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Appendix: Policy Research Brief

Conceptions of Value in Environmental Decision-Making

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OVERVIEW

Environmental problems have an ethical dimension. They are not just about the efficient use of resources. Justice in the distribution of environmental goods and burdens, fairness in the processes of environmental decision-making, the moral claims of future generations and non-humans, these and other ethical values inform the responses of citizens to environmental problems. How can these concerns enter into good policy-making processes?

Two expert-based approaches are commonly advocated for incorporating ethical values into environmental decision-making. One is an 'economic capture' approach, according to which existing economic methods can be successfully extended to include ethical concerns. For example, stated preference methods, especially contingent valuation, have been developed to try and capture ethical responses as 'non-use values' of the environment, in particular 'existence values'. The other is a 'moral expert' approach which confines economic methods to the analysis of welfare gains, and assumes committees of ethical experts will complement economic expertise.

Both approaches face problems in terms of addressing many widely held ethical values about the environment. Furthermore, both face problems concerning the democratic legitimacy of their procedures. How can policy-making be made responsive to different ethical values? What role is there for new deliberative and participatory methods? How far do existing decision-making institutions have the capacities to incorporate different modes of articulating environmental values?

This policy brief examines the limitations of current attempts to capture ethical values within existing economic instruments and considers how these limitations might be overcome. Section 1 examines the assumptions that standard economic theory makes about individuals when they express values and make choices about the environment. The current models of agents that inform policy-making are seen to be ill-suited to incorporating the ethical responses of agents and this reveals some of the policy failures that may result. Section 2 shows how the physical and social properties of many environmental goods prevent their being treated as commodities. Section 3 considers the problems surrounding conceptions of fairness and legitimacy in processes for environmental valuation. Section 4 raises questions concerning the capacities of policy-making institutions to take cognisance of the results of different methods for articulating environmental values.

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1. THE NATURE OF THE VALUING AGENT

Standard economic approaches to decision-making, like cost-benefit analysis (CBA), are founded upon a series of assumptions about the nature of values. The broad normative assumptions of CBA are outlined in Box 1. In making the claim that decision-making should aggregate given individual preferences, a number of assumptions are made about the valuing agent, several of which are written into the axioms of neo-classical welfare economic theory. For example:

- Agents' values are expressions of their preferences.
- Their preferences are ordered and have a certain structure – they are transitive, reflexive, complete and continuous.
- The strength of agents' preferences for marginal changes in a bundle of goods is expressed in their willingness to pay for their satisfaction.
- Agents have subjective probabilities about the likelihood of different possible outcomes.
- Agents are instrumentally rational. They act so as to realise the greatest expected satisfaction of preferences, given budget constraints and assignments of probabilities to different possible states of the world.

These assumptions about agents are built into many policy-making procedures. They are employed in gathering information for the purposes of decision-making – for example, in the various methods that attempt to capture individuals' values through their willingness to pay (WTP) for the satisfaction of a preference or accept payment (WTA) for foregoing its satisfaction, which can then be employed in a CBA. These methods range from those that infer willingness to pay indirectly from preferences revealed for some proxy good in the market, such as property values (hedonic price method) or the costs incurred by individuals to use an environmental amenity (travel cost method) to those that proceed more directly by asking individuals how much they would be willing to pay for a good or willing to accept in compensation for its loss in a hypothetical market (contingent valuation). The assumptions about agents are also employed in the various incentives that are introduced to change individuals' behaviour. If these assumptions are false, policy recommendations are likely to be misleading and lead to policy failure. As shown below, all of these assumptions are indeed open to question

Environmental values are more than expressions of given preferences

An alternative view of values is that they express individual judgements about what is legitimate or right which are open to revision through argument. According to this view, one problem with articulation of values through money measures is that they are blind to the reasons and values that inform preferences.

Box 1. Normative Assumptions of Cost-Benefit Analysis

Four principal axioms grounding the political theory of CBA:

1. In social behaviour, human beings can be represented as separate individuals seeking to satisfy their preferences.
2. These preferences are exogenously determined, stable, context independent and ethically unchallengeable.
3. The role of social choice institutions is to discover these preferences and aggregate them to give the optimal social outcome.
4. The optimal public decision is the one which maximises the total preference-satisfaction (benefit over cost) of all individuals.

