Environmental Valuation in Europe

Policy Research Brief

Number 5

Conceptualising Sustainability

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Concerted Action funded by the European Commission DG-XII and the Swiss Federal Office of Education and Science, and co-ordinated by Cambridge Research for the Environment (CRE)

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This policy research brief draws on presentations and contributions made at the fourth workshop of the Concerted Action on Environmental Valuation in Europe (EVE) entitled 'Sustainability: Theory – Applications – Indicators' held at the Ethics Centre, University of Zurich, Switzerland, 17–19 June 1999, organised by Anton Leist and Klaus Peter Rippe.

This policy research brief was written by Anton Leist and Alan Holland and produced by the series editors Clive L. Spash and Claudia Carter.

Front cover: Human–environment interactions exemplified by the spread of human settlement. Zurich, Switzerland. Photo by C.L. Spash.

ISBN 186190 0856

Printed on paper produced from 100% recycled fibres

Overview

Sustainability is currently *the* term dominating environmental policy. Its extensive political diffusion is in stark contrast, however, to the extent to which there is agreement over its meaning. Its ability to motivate is not in question, but a certain scepticism surrounds its ideological content. Since ideological terms have no objective basis, it is therefore important for the purposes of environmental policy to establish whether such scepticism is justified.

There is no overarching value to be found ... to guide environmental policy.

The idea of a 'sustainable relationship with nature' or of the 'sustainable development' of whole societies expands immensely the original meaning of the term, which referred to the maintenance of, for example, a constant stock of fish or timber. Today, sustainability programmes cover wide-ranging scenarios such as 'sustainable life-styles', 'sustainable technology' and 'sustainable material cycles'. Along with the empirical expansion, however, comes 'normative vagueness' – the values underlying and informing these programmes are no longer clear. Conceptual sophistication and a proliferation of scientific applications and techniques have accompanied the expansion, but fail to make good what is lacking in normative clarity.

In itself, sustainability is simply a property of any activity, practice, process or institution that has the capacity to continue or be continued indefinitely. There is no overarching value to be found informing the sustainability agenda as a whole, and available to guide environmental policy. The attempt to produce one descends at best into empty rhetoric, and at worst into concealed ideology.

It is therefore necessary to recognise that *different* values underlie different sustainability programmes, and vary in degree of urgency. Different perspectives are also involved and different criteria of failure or success corresponding to the diverse problems that are being addressed. The work of integrating these perspectives remains to be done.

A Short History of the Political Background

"Nature shrinks as capital grows"

V. Shiva (1992)

For some years now, sustainability has been a central and recognised element of official international declarations, for example the Brundtland Report *Our Common Future*, the Rio Declaration on Environment and Development and its by-product Agenda 21 for environmental measures. At a national level, many European governments favour the use of the term sustainability in conjunction with their environmental policies. This far-reaching consensus is astonishing and merits further analysis. An optimist might attribute its existence to a broad acceptance of the necessity of pursuing environmental policies following years of ecological crisis. A pessimist, on the other hand, would maintain that the environmental protection measures of the past decades have only managed to prevent the worst excesses. The treatment of nature perpetrated by industrial society has not changed in fundamental terms. We have merely learnt to poison the environment less severely, to decelerate the first shock-like symptoms of environmental crisis such as dying forests, contaminated rivers and the disappearance of the ozone layer. According to the pessimist, sustainability is a well-meant but ineffective programme for environmental policy.

Box 1: Sustainability and EU Policy

"A fair amount of uncertainty remains concerning the meaning the EU attributes to the very term 'sustainable development'. One of the legacies of the Brundtland formulation 'on which the EU commitment is based' is that the concept is analytically 'contentless'. Thus the operationalization of the concept has been 'left up to individual institutions and/or governments'."

Source: Baker *et al.* (1997) pp. 31–2

Harsher critics would maintain that sustainability is a cover-up attempt that is popular due partly to its non-committal usability, and partly to the guarantee it seems to provide that the prosperity of the industrial countries can and should be permanently maintained (see Box 1). Talk of sustainable material cycles becomes little more than an appeasing empty phrase when, for example, even the unity of restricted cycles counts as sustainable, as with the sorting and collecting of used polystyrene packaging or tin cans. In the guise of 'weak' sustainability, understood as the attempt to maintain the level of human welfare over time (see Box 2), the concept is even integrated within a programme of growth policies which actually destroy nature. As one critic observes: "Nature shrinks as capital grows" (Shiva 1992, p. 189).

