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Governance for sustainability: Towards a 'thick' understanding of environmental decision making

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**GOVERNANCE FOR SUSTAINABILITY:
TOWARDS A 'THICK' UNDERSTANDING
OF ENVIRONMENTAL DECISION MAKING**

by

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Abstract

Environmental decisions made by individuals, civil society and the state involve questions of economic efficiency, environmental effectiveness, equity and political legitimacy. These four criteria are constitutive of economic, social and environmental dimensions of sustainable development, which has become the dominant rhetorical device of environmental governance. We discuss the tendency for different strands of social science to focus on particular subsets of the four criteria and argue that such a practice promotes solutions that do not acknowledge the dynamics of scale and the heterogeneity of institutional and historical contexts. We propose a more interdisciplinary approach to understanding environmental decisions that seeks to identify legitimate and context-sensitive institutional solutions producing equitable, efficient and effective outcomes. We examine two examples that illustrate the indivisible and integrated nature of the four criteria in actual environmental decisions. The first example relates to international efforts to reduce greenhouse gas emissions and the second one to local resource management in the UK. We utilise the example to outline a new agenda for future research on environmental governance and decision-making.

Keywords

Environmental governance, environmental decision-making, institutional arrangements, interdisciplinary research, contextuality

'Culture is not a power, something to which social events, behaviours, institutions, or processes can be causally attributed; it is a context, something within which they can be intelligibly - that is, thickly - described' (Geertz, 1973: 14).⁷

1. Introduction

In a seminal article published 30 years ago, Clifford Geertz (1973) advocated 'thick description' in anthropology. For Geertz, thick description was a strategy that on one hand avoids the descriptive, non-cumulative cataloguing of 'culture' while at the same time does not succumb to universal theorising that is detached from the rich texture and meaning of everyday life. One of the hallmarks of thick description for Geertz was generalisation instead of theorising – the identification of connections and general patterns that are characteristic of a certain context (pp. 25-26). Geertz offered thick description as one way to overcome the methodological caveats that he perceived were plaguing anthropological scholarship.

In this article we examine a specific culture, to use Geertz's terminology, that of analysing and making environmental decisions. We feel that the need for reflexivity in this area is just as great as Geertz felt it was in anthropology. That need arises from the tendency for scholars to focus on particular facets of environmental decision-making. Generally speaking, economists tend to focus on economic efficiency (see Helm, 2001; Toman, 2001), by which they mean the extent to which a course of action leads to an improvement in net social welfare. Engineers, planners and some policy scientists concentrate on the question of effectiveness (see Desimone and Popoff, 2000; Grant *et al.*, 2001; Miles *et al.*, 2001; Young, 1999), namely the extent to which a decision achieves its objectives (which for most environmental decisions is improving environmental quality). Meanwhile, equity and legitimacy have traditionally pre-occupied sociologists, political scientists, and critical scholars (see Harvey, 1996; Low and Gleeson, 1998; Schlosberg, 1999). Equity relates to the distributional consequences of a decision, whereas legitimacy is a measure of the 'rightness' (or social acceptability) of a course of action.

In reality, most of those who are actually making environmental decisions will attest to the interconnectedness of these four criteria of 'good' environmental governance. Thus, however efficient or effective a decision, things tend to unravel if it seriously compromises equity or legitimacy. In a similar vein, the supposed equity or legitimacy of a decision does not seem to justify its lack of efficiency and effectiveness. Therefore, scholars need to engage with the

interconnections between the four criteria that most decision makers are used to wrestling with in the course of their daily lives. This is not just a theoretical matter; inasmuch as academic research informs decision making, it must be partially responsible if policy outcomes fail to be delivered.

Recent experience suggests that the failure to address all four criteria has contributed to contemporary environmental controversies. For example, environmental NGOs and developing country representatives criticise proposals to use trading systems in the mitigation of climate change, arguing that these choices seek efficiency at the cost of equity. Economists typically expound an opposite view – that a requirement for domestic mitigation activities would compromise efficiency. Similarly, the designation of exclusive areas for biodiversity protection may seek to achieve effectiveness but often negates economic efficiency as well as equity and legitimacy. Meanwhile, recent attempts to make policies more legitimate by adopting ‘deliberative and inclusionary’ processes, have not always considered the impact on the efficiency and effectiveness of decision-making. Another example is environmental taxation. Promoted by environmental economists for well over three decades, these taxes are still not nearly as popular as their supposedly less efficient alternative – regulation. One reason is that taxes lack legitimacy as they are not seen to morally penalise polluters. Yet another example is the ban on trade in endangered species or related products. Here the omission of efficiency and equity dimensions partly explains the emergence of lucrative black markets for the very species that were supposed to be protected by the ban. Finally, controversies over the use of genetically modified organisms result from inequitable distribution of costs and benefits as well as the perceived illegitimacy of non-participatory private decisions on their development. To an extent, academic scholarship relating to these and other environmental controversies has been used by protagonists to perpetuate these shortcomings, by drawing on one line of scholarship to the relative exclusion of others.