This is derived from a model of private choice in markets where individuals do – much of the time – act to satisfy their preference within budget and production constraints. The effect of the market is to discover and aggregate these preferences and (given various assumptions about competition) the result is assumed to be the maximisation of preference satisfaction. In this sense we can refer to CVM and markets as being types of value-articulation institution: they are arenas or mechanisms through which people can articulate for policy purposes the different values they place on different goods.

Source: based on Jacobs (1997)

They measure the strengths and weaknesses of the *intensity* of preferences, not the strength and weakness of the *reasons* for them.

Preferences for environmental goods that are grounded in aesthetic, scientific and communitarian judgements cannot be treated as on par with preferences for this or that private commodity. Judgements about environmental goods are not expressions of mere taste that can be priced and weighed one with the other. They are judgements that are open to change through public deliberation and argument. CBA offers conflict resolution and policy without public deliberation, mediation and debate. It aims to realise through means of a surrogate for markets what, within neo-classical theory, the ideal market is supposed to do – aggregate efficiently given preferences (see section 3).

Individuals can have deontological ethical views of the environment

To hold a deontological ethic is to accept that there are constraints on performing certain kinds of actions even where those actions produce a higher total welfare for society (Kagan 1998, ch. 3). There may be constraints, for example, on killing, on eliminating species, on destroying the integrity of the environments of communities. These constraints are sometimes expressed in terms of ‘rights’, that particular individuals or communities have, which cannot be over-ridden by the general welfare.

Such views are at odds with the consequentialist assumptions of standard neo-classical welfare economics. For the consequentialist the *only* thing that

matters in considering what actions we should perform is which action produces the best outcome (Kagan 1998, ch. 2). In traditional economic theory that is the action which maximises preference satisfaction.

A deontological ethic may accept a role for consequences, but emphasise that consequences are not the only thing that matters. The belief in resulting constraints may be expressed by 'lexicographic preferences' where an individual ranks entities or aspects in order of choice but rejects the possibility of trading or substitution. Such preferences may be absolute, as animal rights imply, or bounded (i.e. modified lexicographic preferences), as when some minimum living standard is required before such rights become operative. These types of preferences conform to the basic axioms of rationality in neo-classical economics but deny the principle of (gross) substitution, i.e. that everything has a trade/exchange price. Many economists assume these preferences represent irrational viewpoints but evidence exists that they may be relatively common especially for environmental issues (see Box 2).

Box 2. Lexicographic Preferences and Environmental Valuation

A range of WTP studies using CVM to value environmental entities have now shown the occurrence of respondent motives which are consistent with lexicographic preferences. These can be linked to a belief in the rights of species, plants or ecosystems to existence and/or protection from harm. Up to 25 per cent of respondents to CVM studies have been found in lexicographic categories. Case studies have included valuing wildlife in the USA, coral reef biodiversity in Jamaica and Curaço, wetlands re-creation in the UK and forest preservation in Scotland (see Spash 1998, 2000).

Both those who refuse to make a monetary payment and those who bid positively, for say protecting a species from harm, are found to hold such motives. This means monetary value estimates from CVM studies fail to represent the trade prices that have been assumed by economists. In addition, the prevalence of thresholds (termed modified lexicographic preferences) for refusing to substitute or trade environmental entities seems a wide spread and transnational phenomenon.

Environmental conflicts are often about perceived entitlements

At the centre of environmental conflicts are arguments about justice and fairness in the distribution of environmental goods and harms. Arguments about 'rights' and 'entitlements' also matter.

Many arguments about the environment concern who has or ought to have legal, customary or moral entitlements to environmental goods or services. This has major implications for the use of CVM, and other CBA tools, because of the well-established discrepancy between willingness to pay and willingness to accept payments for environmental gains and losses (see Box 3).

Box 3: Asymmetric Valuation of Gains and Losses

Traditional economic theory assumes that the value of any 'object' is independent of having or not having an entitlement, and invariant to particulars of its context. However, there is a large and growing amount of empirical evidence to suggest that instead circumstances and details of the valuation do matter.

Of particular importance to environmental matters is the asymmetric valuation of gains and losses, the so-called 'reference' or 'endowment effect' (see Kahneman & Tversky 1979). Many studies have demonstrated that the valuation disparity is pervasive, usually large. The empirical evidence indicates that rather than being valued in terms of end points, as assumed by standard economic principles, the valuation of a change – the gain or loss of a good, or benefiting or losing from a policy – is instead typically made in terms of changes from a reference position: losses from a reference state are valued more and gains to the reference state of these entitlements are valued less. A consequence of the valuation disparity is that a good, or an environmental change, does not have a single 'true' value.