About 20 years ago, sustainability was considered a very promising concept, central to environmental politics. It signalled conservation of nature in its entirety, and its undeniable vagueness seemed only to be a direct consequence of its extreme comprehensiveness. A central idea had been found, its translation into fruitful scientific research and later on into tangible environmental policy was work that remained to be

Box 2: 'Weak' *versus* 'Strong' Sustainability

Weak sustainability: the requirement to keep total capital (or present human welfare) constant, or non-declining, over time;

Strong sustainability: the requirement to keep natural capital (or present natural goods) constant, or non-declining, over time.

Weak sustainability presupposes that human-made capital is indefinitely substitutable for natural capital, in other words, that the decline of exhaustible resources can be compensated by alternatives, both natural and cultural. Environmental policies governed by weak sustainability care for nature in the sense of balancing the benefits of economic growth against environmental protection. Proponents of weak sustainability claim that this policy has always been part of the classic aims of economic thinking to optimise human welfare (e.g. Solow 1993). Sceptics, however, believe that the sustainability agenda is misguided insofar as it departs from these traditional aims (see e.g. Beckerman 1994). In contrast, environmental policies governed by strong sustainability pose definite limits upon environmental consumption and degradation. Proponents of strong sustainability claim that natural capital is critical, its loss irreversible, and that therefore it cannot be the object of substitution (Jacobs 1991, Daly and Cobb 1994). Some add that the natural world in general has a value of its own. Sceptics, however, suggest that the distinction between strong and weak sustainability might be illusory, unless the natural *world* is ascribed a value of its own, disctinct from its value as *capital* (see e.g. Holland 2000).

done. The work involved seemed extensive but not impossible. Environmental policy appeared to have a clear goal, at least in principle.

Prior to its career as a buzzword in environmental politics, the term 'sustainability' was chiefly used in connection with the maintenance of constant stocks of fish or forest timber. 'Constant' referred to both the biophysical stock and the economic yield. Once its conceptual range became extended, however, it ceased to be a tenable or desirable goal to guarantee a conservation of the biophysical stock. Indeed, the ongoing reduction in raw materials rendered this more or less impossible. On the other hand, a mere blunt reference to the maintenance of economic yield was not desirable either since this would immediately call the specifically environmentalist agenda into question. The solution was to leave these relationships open and to speak only of long-term stability in the relationship between humans and nature. The relationship was conceptualised in terms of the maintenance of 'environmental capacity' (Jacobs 1991) or 'capital' (see Policy Research Brief 3).

Underpinning this conceptual strategy was the influential formula from the Brundtland Report (1987, p. 8): sustainable development is development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". This Report put an end to previous demands for a stationary or 'steady-state' economic approach and adopted the stance that economic growth and environmental protection are not only compatible, but are indeed the only viable possibility. This stance in turn gave rise to the phrase 'sustainable development', a notion linking elements that had previously seemed incompatible – sustainability *and* development.

The 'Sustainability' Formula: Problems and Responses

One of the professed aims of the sustainability agenda is to make changes in the way that humans relate to nature. In this regard the influential formula from the Brundtland Report is especially noteworthy, for three reasons. First, it is decidedly anthropocentric, i.e. it speaks of 'constant yield' only in a manner relative to human needs. It is not nature itself, as understood by the ecocentrists and biocentrists, that is its focus, but nature with regard to human needs. Its talk of needs – as opposed to prosperity or preferences – takes up the socialist tradition and postulates an objectively definable minimum requirement level for human existence. Second, the Report expands moral relations geographically by linking the problems connected with the environment to those connected with poverty, both in Europe and worldwide. The Report thus adopts a stance of 'universal social solidarity'. Put simply, the Brundtland formula supports the ethics of social solidarity on a much wider scale than the confines of the national welfare state. Third, the Report expands moral relations temporally. By requesting that the needs of future generations not be compromised to the advantage of present ones, all generations are treated at the same level of relevance. This is a position of 'intergenerational equality'.