The failure to consider efficiency, equity, effectiveness, and legitimacy together, has adversely affected environmental decision-making and disrupted transition to sustainability. After all, efficiency relates to economic sustainability; effectiveness to environmental sustainability; equity to social sustainability, and legitimacy to the viability of the transition itself. Research strategies employed in the environmental social sciences are partly responsible for this. The development of more broad-based research strategies is necessarily an interdisciplinary or transdisciplinary enterprise. It is also a necessary one, if we hope to improve our environmental decisions. In this article we propose a strategy that examines the inter-relationship between the goals of efficiency,

effectiveness, equity and legitimacy (EEEL) as independent dimensions of environmental decisions.

The remainder of our argument unfolds as follows. Section two examines how social sciences have gravitated towards particular elements of EEEL, and then describes our own synthetic EEEL strategy. Section three argues that the pluralism of EEEL must be accompanied with attention to institutions, context and scale in order to overcome problems associated with the universalism of existing scholarship. The fourth section presents two vignettes of contemporary environmental problems, which demonstrate the importance of our approach. The final section outlines a future research agenda that emerges from the adoption of a multi-dimensional and context sensitive research strategy such as EEEL.

Before proceeding, it might be useful to define what we mean by ‘a decision’. A decision is, of course, a judgment or a verdict on a particular issue. Most of the decisions which we shall refer to will be decisions about the preferred course of environmental or sustainability policy. David Easton (1953, 130), who was one of the founding fathers of public policy analysis, defines policy as ‘web of decisions and actions that allocate... values.’ These decisions can therefore occur at every stage of what is often termed ‘the policy cycle’. That is to say, they can be decisions about what is (or is not) ‘a problem’ (i.e. agenda setting); decisions about what policy to adopt to address that problem (i.e. policy making); and decisions about how to implement the preferred policy (i.e. policy implementation) (Parsons, 1995; Barrett and Fudge, 1981). In the remainder of this paper, we refer to ‘decisions’ in this broad sense, to mean decisions about the allocation of resources and values in society, which can (and often do) occur at all stages of the policy process, often simultaneously.

By ‘environmental decisions’ we mean decisions that affect the content and application of environmental policy. Space does not permit a comprehensive analysis, but broadly speaking environmental policy addresses the relationship between humans and their natural environment (Jordan, 2001). The defining characteristics of environmental policy and decision-making: the regulation of public goods, the resolution of problems which are scientifically complex and uncertain; the explicit concern with inter-generational and cross-national problems; the concern for the well-being of non-human interests (Jordan, 2001).

2. Understanding Environmental Decisions: From Monism to Pluralism

Environmental social scientists have tended to focus in their research on one dimension of environmental decisions. For example, economists frequently criticise past and proposed environmental decisions as inefficient, promoting their own alternatives on the grounds that they imitate efficient market outcomes (Helm, 2001; Toman 2001). Natural scientists, engineers and planners concentrate on identifying the most effective environmental outcomes (Desimone and Popoff, 2000; Grant *et al.*, 2001; Miles et al., 2001; Young, 1999). Meanwhile, more critical scholars, political scientists and sociologists are sensitive to the inequity of some environmental decisions and/or their perceived lack of legitimacy and social justice (Harvey, 1996; Dobson, 1998; Low and Gleeson, 1998; Schlosberg, 1999).

The tendency for disciplines to focus on one of the four dimensions of environmental decisions to the relative neglect of others has several drawbacks. First, it results in misleadingly narrow understanding of environmental decisions that trivialises actual difficulties in making environmental choices and in implementing them through the establishment and change of institutional arrangements. Second, it results in promotion of partial solutions, which are not legitimate for those who do not share the concerns of a particular disciplinary perspective. Third, environmental decisions frequently result in unexpected consequences and fail to realise sought after goals.

While this is a deliberate caricature of social research on the environment, it sheds light on some problems that plague our efforts to understand and improve environmental decisions. Disciplinary social scientific approaches are, consciously or subconsciously, bound to particular paradigmatic tenets and exhibit these in research on environmental decisions (see Guba, 1990; Guba and Lincoln, 1994). We believe that the ability of any one discipline to explore the links between the four dimensions of environmental decisions is limited. Interdisciplinary and transdisciplinary approaches remain an appealing, but all too rarely applied alternative (see McNeill, 1999). An interdisciplinary approach encompassing several disciplinary perspectives could acknowledge the different dimensions of environmental decisions more comprehensively.

We argue that there is a possibility for a broad, social scientific approach to environmental decision-making. The interdisciplinary (or transdisciplinary) approach we envision is not a crude combination of disciplinary perspectives: it is a synthetic approach that amalgamates aspects and concepts from different disciplines so as to enable interdisciplinary or transdisciplinary work both at the individual and team level. We argue that this, more pluralist view of

environmental decision-making, can be achieved by paying adequate and simultaneous attention to the four main elements of EEEL. This requires a departure from the simplistic ontology that underlies disciplinary research strategies and its substitution with a more ambivalent and complex ontology that can reflect the realities of everyday decision-making (see Guba and Lincoln, 1994). In what follows, we will discuss each core concept of the approach in greater detail.