The earliest findings of a disparity, reported in the early 1970s, involved hypothetical survey questions. For example, bird hunters said they would be willing to pay, on average, \$247 to preserve a marsh area important to the propagation of ducks but would demand \$1044 to agree to its demise. Results of studies in the years since have become more wide ranging in terms of the

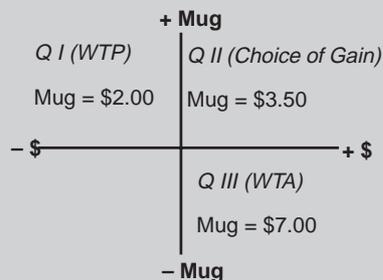
nature of entitlements valued, investigators and research methods used, populations studied, and realism of exchanges.

The expected pattern of valuations of entitlements is also indicated by the results of a real exchange experiment involving three groups of participants who were all asked to value a mug, but to do so in three ways. The valuations of individuals in one group were expressed in terms of how much they would pay to gain a mug; those in the second group by how much they would demand to give up a mug; and in the third group by how much money they would need to receive rather than receive a mug – a choice between two gains. The results of these three scenarios are presented in quadrants I, II and III of the diagram.

The valuation in quadrant I (QI) is in the domains of gains of a good (+mug) and losses for money (–\$). This produced the lowest valuation of the mug, a median buy price of \$2, because in this exchange money is given up (and therefore is valued more) and the mug is a gain (and therefore valued less). The highest valuation of the mug, \$7, was found in quadrant III which is in the domains of gains for money and losses for the good; as a consequence of the value disparity, individuals demand a larger sum of money, which they value less for being gains, to compensate for giving up a good which they value more for being a loss.

The monetary valuation in quadrant II is in terms of both money and mug being in the domains of gains: an opportunity cost measure of the value of the good. As expected, when individuals were presented with a choice between gaining money or gaining a mug, the valuation was intermediate between those in quadrants I and III, at \$3.50 for the mug. A valuation of quadrant IV, not carried out in this experiment, would be in terms of what loss of money would be weighed as being equivalent to a loss of a good. Such a choice between two losses, similar to the choice in quadrant II, provides an opportunity cost measure of the mug's value.

Source: based on Knetsch (2000)



Whether a payment or some compensation is appropriate depends upon assumptions, sometimes conflicting, as to who has entitlements to the goods or services in question. Similarly, respondents will sometimes reject a WTP question in a CVM study because of the underlying assumptions about the distribution of entitlements – they refuse to pay for something to which they believe they are entitled. Thus the following comment of a respondent to a WTP question for a wildlife enhancement scheme involving compensation to farmers: 'If they were farming the land rotten, then isn't that the same as a big chimney poking out loads of environmentally, polluting air? Isn't it the same as ICI dumping chemicals in the river? If they're doing it, why are we paying them?' (Burgess *et al.* 1995). Conflicts about such claims cannot be resolved by CBA since this already presupposes a particular structure of entitlements (O'Neill and Walsh 2000).

Misrepresenting the ethical dimensions of environmental valuation damages policy effectiveness

The ethical dimensions of policy are not just rhetorical additions to economic decisions. Because individuals are ethical agents, who are moved by considerations of what is fair, right and honourable, ethical dimensions of policy matter to the effectiveness of policy as such. As the evidence reported in Box 4 illustrates, the introduction of monetary incentives can sometimes paradoxically lead to a decline in the support for a proposal since it is incompatible with ethical motivations. Given the limitations of the economic assumptions about the agent, policy needs also to be informed by philosophical, psychological and sociological understanding which offers a richer model of the agent. Approaches must also be sensitive to the institutional context in which individuals express their values.

Box 4: Can Monetary Incentives Undermine Ethical Motivations?

In Switzerland, a survey asked respondents if they were willing to permit the construction of a waste repository in their community. More than half of the respondents 50.8 per cent agreed, 44.9 per cent opposed, and 4.3 per cent did not care where the facility would be built. An unpopular siting decision had wide acceptance among the population despite the heavy burden for the residents of the host community.