The Biocentric Response

By proposing such an extended ethics, the Brundtland formula places itself well within modern Western universal ethics and is also largely in agreement with our moral intuitions. Unfortunately, one of the original motivations for the sustainability agenda, the conservation of nature, seems to have been lost in the process of such a consensus – lost both as an object in itself and as a basis for evaluation. If the two crucial questions about sustainability are 'what is to be sustained?' and 'why should it be sustained?', the answer in the spirit of the formula would be: 'the human environment is to be sustained (not ecology or nature) in order to meet human preferences'. We seem to have arrived at what is actually happening: the visionary ring of the formula has totally disappeared.

This last reformulation of the Brundtland formula in terms of preferences may seem unfair, however, since the Brundtland Report explicitly speaks of 'human needs', signalling something more important than 'mere' preferences. Suppose we distinguish between a narrower 'economic-anthropocentric' and a wider 'value-anthropocentric' (or 'moral-anthropocentric') interpretation of human needs. Only the first would reduce our relations to the level of preferences. The second would incorporate the concern for nature in itself – the biocentric perspective. In practice, however, referring to 'human needs' instead of preferences is burdened with the following problems:

- The distinction between needs and preferences is difficult to make, and hardly offers a clear and operable alternative to the economist's view of environmental problems;
- Discerning human needs regarding nature in a way that transcends everyday preferences inevitably involves judgements of value, including, for example, judgements from a biocentric point of view. But biocentrism is not part of an agreed social consensus and its conclusions will sometimes conflict with the conclusions of a universal humanistic ethics;
- There is a lack of clarity about how a recognition of the intrinsic value of biological and ecological structures is to be translated into practical policy.

Box 3: Positions in the Ethics of Nature

Environmental philosophies differ according to ranges of objects carrying 'intrinsic value'. Intrinsic value can be defined as providing irreducible value premises in moral arguments concerning humans and nature.

Anthropocentrism: Only humans, their interests and needs have intrinsic value.

Biocentrism: All biological life has intrinsic value.

Ecocentrism: The historically grown arrangement of nature (landscapes, biotopes) has intrinsic value.

Some defenders of these positions also postulate rights corresponding to the intrinsic value. Accordingly, humans, biological life and even landscapes will have rights.

The Economic Response

The reductivism of the economic-anthropocentric view addresses these problems by basing itself on the seemingly 'informed' preferences of the people concerned and by reformulating all values in monetary terms from the outset, for example through the procedures of cost-benefit analysis. This may be reductivism, but it appears operable, objective, and even inevitable. The solutions to environmental problems normally incur monetary costs. Moreover, when valuing the environment, one has to provide a systematic link between the supposed values and the economic costs. Providing the link in monetary terms is surely one legitimate alternative.

Advantages of the economic approach to sustainability include:

- highlighting the fact that environmental conservation carries economic costs and burdens; also – and crucially – making the point that we should not regard our use of environmental resources as if we were living off income;
- offering a way of measuring the benefits of environmental conservation against those gained from other forms of expenditure, e.g. military, health, education;
- making the case for compensating income forgone – e.g. 'debt-for-nature' swaps (though this runs up against the problem that compensating 'poor' countries may mean 'compensating' individually rich people);
- presenting a way of establishing indicators of progress towards sustainability;
- offering a way of measuring the effectiveness of any conservation policy or programme which, however unclear its methods or contested its results, is vital for any durable programme of implementation.

Critics from the ecological side, however, worry that many crucial ecosystem services are hidden and go unrecognised. They doubt whether public preferences will adequately reflect the complexity and uncertainty of ecological processes, and are reluctant to trust public perceptions of the comparative value of species, or of ecosystem structures and functions. Nor is this a simple problem of information. There are inherent difficulties in the project of mapping ecological realities – involving episodic, non-linear, unstable and unpredictable processes – with economic indicators and criteria (see, for example, Turner *et al.* 2000). Critics from the philosophical side are concerned that exclusive attention to resources suppresses recognition of the historical character and value of the biosphere. They are unwilling to put their trust in sources of motivation that are generally agreed to have caused the extensive environmental degradation, and are worried by the mismatch between the short-term economic perspective and the long-term environmental consequences (see, for example, Holland 2000). Essentially, these doubts reduce to:

- whether economic indicators can hope to capture critical ecological factors;
- whether economic indicators can hope to capture the diverse range of values associated with an environment that is at once a source of life, livelihood and inspiration.