Efficiency is the dimension of environmental decisions that receives the most attention in economics. Definitions of efficiency range from broad ones focusing on the optimality of all input-output ratios to narrower ones understanding welfare sacrifices and gains as the input and output. Here we will understand efficiency in the narrower sense as being related to welfare-maximisation. We will address other understandings of input-output ratios through the concept of effectiveness (see below). Because of its exclusive focus on human welfare, efficiency is a contested guideline for environmental decisions (see Bromley and Paavola, 2002; Holland, 2002; Dore, 1999). Critics within and outside mainstream economics have argued for a wider array of values to be incorporated in to environmental decisions. The key for many critics is the need to embrace value pluralism (see Anderson, 1993), which translates to the need to accommodate other values in addition to human welfare in the making of environmental decisions. The acceptance of pluralism also means that smooth trade-offs cannot be made between goals based on different values: deliberation must be used to muster good reasons for establishing priorities and making compromises (see Holland, 2002; Bromley and Paavola, 2002).

Effectiveness has mostly concerned engineers, planners and policy scientists (see Desimone and Popoff, 2000; Grant *et al.*, 2001; Young, 1999). An economic interpretation of effectiveness relates to the cost of achieving a given goal or to the outcome achievable by a given cost. In common parlance, effectiveness relates to the capability of a decision or policy alternative to achieve its expressed objectives. As a concept, effectiveness is useful because it acknowledges those choice outcomes that are not encompassed by welfare concerns. These other dimensions may, for example, relate to public health as distinct from any usual notion of social welfare or to intrinsic values attributed to certain states of the environment. An increasingly popular method of analysis that focuses on effectiveness is multiple criteria analysis (see Keeney and Raiffa, 1993; Triantaphyllou, 2000).

Equity or justice is studied in sociology, political science and jurisprudence as well as in critical scholarship. Generally speaking, an equity perspective

focuses on the distributional consequences of environmental decisions (see Harvey, 1996; Low and Gleeson, 1998; Rinqvist, 1998; Schlosberg, 1999; ESRC GEC Programme, 2001). We consider equity a consequentialist concept that relates to the *acceptability* of environmental decisions from a distributive point of view. Again disciplinary approaches tend to have their own views of what constitutes equity. For example, environmental justice literature has often started from a standpoint that equity implies equality in the exposure to environmental hazards and access to environmental assets (see Weinberg, 1998). Economists on the other hand typically associate equity with preference satisfaction or the incidence of costs and benefits (see Aldy *et al.*, 1999; Whitehead, 2000). However, in practice rules of equity vary from one context to another, and for a good reason (Bromley and Paavola, 2002; Radin, 1996; Walzer, 1983). Sometimes equitable principles may require distribution according to contribution, while at other times need or equality may be the proper basis for equitable decisions.

The concept of *legitimacy* intrigues political scientists and sociologists more than other scholars. Legitimacy relates to the ‘rightfulness’ of a decision – the extent to which it is accepted by the participants. Unlike the concepts discussed above, legitimacy is not concerned with the consequences of environmental decisions. Rather, it focuses on their deontological or procedural dimensions. For political scientists, the notion of legitimacy has to be linked to social rules, beliefs and norms (Beetham, 1991). Legitimacy can be gained (as well as compromised) through the process of making environmental decisions (see Brechin *et al.*, 2002; Smith and McDonough, 2001). Rules and practices that regulate participation in environmental decision-making, and determine how environmental decisions are made, are in effect intimately tied to legitimacy. Yet there is no set of procedures that would universally guarantee the legitimacy of environmental decisions. On the contrary, expectations and interpretations that define what is or is not legitimate are partly culturally and socially constructed, again highlighting the need to develop contextual understandings of determinants of legitimacy, instead of acting on pre-determined (disciplinary) *a priori* assumptions. Finally, legitimacy also explicitly brings into focus questions of political power. According to Beetham (1991), the powerful in society maintain their privileged position by ensuring that their power-relationship with their subordinate is legitimated in systems of rules, conventions and institutions. Environmental conflicts often turn on questions of legitimacy i.e. they are often triggered when the powerful in society seek to act in ways that are regarded as manifestly illegitimate.

Together these four dimensions of environmental decisions constitute a broad-based approach to environmental decision-making. Interest in effectiveness

acknowledges a potentially broad range of values and goals that may inform and guide the assessment and making of environmental decisions. Interest in equity sheds light on the distributive outcomes of decisions. Acknowledgement of efficiency brings up the welfare consequences of environmental decisions, which will remain important although not exclusively so. Finally, attention paid to legitimacy highlights the process of environmental decision-making.

This interdisciplinary framework for the study of environmental decisions accommodates plural methodologies and methods. It encompasses enquiries that focus on macro-level outcomes of environmental decisions as well as those which examine the experiences of individuals participating in (or left out of) environmental decision-making. These studies can be based on quantitative or qualitative methods, case studies, or historical inquiries (see Guba, 1990; Guba and Lincoln, 1994). This sort of pluralism enables interdisciplinary research to harness a wide range of materials and sources to understand environmental decision-making from different perspectives, and yet to draw lessons that are comparable, transferable and instrumentally useful.

In what follows, we will discuss in greater detail how attention to efficiency, effectiveness, equity and legitimacy must be accompanied by sensitivity to institutions, context and scale.

3. Adding Resolution: From Universalism to Contextualisation

Environmental social sciences have generally aimed to produce understandings that can be applied to environmental governance in a range of social settings. By environmental governance we mean here the resolution of environmental conflicts through the establishment, reaffirmation or change of institutional arrangements, which may either facilitate or limit the use of environmental resources (see Young, 1994: 15). The emphasis on the universal in environmental social sciences may have been counterproductive. Namely, environmental problems and decisions made as a response to them evolve within and are influenced by particular economic, political, social, cultural and ecological contexts that may pertain to different and perhaps multiple geographic scales. So in addition to the issues of efficiency, effectiveness, equity and legitimacy we have discussed so far, we argue that the analytical concepts of institutions, context and scale are essential to understand the challenges of environmental decision making and governance.

