting social knowledges, meanings and values

'Institutions'
- constructed through discursive processes of reasoning & argument

The Ethical Citizen

Social Equity

Heterogeneous strategies

Inclusionary decision-making

Participatory Democracy

STRATEGY

Figure 9: <u>Key Questions to Determine Decision Pathways for SD</u>

Isolated | What kind of individual? | Social

Rationally | How individuals expected to respond? | Reflexive

Dissemination of information /Regulator | What is the role of the EA and other institutions? | Interactive Partnership

Individual preferences | What are the guiding moral principles? | Ethical Citizen

Nature monetized | How is the environment integrated with society, economy, governance? | Common resource / Stakeholders

Homogenous / universal - Representative Democracy | What political and governance processes sustain decision-making? | Local/heterogeneous - Participatory democracy

Expert | What knowledge guides decision-making? | Local and expert

Figure 10: **Three Dimensions of Power & Governance**

FORUMS
ARENAS
COURTS

Creation &
Communication
of Meaning

Communication
Modes of argument
Access rules

Principles underlying
ideas

Policy-making
&
Implementation

Policy-making
capabilities
Planning
Decision-
making
Access rules

Principles of governance

Managing residual
conflict & enforcing
norms

Conflict
management
Jurisdiction
Access rules

Principles of Legitimation

Human Action
Ist Dimension of
Power

Ideas, Rules,
Modes
2nd Dimension

Structures
3rd Dimension

Social, Political, Economic and Natural Environments

(After Bryson & Crosby, 1992 & Healey, 1997)

Figure 11: Principles of SD

EQUITY
- Who benefits?
- Who loses?

GOVERNANCE
- Who decides?
- Who is excluded?

PRECAUTIONARY
- What are the risks?
- Are these reversible?

POLLUTER PAYS
- Who is the polluter?
- What are the real costs of pollution?