The Biophysical Response

Among biological scientists there are those who may not grant that there is a 'value problem' of such serious extent. Sustainability can be made objective, to their mind, in terms of biophysical resources themselves. For example, an economic regime could be defined as 'sustainable' if:

- the use of renewable resources does not exceed their renewal;
- emissions do not exceed the environmental capacity to absorb them;
- non-renewable resources are only used to the extent permitted by renewable resources.

We can call this 'biophysical' sustainability because the corresponding criteria appear to be taken more or less directly from the biological and physical states. The corresponding measuring techniques are generally assumed to be scientific ones. However, even these criteria are influenced by scales of human tolerance, based in turn on socio-cultural interpretations, often biomedical ones (see Box 4).

Ultimately, biophysical sustainability is neither totally biological nor totally physical. It has to be complemented by (i) human standards of benefit or damage; (ii) definitions of where each relevant area begins and ends; and (iii) principles of justice regulating the necessary costs and consequences. The third point is perhaps the most important: who benefits from the use of resources or sinks? Whom does their use damage? How are advantages and disadvantages spatially and temporally distributed? Biophysical sustainability must occur in conjunction with both intra- and intergenerational justice. In principle this

may be no more problematic than taking social justice into account in conjunction with other, already familiar social goods such as health and education. True, information and persuasion may be required before natural goods can be comprehended as social goods. And yet the ethics of the social state has already paved the way for such a move in both theoretical and practical terms.

Biophysical sustainability is not problematic because of the difficult justice issues it raises, but because of the promise it makes that natural goods can acquire fixed values all by themselves, or at least without the help of socio-cultural (prudential, ethical, aesthetic) criteria. Just because the sustainability of obviously valuable materials such as fossil fuels, water or air is at stake, we should not overlook the fact that these materials must have a concrete and definable value before we can begin to reason about their sustainability. Not even for materials as important to human biology as water and air is this value categorically given or not given. Even they require a value to be established, quantitatively or qualitatively.

Box 4: The Influence of Human Values upon Biophysical Measures

In many cases, for example sustainable fishing or farming, human expectations of benefit will play a role in the application of biophysical measuring techniques. Biophysical sustainability is therefore on no account fully 'natural' or even 'objective', since it is susceptible to underlying assumptions about levels of human tolerance and frequent concrete expectations of benefit. Two examples:

(i) Animal and meat production in a region 'X' is no longer sustainable when its by-products (such as faeces and artificial fertilisers) cause the nitrate content of the ground water to exceed *normal* values. 'Normal' in this context is not simply a biophysical determination, but also one influenced by human medicine and psychology.

(ii) In addition, the water production of a region fundamentally amounts to a technical procedure. The sustainability of clean water is decided by the limits of tolerance and by the cost/benefit ratio of sewage treatment costs against economic benefits.

A Way Forward

So far we have seen that several approaches to the global sustainability idea are problematic and unconvincing. First, against bio- and ecocentrism: to transform ecological structures into value structures *per se* is not plausible. Second, against economic-anthropocentrism: the economic view on the environment gives a premium to economic transactions, not to ecology. Third, against biophysical sustainability: biophysical stocks are always already embedded in human evaluations which need explication and not extirpation. In the light of this critical overview it would appear advisable to give up the global sustainability idea and instead break it up into different ideas, and correspondingly, different areas, contexts and environmental goods or features. Accordingly, there will be different norms and values involved in what a 'sustainable' regime in these areas would mean. One might provisionally call this proposal the **spheres of sustainability**. A differentiation according to spheres is what seems in general to be required, even if the one that follows in the next section should prove too rough or too specific. With environmental discourse being so multi-disciplinary and diversified, many other ways of constructing spheres of sustainability are viable, as can easily be seen from the wealth of ecologically problematic versions of sustainable practices. The following proposal orients itself around the idea of **keeping nature intact** and the different values that may be riding on this idea.