Institutions are important for understanding environmental decisions and governance in several ways. Douglass North (1990) defined institutions as 'rules of the game' – as the sets of rules and norms that regulate human behaviour and interaction. He also distinguished between 'institutional framework' and 'institutional arrangements'. For North, institutional framework referred to the totality of institutions. With institutional arrangements he referred to narrower sets of rules that govern particular actions. Others, such as Ciriacy-Wantrup (1971), Kiser and Ostrom (1980) and Bromley (1989) have proposed three-tier models of institutions, which distinguish between operational, institutional and constitutional levels. These kinds of structured models of institutions are necessary for a thick understanding of environmental decisions.

At the lowest and most commonly studied level, governance institutions resolve environmental conflicts by establishing the rights and duties of involved agents. For many practical purposes, it is convenient to refer to all other institutional arrangements as the institutional framework. However, agents do act in multiple fora, can exert in a forum power gained in other fora, and are facilitated and constrained by upper level institutions. Thus for other purposes distinction must be made between institutions that comprise the institutional framework. Intermediate level of institutions govern institutional choices, while constitutional rules create agents, such as citizens, firms and governmental entities, as well as the fora in which the agents participate in institutional choices.

A structured model of institutions reminds us that upper level rules can constrain institutional alternatives and choices at lower levels. For example, rules regarding standing in the courts long hindered the participation of environmentalists in the courts in the United States (see Orren, 1976). For example, participation in environmental decisions has largely taken place through citizenship which vests agents with certain individual political rights. More collective forms of, for example, stakeholder group participation are a recent and still evolving phenomenon. The structured model of institutions also reminds us of the fact that the power of agents is partly created by institutions that constitute them and facilitate their pursuits by granting particular rights, duties, powers and immunities (Bromley, 1991). Agents can also mobilise power gained in certain arenas to forward their interests in other arenas. Finally, fundamental change in governance outcomes often requires institutional changes in all levels. For example, the activism of US environmental groups in the courts in the 1960s and 1970s sought to alter particular environmental outcomes, but it also transformed higher-level institutions that altered the balance of power.

At a more pragmatic level, institutions play a significant role both in causing and in addressing environmental change (Bromley, 1991; O'Riordan and Jordan, 1999; Young, 2002). In environmental decision-making they shape the perception of environmental problems and how they are acted upon. For example, Much research has been conducted on the role of institutions collective action on managing resources (Ostrom 1990; Bromley 1992; Oakerson 1992). Institutions are also embedded in the specifics of culture, history, and social practices, which vary substantially across different social settings (Cleaver, 2000; Granovetter, 1985; Mosse, 1997). Environmental problems and professed solutions to such problems may thus be constructed differently in different contexts meaning that generalisations from specific cases must be treated with caution. Yet surprisingly even within inter-disciplinary research on collective action stemming from anthropology, economics, human ecology, and political science, analytical frameworks have come under criticism for not giving sufficient attention to contextual factors or local and global dynamic forces that affect the choices available to actors (see Edwards and Steins, 1999; Metha *et al.*, 1999).

Scale is related to the way environmental change occurs in the dimensions of space and time (Young, 2002). Research on environmental governance has conventionally focused on separate levels of decision-making, such as the implementation of international regulations, the evolution of particular national policies and the rules developed by local communities to govern the use of natural resources. There is a growing awareness that important linkages exist

between levels of decision-making as illustrated in the examples of climate change and local resource management in the next section. International rules concerning trade in endangered species, for example, have significant implications on the livelihoods of local populations harvesting such species for sale. Conversely, actions of local communities in the protection of resources upon which their livelihoods depend can have cumulative effects on the emergence and resolution of global problems such as the loss of biodiversity. Given the linkages between decisions at different levels, research on environmental governance has to be able to grasp the complex interactions between diverse and often spatially and temporally distant forces and institutions.

Calls to pay more attention to context originate to dissatisfaction with the proposals for universal application of either market forces or institutional blueprints to 'solve' environmental problems (e.g. Bromley, 1998). Edwards and Steins (1999), for example, propose to use continuum of contextual factors ranging from local to remote ones. Their analytical strategy is to trace back or 'backsolve' from resource use outcomes to contextual factors by focusing on the choice sets available to resource users in terms of (i) the products and services demanded of the resource system, (ii) the different decision-making rules possible, and (iii) the composition and characteristics of the user community. This approach, however, only addresses how local resource users are impacted upon by successively higher levels of political economic and other forces.

It is obvious that attention must also be given to how local actors make use of different scales of action and the relationships between them in order to further their own objectives (Bebbington and Batterbury, 2001). From international agreements on global environmental issues, through to everyday decisions on consumption by individuals, the implications of every decision is felt by those downstream in time and in space. But this more than simply saying that every human action is connected to every other. We argue that every decision on resource use affects the relative scarcity of the resource and that the scales of decision-making are themselves socially constructed (Gibson *et al.*, 2000; Cox, 1997).