Direct monetary compensation of all residents by the Swiss government was then proposed and respondents were asked the same question. The level of acceptance dropped to 24.6 per cent. Respondents seemed to reject the facility simply because of the financial compensation. Such a payment may be regarded as a bribe. This has also been described as external monetary compensations crowding out intrinsic (social and ethical) motivations. The implication is that standard economic incentive mechanisms may have the opposite impact to that predicted.

Source: Frey and Oberholzer-Gee (1997)

THE OBJECT OF VALUATION

Market failures or market boundaries

Standard economic approaches to valuation treat environmental problems as ‘market failure’ – environmentally good and bad outcomes fail to be captured in market exchanges. Thus, the solution to the problem is then either to bring environmental outcomes into actual markets through an extension of tradable property rights to environmental entities or to construct shadow prices for environmental entities by ascertaining what individuals would pay for them were there a market.

A different approach argues that many environmental problems show how markets as an institutional structure have boundaries. That is, environmental problems reflect the limitations of market economics. Environmental entities cannot or should not be treated as if they were commodities open for exchange in markets.

The nature of environmental entities

One source of the need for market boundaries is the complex nature of environmental entities and the difficulties this raises for any treatment of them as commodities. For example, placing boundaries around many environmental entities for the purposes of defining property rights over them is difficult or even impossible. ‘A precise valuation demands a precisely demarcated object. The essence of commodities is that conceptual and definitional boundaries can be drawn around them and property rights can then be attached – or imagined’ (Vatn and Bromley 1994, p.137). For many environmental goods this demarcation is impossible. Thus ecosystems, which are defined by a web of functional relations between different entities (plants, animals, soil, water and air) fail to conform to discrete units which can be broken into marginal changes for the purpose of economic valuation.

The ethical status of the environment

Another source of market boundaries lies not directly in the physical nature of the entities, but in their ethical and political status. There are a variety of potential ‘goods’ that are blocked from exchange in markets or from being treated as if they were market commodities – votes, public office, parliamentary questions, persons, bodily parts, blood, nationality, sexual and reproductive services, love and friendship.

For many people, a number of environmental entities belong to a category that lies outside the ambit of monetary relations for distributional, social and moral reasons. Goods and services may be deemed fundamental so that they should be open to all on the basis of need and distributed regardless of ability to

pay – for example, basic health care. Moral commitments and social loyalties may be constituted by a refusal to treat some things as commodities that can be bought or sold. To accept a price is then an act of betrayal, to offer a price is an act of bribery (as in Box 4).

Environments may matter because they express a particular set of relations to one's children and future generations. These relationships would be betrayed if a price were accepted and the environment forgone. The treatment of the natural world is expressive of one's attitude to those who will follow you. Thus a typical response to the use of money as a medium of valuation is exemplified in the Pevensy Levels study (Burgess *et al.* 1995 and Clark *et al.* 1998). For example, one comment was (Burgess *et al.* 1995: 44): '... You can't put a price on the environment. You can't put a price on what you're going to leave for you children's children... It's a heritage. It's not an open cattle market.' To put a price on an object has a cultural meaning: it can be felt as an act of betrayal of a moral commitment or a commitment to those with whom one has ties, in particular to one's future kin. Similar refusals to trade are sometimes expressed with non-human entities which are taken to have some ethical standing (Vadnjaj and O'Connor 1994).

Concern for such potentially tradeable 'goods and services' is expressed by a refusal to put a price upon them. Such refusals can be understood as instances of expressive rationality: 'Practical reason demands that one's actions adequately express one's rational attitudes towards the people and things one cares about.' (Anderson 1993, p.18). The environment is composed of objects of moral concern and is thus more than just economic resources.

Incommensurability

CBA rests on an assumption about the commensurability of values, that rational choice requires a single measure of value, preferably monetary, through which it is possible to gauge the relative importance of various environmental goods in comparison with each other and non-environmental goods and services: money is the 'measuring rod of value'. The existence of market boundaries points to problems with that assumption. Monetary price is not a neutral measuring device and acts of buying and selling are unlike exercises in the use of a tape measure.