Spheres of Sustainability

Biophysical sustainability is not explicit in its evaluative dimensions. To rectify this we need to identify the criteria which are necessary to establish what exactly is to be sustained. According to one view, these are (i) biomedical standards; (ii) material standards; and (iii) aesthetic standards. These different types of standard roughly correspond to three 'natural functions' the environment is often said to fulfill: life support, providing natural resources and offering amenity. These functions are usually construed, however, in narrow biophysical terms. The social and normative-ethical side of the distinction needs explication. Accordingly, we may distinguish between three spheres of sustainability:

- **Biomedical sustainability** exists when natural goods from our everyday environment, such as air and water, are evaluated according to whether they are healthy or unhealthy.
- **Material sustainability** is the sustainability of natural goods that are only accessible in or via the marketplace. This especially applies to fossil fuels, the extraction of which requires considerable investments.
- **Aesthetic sustainability** comes in when natural beauty is an inevitable criterion for physical and biological materials being counted as natural goods. Even if diversity, biotopes and landscapes partly have the attributes of biomedical and material goods, their aesthetic value sometimes predominates. In this case the sphere is an aesthetic one.

Table 1. Spheres of sustainability

Spheres of Sustainability	Moral Claim	Validity Type	Social Institutions
biomedical	rights to health	categorically imperative	environmental law
material	opportunities of accessing raw materials	justly distributed	regulated market
aesthetic	living a naturally good life	culturally acceptable	aesthetic-communal traditions

Table 1 outlines more explicitly the various moral claims corresponding to, or implied in constructing, different spheres of sustainability. It suggests that there are different normative-ethical structures involved in the different spheres of sustainability.

In the first place, different spheres invite different types of moral claim, the first appealing to rights, the second to opportunities, the third to ideas about the good life. In the second place, the type of normative urgency is different also, beginning with those that are categorically binding – the appeal to rights – and ending with ones of only weak normative force – the appeal to quality of life. In the third place, there are different social institutions corresponding to these spheres: law, market and cultural tradition springing to mind most readily.

However, these are by no means hard and fast divisions. Given the multi-disciplinary culture of recent discourse on sustainability, it is obvious that different disciplines and scientific traditions predominate in each of the spheres. Even if the biomedical sphere should be dominated by medicine and health policy, given the inevitable cost problem and the reductive dynamics of the value ambiguities sketched earlier, economic modelling of health standards again surfaces in debates and controversies concerning this sphere. For a more detailed report see Policy Research Brief 7.

The Problem of Integration

The bulk of the more recent discussion about sustainable development is located in what is called here the material and the aesthetic sphere. Economists on the one hand, philosophers, ecologists and public policy representatives on the other, stand for the relative independence of these different spheres. The distinction of spheres could be read minimally as expressing such an accepted independence, leaving open the task of integration. One promising attempt at integration is Bryan Norton's Adaptive Management Theory (see Box 5). A key feature of this suggestion is that integrated perspectives should be looked for not in formulae but in dynamic and self-correcting procedures that (re-)negotiate both how problems are perceived and what solutions are appropriate.

Box 5: Adaptive Management Theory

Rooted in American pragmatist tradition, Brian Norton's theory integrates a social conception of science with a social conception of public decision-making. Principles of adaptive management demand that decision-reaching be:

(i) experimental and dynamic, typically working through 'bottom-up' processes of negotiation;

(ii) multiscalar, observing the different temporal and spatial scales of natural processes; and

(iii) place-sensitive. 'Place-based' or local-communal decision-reaching guarantees the inclusion of personal and communal identities in a decision on natural management. It aims to protect and accommodate a diversity of values, and to hold open opportunities for their realisation.