Indeed, the interplay of dynamic forces between levels of environmental decision-making is a vital area for study, along with its implications for actors and institutions at all levels. For example, successful strategy to change consumption patterns requires a synergistic combination of top-down policy innovation and enablement, and bottom-up grassroots commitment and action. There are three key levels of implementation to consider, each of which brings a fresh perspective and dynamic to the overall achievement of sustainability goals. While international organisations such as UNCED provide broad

frameworks such as Agenda 21, and national governments interpret these guidelines into policy (regulation, plus economic and social instruments), it is often at the level of local government and community that sustainability is translated into meaningful consumption choices for individuals and households. However, this is not a one-way process. Community groups and local authorities develop sustainable consumption strategies that filter up and influence wider policy fora. Individual consumer actions also need to be reinforced by policy and given meaning through international sustainable trade agreements covering social as well as environmental issues (see Jenkins, Seyfang and Pearson, 2002).

Political ecology provides useful insights into the importance of focusing the analysis of environmental governance at different levels and the relationships between them. Blaikie and Brookfield (1987) propose the use of 'chains of explanation' as an analytical tool to link socio-economic and political processes happening at various levels with environmental outcomes at the local level. Others highlight the interconnection of politics and power in environmental governance (Bryant 1998, Bryant and Bailey 1997). Political ecology also draws attention to multiple scales of action and decision-making linking local to national and global processes. Brown and Rosendo (2000), for example, analyse how the implementation of extractive reserves in Brazilian Amazonia as a strategy to integrate conservation and development has been shaped by the interaction between grassroots organisations, environmental NGOs, government agencies and multilateral institutions located in multiple sites with contrasting knowledge systems and goals in natural resource management. Similarly Brown (2002) discusses how decisions about carbon sequestration in forestry weigh up costs and benefits at different scales, on the one hand the global community interested in sequestering carbon from the atmosphere to mitigate climate change, to local forest resource managers concerned with maximising benefits from managing a range of diverse forest resources. Such issues call into question how decision-making institutionalised, and what is the optimal level of decision-making (if any).

In the operationalisation of environmental decision-making the issues of context and scale are related. Two trends are currently observed in environmental governance. On the one hand there is a move towards devolution, which is giving rise to community-based approaches to natural resource management. On the other hand, discourses of global environmental change promote global approaches to environmental problems (Dryzek, 1997), although they sometimes undermine local resource users' control over their environments (Mehta *et al.*, 1999). Environmental decisions taken at higher levels are less likely to take into account the variation of social and ecological systems at the

local level. International and national Rules and regulations are frequently poorly suited to local social circumstances and the dynamics of local ecosystems. This is because they are broad and generic while the problems they seek to address are often highly specific and evolving, both socially and ecologically.

The concept of scale begets two further questions. Firstly, it is typical to distinguish between those who make decisions, those who enforce and monitor compliance with decisions and those who are subjected to decisions. This influences the efficiency, effectiveness, equity and legitimacy of environmental decisions. If the voice and priorities of the subjects of environmental decisions are not engaged in the decision-making process, the likelihood of resulting decisions being effectively implemented is small. The best option to address the mismatch between decision makers and decision recipients is the use of inclusionary decision-making processes in which multiple interests are negotiated in an attempt to reconcile EEEL objectives (Holmes and Scoones, 2000). Secondly, environmental governance is neither small-scale nor large scale but cross-scale (Berkes, 2002). Ostrom and colleagues (1999) argue that institutional diversity is necessary to tackle complex environmental issues, and that lessons from local and global resource management highlight the challenges for managing large scale environmental or global commons resources. For example, scaling up increases the number of participants making organising, agreeing and enforcing rules difficult, and increasing cultural diversity means finding shared interests and understandings problematic. This means that environmental problems must be addressed simultaneously at multiple levels. However, it is still unclear how local level bottom-up participatory approaches to environmental governance can articulate with international and national top-down regulatory strategies.

In many cases, local initiatives are frustrated and undermined by upper level institutions and policies and values embodied therein. For example, LETS is a community-based local currency initiative in the UK with strong environmental and social objectives, which is supported by local councils under their commitment to Local Agenda 21. LETS struggle to achieve their potential, partly due to restrictive government policies governing the participation of those out of work (Seyfang, 2001). This indicates more than a simple lack of 'joined up thinking' between government departments, although that is certainly a factor here. It represents a fundamental mismatch of values and objectives between actors in different institutional and societal contexts. The consequence is a limited range of possibilities for action towards sustainable development, particularly for the more socially and financially excluded, and those with least power to determine the outcomes of environmental decisions affecting them.

The tools and frameworks themselves which people use to implement sustainable consumption strategies may be technically illegitimate, for example unemployed people participating widely in local currency transactions. Yet these initiatives may be what emerges from grassroots movements towards sustainability. The interactions between civic action, state legislation, and legitimacy deserve detailed inspection.

Research has proposed new institutional arrangements capable of protecting the legitimate rights and interests of local actors within larger governance structures aimed at addressing higher-scale problems. However, in structures involving institutions and actors with contrasting perceptions and goals, and in particular asymmetric distribution of power, local stakeholders may continue to find it difficult to have their interests recognised alongside the interests of other stakeholders. Additionally the scale of institutions will differ according to the bio-physical nature of the environmental issue and the ecosystem they seek to manage (Hanna *et al.*, 1996). Such issues have been called problems of fit (Brown and Rosendo, 2000; Pritchard *et al.*, 1998; Young, 2002). According to Ostrom *et al.*, (1999) overcoming these obstacles requires innovative forms of communication, information and trust in order to make links between scales and to make broader applications generalisable and transferable from one context to another.