EA FUNCTIONS

POLICIES

PLANS

PROJECTS

Figure 12: <u>The Agency's Policy Context & Sustainable Development</u>

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┌─────────────────────┐ ┌──────────────────────┐
│        OECD         ─┤ European Commission  │
└─────────────────────┘ └──────────────────────┘
      ┌──────────────────────────────────┐
┌─────┴──────────────────────┐           │
│ European Environment Agency │           │
└─────────────────────────────┘           │
  │                         ┌─────────────┴─────────────┐
  │                         │      UK Government         │
  │                         └────────────────────────────┘
  │          ┌────────────────┬──────────────────┬──────────────────────┐
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  │   │ National SD Strategy│ Ministerial Guidance│ │ Acts of Parliament │
  │   │    Documents    ─│ │                    │ │                    │
  │   └──────┬──────────┘ └────────────────────┘ └────────────────────┘
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  │   │     DETR       ─│ │  Other Govt Depts  │
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  └──┌───────┴──────────────┐
     │ Environment Agency  ──────────────────────────
     └───────┬──────────────┘
         ┌───┴────────┐
         │   Board    │
         └───┬────────┘
         ┌───┴────────────┐
         │ Chief Executive│
         └───┬────────────┘
         ┌───┴────────┐
         │ Head Office│
         └───┬────────┘
         ┌───┴────────┐
         │ 8 Regions  │
         └───┬────────┘
     ┌───────┴────────┐
┌────┴──────────┐ ┌───┴──────┐
│National Centres│ │ 26 Areas │
└───────────────┘ └──────────┘
```

Figure 13: <u>New Forest Stakeholder Map</u>

English Nature

Environment Agency

Leisure clubs
&
Fishing Groups

RSPB (local)
CPRE (local) &
FOE (local)

EA LEAP

NFU & CLA

Southern Water

New Forest DC

Exxon Chemical &
Associated British Ports