Acts of exchange are social acts with social meanings, as are refusals to trade. Some relations are constituted by a refusal to make them commensurable with monetary values. More generally, the values that inform environmental valuations are plural and there is no reason to assume that any single unit of measurement, monetary or non-monetary could capture all the distinct dimensions of environmental choice (O'Neill 1993). The existence of plural and incommensurable values points to the need for forms of multi-criteria analysis (MCA) which are premised on the claim that the resource requirements and effects of alternative courses of action may be comparable in several different dimensions, but without a single unit of measure (see Martinez-Alier, Munda and O'Neill 1999).

POLICY BRIEF

Such constitutive incommensurabilities mean WTP measures will fail to capture the values in question. Policy-makers need to call upon other value articulation institutions that will allow individuals to express their values in an appropriate manner. This forms one argument for wider public deliberative fora through which values can be adequately expressed. One of the main challenges to current research is to combine analytical techniques, such as multi-criteria tools sensitive to the plurality of environmental values, with deliberative fora (see Box 5).

Box 5: Stakeholder Decision-Analysis (SDA)

Local Environment Agency Plans (LEAPS) are being developed by the UK Environment Agency to promote an integrated and sustainable approach to managing the natural environment. LEAPs aim to:

- involve all interested parties in planning for the future well-being of an area;
- produce a vision for the area to guide Agency activities; and to
- establish an integrated strategy and plan of action for five year periods.

A deliberative and inclusionary methodology for appraising the LEAP for the New Forest, England, was developed as an alternative to decisions made on the basis of scientific expertise, mediated by measures of economic efficiency. Through a series of workshops selected interest groups produced a set of criteria for aiding discussion, evaluation and prioritisation of issues relating to the LEAP; this was combined with MCA.

The criteria employed covered environmental, social, economic and legal considerations. Scientific knowledge was accorded high value. Specific landscape and cultural values were recognised in a criterion that assessed local distinctiveness and quality of life issues. Economic concerns included criteria for maintaining the local economy in balance with social and environmental needs. The negotiated criteria changed the original set of priorities produced in the draft LEAP. The Agency agreed to abide by the decisions of the interest group, and duly issued the revised plan for wider public consultation. All LEAPs will in future incorporate an SDA in their planning phase.

Source: Clark *et al.* (1998)

LEGITIMACY AND PROCESS IN ENVIRONMENTAL DECISION-MAKING

Procedural rationality

The quality of environmental decision-making is not just a matter of instrumental rationality, of the best use of limited means to achieve outcomes, but also procedural rationality: 'Behaviour is procedurally rational when it is the out-

come of appropriate deliberation' (Simon 1979, p. 68). Rational behaviour is that which emerges from deliberation that meets the norms of rational discussion. Thus, what matters is the development of deliberative institutions that allow citizens to form preferences through reasoned dialogue, rather than institutions for aggregating given preferences to arrive at an 'optimal' outcome.

Legitimacy and fairness in environmental decision-making

Claims about environmental values are open to debate and argument, and therefore require deliberative procedures for environmental valuation. Evidence from recent experiments (such as citizens' juries, consensus conferences and deliberative polls) point to the ways in which preferences shift through argumentation which appeals to shared values individuals have as public citizens rather than private consumers. Table 1 presents a summary analysis of recent research comparing citizens' juries and contingent valuation as institutional frameworks for eliciting values.

Specifically democratic deliberative institutions also confer legitimacy on outcomes to the extent that they are fair and give equal voice to all concerned. A technical tool such as CBA appeals for legitimacy to individual preferences and statistically representative samples, but is unresponsive to the citizens affected. The procedure lacks legitimacy especially for losers: it is no consolation to be told after suffering the result of a procedure in which one had no say that the outcome is fine since all 'potential improvements' have been realised so that the winners could in principle, but not in practice, compensate you (as assumed by economic theory). The problem is accentuated where WTP results are employed which are not weighted to capture the effects of income inequality. Since WTP is constrained by income, unmodified WTP results will give disproportionate weight to the preferences of the better-off.

The shift to deliberative and interest group procedures for deliberation is often justified in part as an answer to these problems of legitimacy. A significant challenge to all new deliberative institutions is how far they are able to deal with their own problems of fairness. In particular, the power of voice is unevenly distributed across different groups – 'willingness to say' can be as ill-distributed as 'willingness to pay'. Also, their legitimacy as representative and accountable institutions may be contested.