4. Playing Out Efficiency, Equity, Effectiveness and Legitimacy; Globally and Locally

How then are EEEL played out in practice, and how can they be analysed in different decision-making contexts? In this section we briefly review two very different instances of environmental decision-making. One is international decision-making in response to global climate change, the other a local conservation management decision from eastern England. These instances are used not as detailed case studies or analytical exemplars, but as vignettes to illustrate how EEEL are intrinsic to decisions and how they are linked and perceived by different actors in decision-making. The four elements are both aspects of decision-making processes, and outcomes of decisions and policy. The vignettes effectively demonstrate that we cannot justify an approach that elevates one of these criteria at the expense of the others. Thus, in every environmental decision, ranging from international agreements on global environmental issues through to everyday decisions by individuals about consumption, considerations of efficiency, equity, effectiveness and legitimacy are present. We contend it is most fruitful to explore environmental decisions by considering the four dimensions together. Significantly, the two examples reveal linkages between global and local sustainability, the multi-level nature of environmental governance and collective action, and the nature of trade-offs between efficiency, equity, effectiveness and legitimacy.

4.1 Regulating global climate change: dilemmas in decision-making

Global climate change presents a significant challenge to structures of governance at all temporal and spatial scales, particularly in the area of natural resources (Adger, 2001). Its impacts are being observed already and in the future are likely to be unevenly distributed to an even greater degree than present (IPCC, 2001). Thus, the scale of action required to avoid potentially catastrophic impacts of climate change is very significant and will in itself have enormous consequences on societies, technological development and individual behaviour. Climate change is, in one sense, a truly global environmental problem. But at the same time, it is recognised that prescriptions based on global institutional action are being promoted by institutions with their own interests in constructing a global set of problems and solutions (Adger *et al.*, 2001; Goldman, 1998).

Global institutions are not an appropriate set of governance structures for all aspects of climate change. On one hand, there is need for global action to reduce greenhouse gas emissions. This need is articulated in economic and political analyses (Kaul *et al.*, 1999; Sandler, 1997), and operationalised through the international legal agreements, namely the UN Framework Convention on

Climate Change. However adaptation to the impacts of climate change is not organised at the global scale. Some adaptations by individuals are planned while others may be spontaneous reactions to changing circumstances related to resource use (in agriculture, forestry and other sectors) or related to changing economic constraints or opportunities (Adger, 2001).

Mitigation policies and adaptation actions generate both winners and losers. Within the UN Framework Convention on Climate Change (FCCC) process responsibilities for mitigation of greenhouse gases are debated in terms of present day equity and fairness. The Kyoto Conference of the Parties of the FCCC in 1997 for the first time directly linked adaptation to mitigation in terms of the costs to society. The economic rationale behind participation in an internationally co-ordinated plan of action such as the Climate Change Convention is highlighted by Barrett (1998) who argues that the Kyoto Protocol must produce a favourable benefit-cost ratio for each actor - the absence of a perceived favourable outcome leads to non-participation. This is borne out by the non-ratification of the Kyoto Protocol by the US that admits the costs of mitigation (in terms of foreclosing cheap but polluting energy sources) as too high a cost on its consumers – in the words of the American president at the time of the negotiation of the Kyoto protocol, ‘the American way of life is not up for discussion’. Yet clearly this free-riding has consequences for the most vulnerable sections of society.

Justice within mitigation issues surrounds both the historical responsibility for enhancing atmospheric concentrations of the main greenhouse gases and in allocating present and future responsibility for action. Thus, if the majority of the greenhouse gas increase has been from industrialisation and prior land use change, does natural justice suggest that presently industrialised countries should make proportionally greater contribution to reducing emissions? Neumayer (2000) argues that the scientific reality of long-lived greenhouse gases, the polluter-pays-principle, and arguments over ‘equality of opportunity’, merit present day action on the basis of historical responsibility. Despite the deployment of such arguments (e.g. Meyer, 2000; Müller, 2001, Sagar, 2000), the reality of allocation of responsibility and hence ‘burden-sharing’ within the UNFCCC process is a fundamentally pragmatic and political process subject to both national interests and diverse lobbying interests (see O’Riordan and Jordan, 1996). Similarly the diversity of national approaches to meeting Kyoto targets reflects national political styles, underlying geographical differences in energy and land use, as well as aspirations for future economic growth based on continual development trajectories (Rayner and Maolne, 1998). Vested interests appeal to notions of equity in promoting their own causes. Thus, in the UK the road lobby highlights the impact of higher fuel prices on marginalised social

groups and those in remoter parts of the countryside, highlighting the reality that such fiscal measures in energy and transport (as well as regulation in these areas) can potentially be regressive in their impacts (Tindale and Hewitt, 1999). But the deployment of these arguments is based less on advocacy for the socially excluded than on promoting the status quo in energy and transport use – rural deprivation in rural United Kingdom is more a factor of mobility deprivation than of high fuel costs (Cloke *et al.*, 1995).