Figure 14: <u>Delivering SD - The LEAPs Process</u>

Recruitment

Stakeholder Group

Workshops

1 | ID Costs, Benefits & Risks in current LEAP

2 | Agree criteria to judge priorities in LEAP

3 | Assess issues against main criteria

4 | Review & agree ranked list of issues

Systematic assessment of LEAP issues encompassing environmental, economic, social costs benefits & risks

Agreed List of Priorities for LEAP

Figure 15: Delivering SD - Outcomes of LEAPs

LEAP -STAKEHOLDER DECISION ANALYSIS

Agreements

- Development of
  - •criteria
- Systematic evaluation of criteria
- Open & transparent
- ID of issues before LEAP implemented

Inclusionary

- Group process
- Builds consensus & •ownership
- Generates authority
- Non confrontational
- Facilitates networking
- Builds partnerships

Education

- Increased awareness of Agency's role
- Increased awareness of LEAP issues
- Greater understanding of joint role of EA & stakeholders in achieving LEAP aims

POLICY	COMMITMENT	PRACTICE

Figure 16: Principles of Sustainable Development

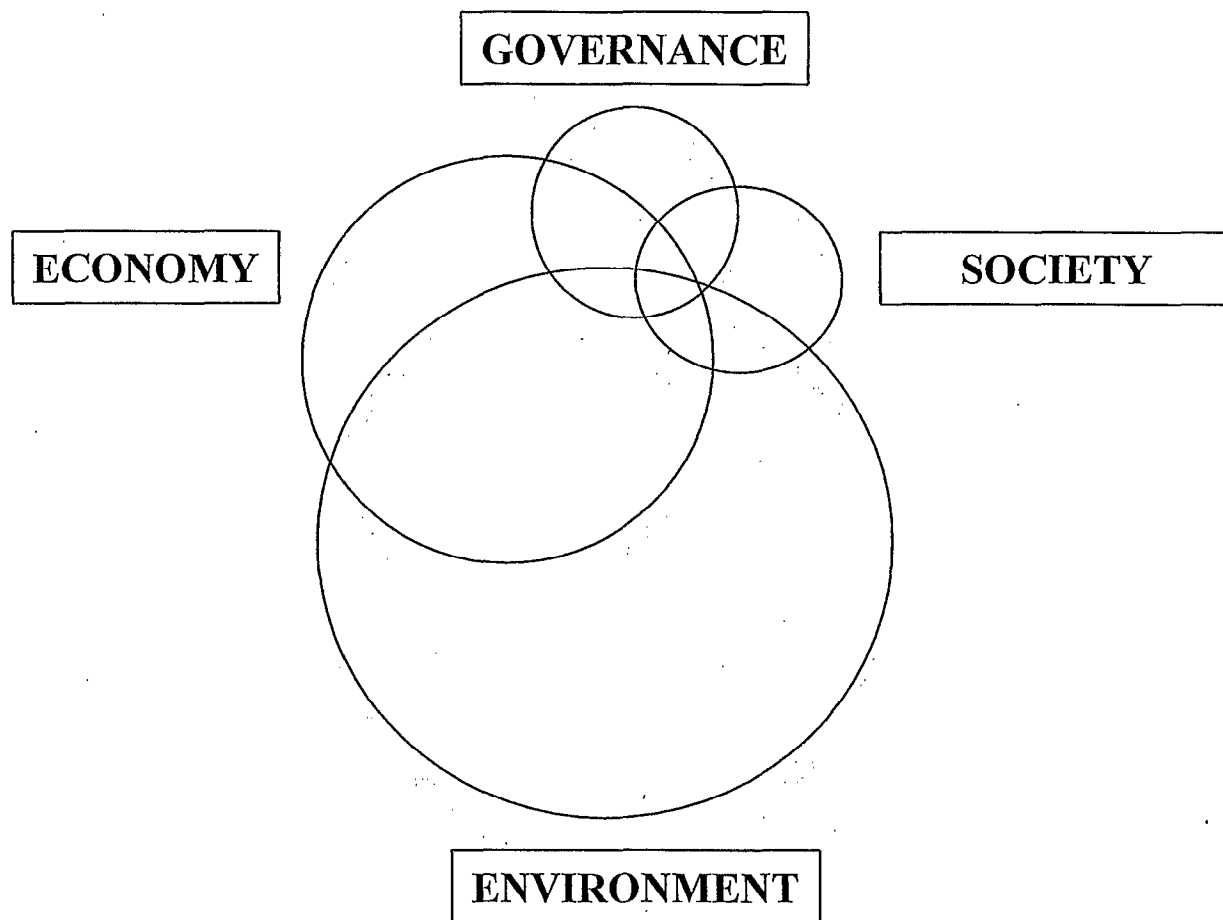# Figure 17: Current Emphasis of EA Models & Approaches (Schematic)

GOVERNANCE

ECONOMY

SOCIETY

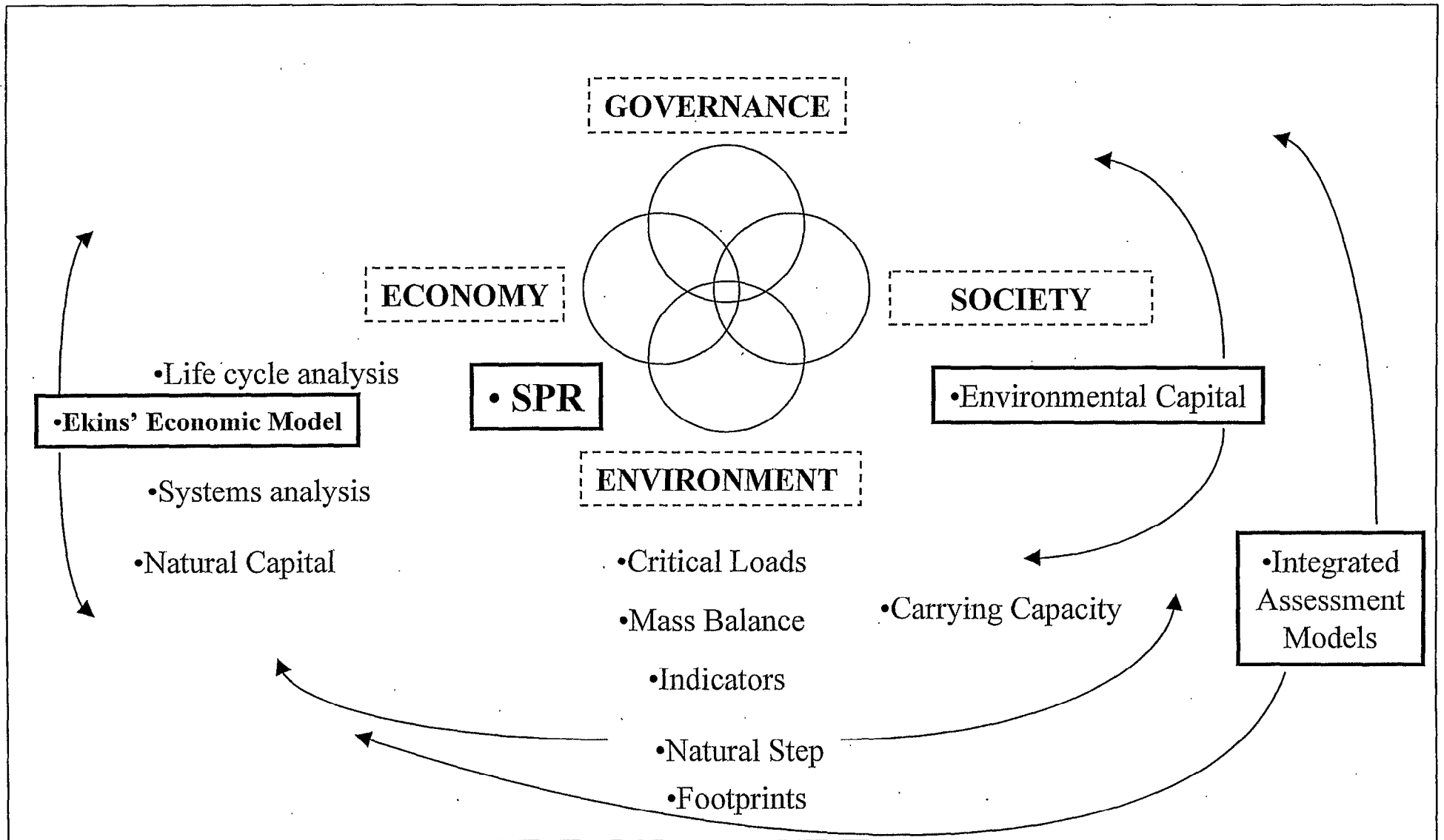ENVIRONMENT

Figure 18: Mapping Existing Models

GOVERNANCE

ECONOMY

SOCIETY

• SPR