Legitimacy and fairness in decision-making matters in itself. However, empirical studies suggest that perceptions of legitimacy and fairness in policy decisions also impact the effectiveness of policy-making. Individuals will respond negatively to the failure of particular environmentally well intentioned policies if they are perceived to violate fairness (van Vugt *et al.* 1996). However, there is also a need to address the institutional capacity of agencies and decision-making institutions to digest the results of new deliberative approaches.

POLICY BRIEF

Distinguishing Features	Contingent Valuation	Citizens' Jury
(i) Presuppose quite different pictures of the human subject and of human rationality and motivation	People are utility-maximisers; their 'optimising' behaviour is based on preferences that are 'given' from outside the calculation domain	People have mixed motives; their values are often indeterminate, and may be rationally structured on the basis of principled reasoning
(ii) Engage the subject in different ways	Subject is reactive, isolated, individual; views are private and not open to challenge; subject is confined to one role	Subject is interactive group member; views are public and open to challenge; subject is able to try out different roles
(iii) Make different demands on the subject	Practice of the subject's calculative faculties and of their prudence	Practice of the subject's reasoning faculties, skills and virtues
(iv) Promulgate quite different views of how issues are, or should be, framed	Question(s) decided by researchers	Question(s) evolve through negotiation among stakeholders, jurors and researchers
(v) Embody quite different views of the relation between citizen and policy-maker	Citizen as 'customer' whose preferences and values it is the role of the policy-maker to satisfy and accommodate; relationship of mutual benefit – policy-maker invulnerable	Citizen as citizen to whom policy-maker devolves, and with whom he/she shares, responsibility for decision-making; relationship of trust — policy-maker vulnerable
(vi) Produce quite different outcomes	Quantified intelligence about people's concerns which can be used both to validate policy and to estimate likely compliance with policy	Rarely quantified, often unclear and sometimes inconsistent intelligence which reveals how people understand the environmental issues which they face
(vii) Handle 'information' in quite different ways	'Information' is (largely) anonymous and unquestioned	'Information' is owned, defended and contradicted
(viii) See knowledge in a different light	What matters is how much information is provided	What matters is how information is construed
(ix) Proceed according to different 'rules'	Methodology is sovereign, process is theory driven and circumscribed	Methodology is fluid, process is creative, dynamic, open ended
(x) Handle distributional issues differently	Condone existing distributions of rights; silences some voices (protest bids, income effects); open to manipulation by researchers	Can challenge existing distributions of rights; silences some voices; open to manipulation by participants
(xi) Are validated in different ways	Validation through precedent, consistency with previous studies, convergence and methodological rigour	Validation through argument and mutual acknowledgement among participants (stakeholders, jurors, researchers)
(xii) Need different institutional structures for assimilation of 'results'	Digestible by bureaucratic and financial structures	Can be indigestible to traditional bureaucratic and financial structures
(xiii) Have different endpoints in view	The point of the exercise is in the outcome	The point of the exercise is as much in the process itself as in its outcome
(xiv) Have contrasting political significance	Fosters 'customer' habits and a managerial society	Fosters civic habits and democratic values

TABLE 1. Contrasting Features of CVM and Citizens' Juries in Eliciting Value Statements. Source: Compiled by A. Holland, R. Grove-White, J. O'Neill, and C. Spash in O'Connor 2000, p.182.

INSTITUTIONAL CAPACITY AND VALUES

Policy-making institutions are not themselves just neutral conduits through which the values of others, 'the public', pass for consideration by neutral policy-makers. Environmental agencies are made up of individuals and groups who will approach environmental problems through their own professional and personal values and are moved by their own institutional priorities.

The definition of what counts as an environmental problem, how it is characterised, and what would constitute an acceptable solution will tend to differ across the different disciplinary and professional perspectives that inform policy. To capture the richness of environmental problems requires an interdisciplinary perspective. Values are also implicit in the procedures employed within different institutional settings for identifying, understanding and responding to environmental problems.

These points have clear implications for questions about the capacity of institutions to take cognisance of the concerns that underlie many environmental problems. Different decision tools and value-articulation methods, from the economic to the deliberative, have more or less credibility within policy-making contexts and will have results that are more or less digestible within existing institutions. One source of institutional bias in favour of monetary valuation in environmental decision-making, for example, arises from their use in financial accounting systems. Financial information forms a recognised role in budget negotiations which determine departmental policy.