Thus the major global decision of the adoption of the 1997 Kyoto Protocol incorporates and embraces all elements of the pluralistic framework on efficiency, equity, effectiveness and legitimacy outlined above. But the analysis of this decision has been almost exclusively focussed on efficiency goals. This desire to incorporate efficiency goals led to the Protocol itself being designed with the least-cost market-based mechanisms to the fore. But it has widely been argued, by observing the negotiation and reaction to it, that the focus on efficiency in analysis of climate change policy responses has, in effect, undermined the voices clamouring to be heard on equity and the legitimacy of the process and has undermined its implementation. Equity implications of climate change are central to decisions both on mitigation measures and on adaptation measures. The legitimacy of the debates on climate change are intimately bound up with the social construction and contested nature of the science of climate change (Clark *et al.*, 2001), while the issue itself acts as an icon for new social movements, particularly opposed to economic globalisation and its manifestations. What is also apparent is that there are tensions and trade-offs between the efficiency, equity and legitimacy criteria.

4.2 Local conservation management: The Norfolk and Suffolk Broads

These characteristics are common to apparently localised and less contested environmental decisions as well. If we focus on a specific local decision (i.e. decision as defined earlier in this paper) taken in the late 1990s to conduct a pond-weed cutting programme in the wetland of Hickling Broad, located in the east of England (described in Ledoux *et al.*, 2000) these same features and dilemmas emerge. Much planning for sustainable development consist, in essence, of actions taken by public bodies in some sense representing the interests of wider society but at a local level. In making such decisions, there are trade-offs between conflicting demands and principles, reflecting wider social values (Owens 1997; Cowell and Owens 1998). In the case of conservation of habitats and biodiversity, the decisions are intimately bound up with the social construction of what constitutes nature, and what is considered to be critical to conserve. In addition, such local decisions are not immune from the inequities and lack of legitimacy that arise from the uneven distribution of power that

results in poor or illegitimate environmental decisions at other levels of governance.

The decision in the late 1990s to cut weeds in Hickling Broad was taken by the statutory body responsible for its management: the Broads Authority. In taking this decision, the Broads Authority had to balance navigation and competing nature conservation objectives because Hickling Broad is not only important in terms of its wildlife; it also has recreational and commercial value (Jackson *et al.*, 2002). Crucially, these different stakeholders tend to pursue contrasting goals and support diverse values and, significantly, possess greater or lesser degrees of power in the decision-making process.

Since the 1950s the Broads in general, and Hickling Broad in particular, had suffered episodes of ecological degradation and recovery. For example, during most of the 1970s and 1980s, aquatic plant populations were reduced and boating was possible unhindered over large sections of the Broad. However, in the 1990s the aquatic vegetation increased (including a population of the rare and important plant, Intermediate Stonewort) and this was seen as a particular impediment to boating. As a result, the Broads Authority began with a series of small-scale cutting trials in 1994, and after much lobbying from the boating community (Jackson *et al.*, 2002: 3) this was followed by more extensive cutting in 1995.

In 1998, a dramatic change occurred when water clarity in the Broad improved significantly and the pond-weed grew to an unprecedented height. The Broads Authority then proposed to undertake a more extensive cutting programme, beyond the traditional navigation channel in the Broad. However, English Nature as the national statutory nature conservation agency, opposed the cutting programme on the grounds that it would be likely to have a significant detrimental effect on conservation of protected species. In the spring of 1999, the Broads Authority then set up an independent panel of experts to assess the ecological significance of the proposed plant-cutting programme. The panel responded in July 1999 and unanimously agreed that the extensive cutting programme originally proposed did pose a threat to the integrity of the ecosystem. It recommended a reduced cutting programme that was to be completed by August 1999. The scale of plant cutting approved by the Broads Authority was in line with the panel's recommendations and meant that boating activity across the Broad would be severely curtailed.

The Broads Authority decision to cut the pond-weed on a limited basis is based on analysis of economic efficiency because of the constraints on the institution to produce 'best value' in its planning and expenditure. But the decision may

equally be regarded as one which primarily has implications for social justice in terms of the fairness of prioritising conservation objectives over navigation objectives, or in terms of legitimacy in terms of the decision-making process itself (i.e. whether it is inclusionary or not; to what extent it reflects the asymmetrical distribution of power). The manner in which the Broads Authority reached its decision through employing a panel of experts and conducting limited experimental cutting is, in one sense, a cautious and cost-effective use of its resources. However, in terms of the effectiveness of the decision when measured against its own objectives, the Broads Authority may not be perceived by the stakeholders involved as having been successful: nature conservation objectives were given priority over navigation, whereas the Broads Authority is expected to give equal or balanced status to these objectives. Such an outcome may be regarded by the stakeholders as inequitable - conservation 'won' while boating 'lost'. The lack of extensive consultation in the decision-making process may lead the excluded groups to regard the decision as being illegitimate. It might be perceived by some as a 'victory' for the 'powerful' over the 'powerless' or less powerful. Viewing the decision through the multidimensional EEEL framework reveals the tensions and trade-offs entailed in this local decision.