ENVIRONMENT

•Life cycle analysis

•Ekins' Economic Model

•Environmental Capital

•Systems analysis

•Natural Capital

•Critical Loads

•Mass Balance

•Carrying Capacity

•Integrated Assessment Models

•Indicators

•Natural Step

•Footprints

Figure 19: Drivers of the SPR Model & SD
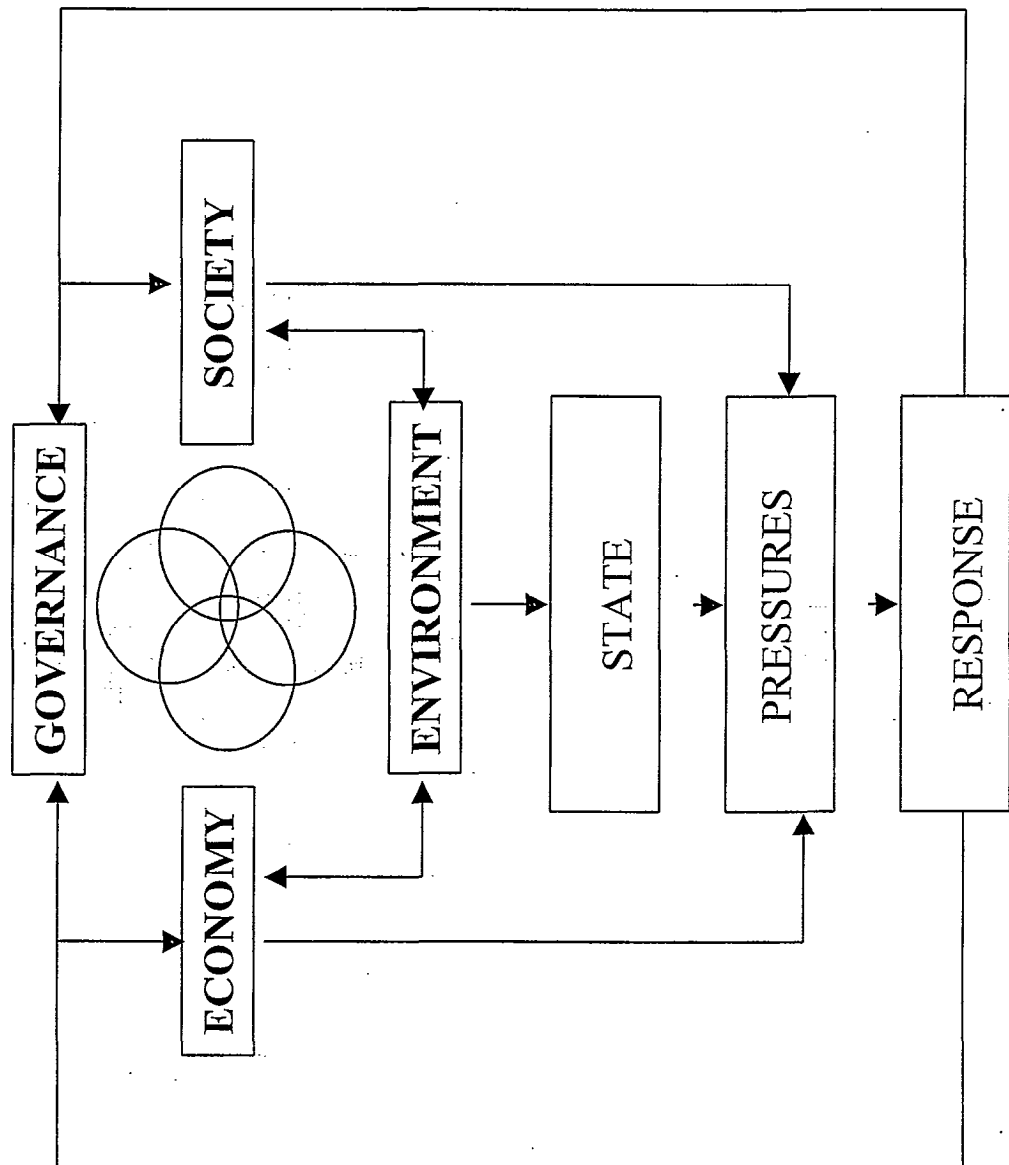
Figure 20: Mapping Agency Processes & Approaches
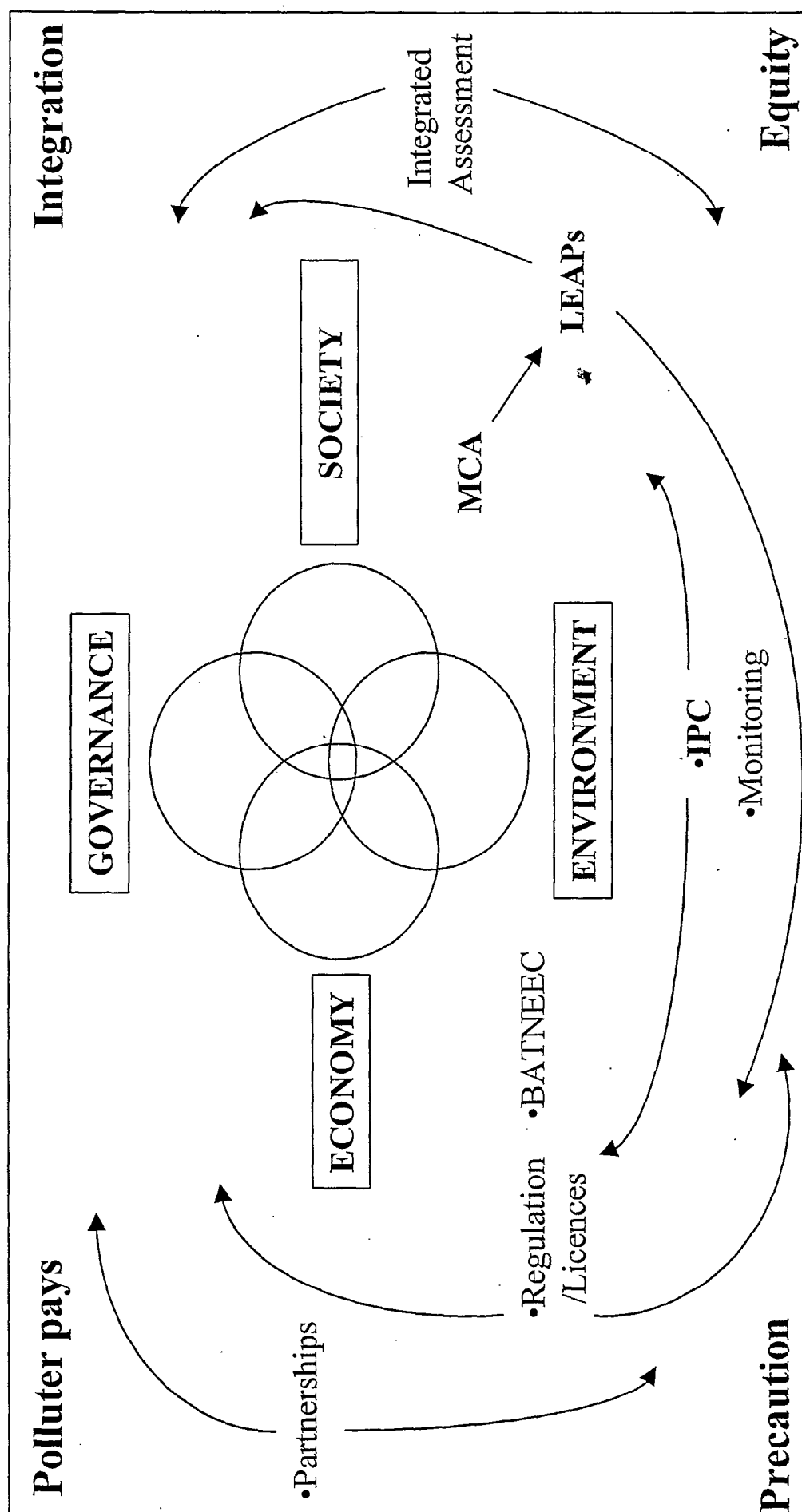
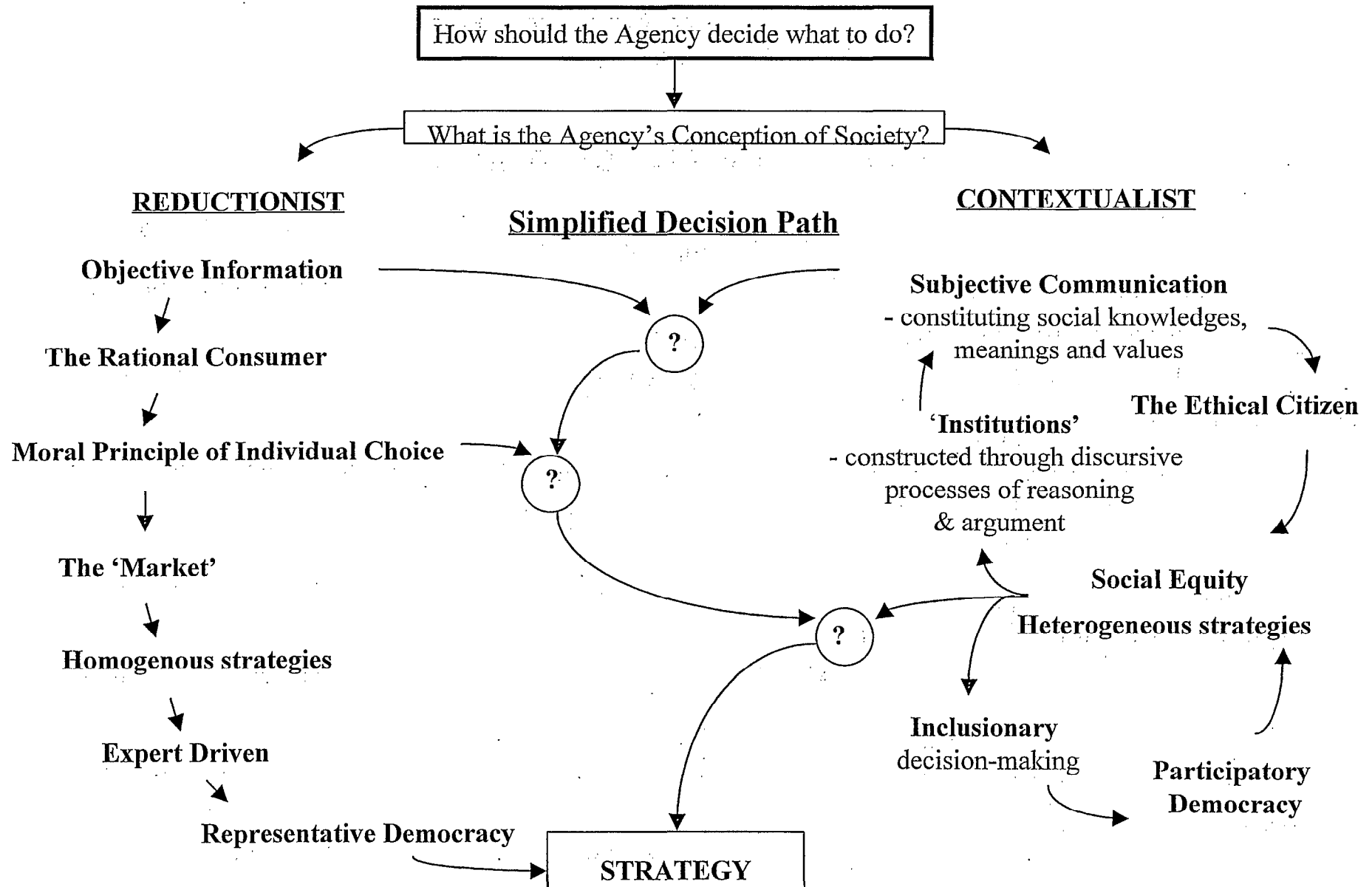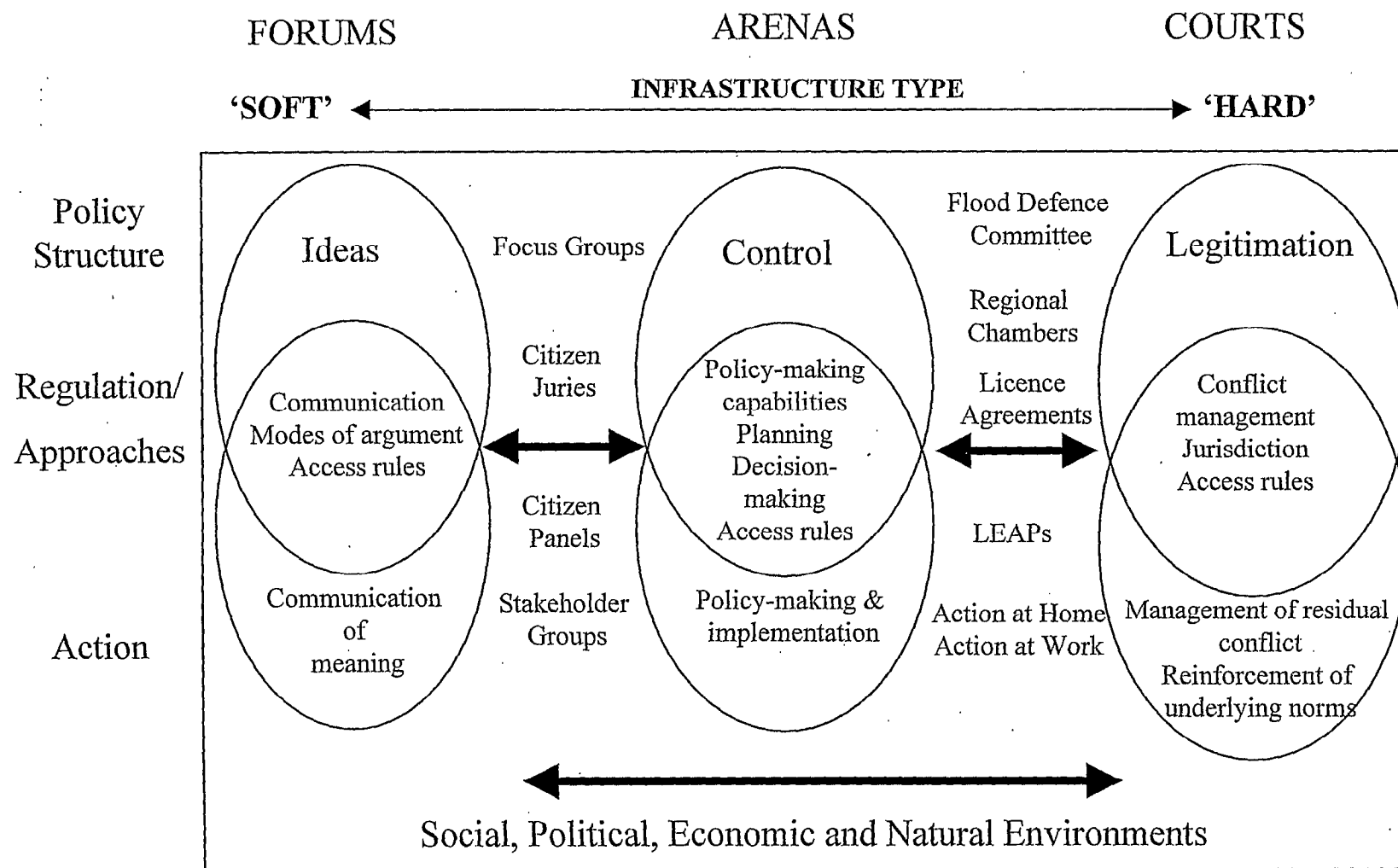# Figure 21: Approaches to SD and Decision Pathways

Figure 22: Three Dimensions of Governance - The Agency's Role

(After Bryson & Crosby, 1992 & Healey, 1997)