The role of reports of deliberative processes within existing policy-making institutions is much less clearly defined. Many recent experiments in deliberation have failed to be directly 'plugged-in' to decision-making procedures. Those that have been plugged-in can fail to have a well-defined role within the existing institutions. If the growth in deliberative methods for articulating environmental values is to impact policy-making, then they must account for the institutional context. There is also a need for institutions to build the capacity for dealing with such results.

POLICY RECOMMENDATIONS

Environmental problems go beyond the efficient use of resources. They have an ethical dimension. Individuals' ethical commitments and perceptions of fairness in environmental decision-making procedures and outcomes matter both for perceived legitimacy of policy and its effectiveness. Existing economic methods of capturing individuals' values through willingness to pay cannot adequately capture those ethical dimensions of policy-making. Therefore policy-making needs to:

POLICY BRIEF

- call upon a variety of different modes of articulating values that allow individuals to adequately express different ethical commitments;
- incorporate into policy-making constraints on the use of efficiency criteria in decision-making relating to ethics and fairness;
- expand upon the use of deliberative institutions such as citizens' juries, deliberative polling and consensus conferences that widen public participation and debate about the values that inform environmental policy;
- develop frameworks that combine analytical techniques, such as multi-criteria tools sensitive to the plurality and incommensurability of environmental values, with deliberative approaches;
- recognise the ways in which public perceptions of what is fair and right and legitimate affect individuals responses to different policy incentives;
- design deliberative processes that are sensitive both to the policy-making context and the requirements for democratic legitimacy and accountability for public decisions;
- develop the institutional capacity of agencies and decision-making institutions to digest the results of new deliberative approaches.

KEY POINTS

Limitations of economic approaches

Existing economic methods of capturing individuals' values through their willingness to pay are insensitive to the ethical commitments and concerns about fairness that underlie many public attitudes towards the environment. Citizens can have *deontological* values which can be expressed in lexicographic preferences that cannot be captured adequately by willingness to pay. The values that inform environmental choices are plural and incommensurable – they cannot be captured by a single monetary measure. Individuals are moved by concerns about legitimate procedures and the fairness of the distribution of burdens and benefits which are independent of concerns about maximising total welfare.

Market boundaries

Environmental problems are not simply problems due to the absence of markets. Many environmental problems concern the fact that markets as an institutional structure have boundaries beyond which they should not go. Environmental entities provide examples of goods which cannot or should not be treated as if they were commodities open for exchange in markets. The complex nature of many environmental goods renders it difficult to place boundaries around them to define property rights or to define marginal change for the purposes of

environmental valuation. A number of environmental entities belong to a category that belongs outside the ambit of monetary relations for distributional, social and moral reasons.

Ethics and policy effectiveness

Failure to capture the ethical dimensions of environmental policy matters for the legitimacy and effectiveness of decisions. Monetary incentives can sometimes undermine ethical motivations in ways that could produce unexpected policy failures. Perceptions of fairness matter and 'good' environmental policy initiatives will fail if they ignore the importance of such perceptions.

Rationality and public deliberation

Good policy decisions are not just a matter of *instrumental rationality*, that is of using given means to efficiently or optimally meet given ends. Norms of *procedural rationality* matter – decisions should be the outcome of good public deliberation. Norms of *expressive rationality* also apply – policy should adequately express rational attitudes towards the things citizens care about. These wider constraints on good policy-making highlight the need for incorporating wider fora for public expression of and debate about the values that inform the environmental choices.

Plural values and public deliberation

A challenge to environmental decision-making is to ascertain ways of combining analytic methods such as multi-criteria analysis which recognise the plurality of values that inform environmental choices with more deliberative methods that enable citizens to articulate values and which are sensitive to concerns about fairness in procedures and outcomes.

Institutional capacity building

Many existing deliberative processes are inadequately plugged-in to the policy-making process. The design of deliberative institutions needs to be more sensitive to their role in public policy-making. At the same time policy-making agencies themselves need to build the institutional capacity to incorporate the outcomes of a wider range of value articulating institutions.

NOTES

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¹The 'authors' of the Policy Brief are not authors in the usual sense, and its content should not be taken as a statement of positions that they themselves hold. Rather, they saw it as their task to reflect the themes and currents of the workshop as these emerged in the formal presentations, the informal discussion and the ongoing preoccupations of the Concerted Action Programme as a whole.

POLICY BRIEF

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