This example not only illustrates the significance of principles in environmental decision-making but also some of the problems of operationalising or implementing policy. It exposes difficulties associated with determining the 'optimal' level of decision-making. When the Broads Authority took the decision to undertake some limited cutting of the weed, it was not simply a local one. Crucially, in reaching its decision, the BA had to take into account the demands of national regulatory bodies (i.e. English Nature), European Union legislation and wider international biodiversity agreements. This highlights the multi-level and multi-scale character of environmental decisions (Fairbrass and Jordan, 2001).

5. Towards a New Research Agenda

We have argued that efficiency, effectiveness, equity and legitimacy are reconciled one way or another in actual environmental decisions, but are not usually attended to or integrated in either *ex ante* or *ex post* analysis of such decisions. Our two examples illustrate the need for a holistic analytical approach which recognises the complex and context-specific nature of environmental decisions, the centrality of institutional arrangements and designs for the implementation of these decisions, and the ultimate unpredictability of their consequences both across space and time. We now propose some lines of inquiry that would contribute to the development of such a new research strategy.

First, we argue that there is a need for serious consideration of meta-analytical questions on what constitutes a decision, who is a decision-maker, and the relationships between processes and outcomes of decision-making. In the discussion here we have presented examples where there are clear and discrete actions and entities which constitute decisions. All resource and environmental outcomes in themselves can be characterised as human decisions to conserve, preserve or utilise the world around us. But resource outcomes are more than simply the results of a set of decisions, or even non-decisions, as hypothesised by political and other scientists. At other levels it is clear that humans are part of co-evolving social and ecological systems. A renewed interest in the organismic nature of the earth and of Gaian principles within the natural sciences attests to the need for reconceptualisation of human agency in the 'natural' and in the 'created' environment.

Secondly, we need to improve our understanding of the institutional framing and embeddedness of environmental decisions. Actors participating in environmental decisions such as citizens, voters, plaintiffs, defendants, judges, political representatives, and administrators are not natural: they are constituted by institutions which define their rights, duties, power and immunities. These actors participate in decision making to a variable degree in various arenas such as local politics and government, the courts, national politics and administrative decision making, the media, and international fora such as the conferences of the parties to FCCC. These arenas of action are all continually evolving institutional creations that follow different rules of decision-making and interact in complex ways. These arenas also influence the behaviour of actors. As Sagoff (1988) has argued, we may behave as consumers in the marketplace but are not necessarily willing to assume that role with regard to the making of environmental decisions. Yet the institutional framing of environmental decisions probably has more complex consequences for behaviour of actors than

that: institutions influence what goals actors pursue and what choices and choice processes they will consider legitimate. There is an urgent need to conduct research on these issues so as to develop generic strategies and concepts that allow comparative analysis across decision making contexts and the drawing of transferable lessons across scales and contexts.

Thirdly, understandings of how environmental decisions are translated into governance outcomes could be improved. As already argued here, there is a need to simultaneously account for efficiency, effectiveness, equity and legitimacy, potentially at different scales and in different contexts. However, the task is bigger than that. The first element is to develop a robust conceptual understanding of policy problems that facilitates generalisation, classification, and comparable observations. The second element is to develop new ways to analyse policy responses themselves. Environmental decisions are implemented by the establishment, reaffirmation or change of governance institutions and it is obvious that the choice of institutional designs influences governance outcomes. Yet the analysis of governance institutions is still relatively rudimentary. For example, for an economist, an environmental fee is just a price confronting an environmental decision maker while for the lawyer drafting the legislation that establishes the fee - as well as for the politicians who decide on the passage of the proposed legislation - the task is much more detailed and complex. A thick understanding of the consequences of environmental decisions requires an intermediate solution between the foregoing two extremes - a solution that enables the making of general (albeit not necessarily universal), comparable and transferable observations about the adopted institutional arrangements and the problems they are supposed to resolve.

Fourthly, the normative foundations of the new research on environmental decision-making must be formulated. Instead of following economics in its strategy of welfarist prescription, or that of criticism on equity grounds which has characterised many other social scientific approaches, we suggest that the future research on environmental governance should consider legitimacy as the fundamental focus of its normative concern. There are several reasons for this. First, as a normative standpoint, concern for legitimacy is broad and it can accommodate a number of consequentialist concerns and outcomes. Therefore, it does not straightjacket environmental decisions within narrow normative constraints. Secondly, as a normative concern, legitimacy reaffirms fundamental liberal and democratic values and respects (at least the spirit) of the decision-making processes through which environmental decisions are made. One consequence of this is that policy-relevant research should assist in realising those goals and values that inform environmental decision-making, instead of seeking to impose its own (consequentialist) agenda on it. Yet legitimacy alone

is unlikely to offer a sufficient normative foundation for a normative use of a research strategy. A legitimate decision annihilating a species, or perhaps the humanity, does not strike as one that should be endorsed. Thus a broader commitment to pluralism is needed which alarms if important consequentialist concerns are being threatened.

A framework for research which encompasses multiple scales and levels, which can compare and generalise from different contexts, which examines both processes and outcomes, and which explicitly addresses EEEL, would be a way forward for interdisciplinary research on environmental decision-making. Such a research could develop a 'thick' understanding of environmental decision-making, which integrates EEEL with context and scale issues. This thick understanding can better inform policy processes, including implementation, and support initiatives in environmental management and planning ranging from grassroots social movements, through national and regional governmental planning structures, to international and global frameworks and conventions, in order to address the critical environmental dilemmas and their interactions.

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