Source: Norton and Hannon (1997)

Material Sustainability as Intergenerational Equity

The problem of intergenerational equity arises in connection with material sustainability. This is also the context where economic valuation comes to the fore. As a comprehensive and exhaustive method, economic evaluation is justifiably controversial (see pp. 7–8 and Policy Research Brief 1). And yet in the context of goods which can only be gained by economic appropriation it is unavoidable. At least in the foreseeable future, the effective quantities of different raw materials will continue to be determined by their appropriation. Non-renewable mineral resources may be finite, and yet the extent of their existence is not calculable. In practical terms, they will exist to present and future users for as long as they can be appropriated economically or, more exactly, for as long as they can be appropriated effectively. Their value is therefore unavoidably economic.

Box 6: Intergenerational Equity as Equal Opportunity

The attempt to provide for intergenerational equity in economic terms presents two contradictory alternatives. First, raw materials and energy costs have to be kept constant to achieve intergenerational justice. Second, the costs of raw materials and prices have to rise freely according to their rising extraction costs in order to initiate technological advancements. A purely economic view would not aid the decision process. What have to be kept constant are certainly not the costs but the chances to make use of natural resources. Constant costs, or an equal share of resources, may be compatible with widely different chances in the implementation of materials and energy, given the different efficiency levels of technology.

Example: Global Warming

We appear to be entering a period of unprecedented global warming. The rapidly shifting priorities that are likely to accompany this scenario show up the difficulty of trying to provide for intergenerational equity by either equalising costs or equalising resources. They also bring home the crucial importance of 'social capital' – especially the adaptive capacity to make use of whatever resources are available.

Again, we have to see that an evaluation problem surfaces because the simple biophysical criterion for sustainable resource use does not make sense. This criterion says that non-renewable resources only be used to the extent that they can be replaced by renewable resources (see pp. 8–9). Such a situation is unlikely to occur not only in the near future but also in the long run. Minerals and metals cannot simply be substituted by energy, at least not in the current physical situation, and it is also difficult to imagine that non-renewable energy sources could be completely replaced by renewable ones. A deeper and more problematic assumption is that somehow the total amount of resources has to be stabilised or maintained. Why? Resources are relevant in their value to humans, even if economic costs may not be the exhaustive way of expressing this value.

Not only does the biophysical view of sharing resources intergenerationally make no sense; it is also unclear how a fair distribution should be operationalised devoid of economic costs. There is a considerable lack of information regarding the number of generations amongst which one has to distribute, and, given the very different forms of technical appropriation in generations wide apart, any proportional distribution has to be widely unfair. What is being equally distributed or rationed in raw materials are certainly not the materials themselves. The use that different generations make of their resources must be left to them; it cannot be predicted. What needs to be secured, rather, is the equal opportunity to use the resources (see Box 6).

Photo: C. Spash

But when are the chances of putting resources to use equal? Economic costs play a role, of course. However, they have to be evaluated within either individual or collective budgets used for the leading of a normal life. Such a budgeting presupposes a standard view of leading a normal life, including judgements about the proportional controlling of scarce material goods. It may seem impossible to develop such a standard view, our individual views of life being too different and any suggestions being rigidly normative. That depends on the kind of resources and their importance for what J. Rawls (1971) has called a "weak theory of the good", i.e. a conception of the good life that concentrates on goods that are important for any human, however different their individual preferences are otherwise. Such a budgeting framework has to be worked out.

To summarise, sustainability in natural resources comes down to intergenerational equality of opportunity regarding these resources. Social capital plays a key role in ensuring such equality. Furthermore, resource equality can be judged intergenerationally only if judged within a standard view of the good life.

Aesthetic Sustainability as Aesthetic Tradition

Many ecologists are quick to talk of the 'ethical dimension' of nature. They are often happy to use such ambiguous criteria as the 'integrity' or 'harmony' of nature. Given such expectations towards deeper ethical dimensions in nature, calling a sphere of the environment merely 'aesthetic' may seem discouraging, too narrow and subjectivist. However, due to the difficulty of providing a rational foundation for the belief in an undiminished moral quality inherent in natural things and beings (with the exception perhaps of the higher animals due to their sharing important qualities with humans), 'aesthetic' quality is perhaps the best, albeit misleading, concept for this sphere.

Box 7: The Variety of Aesthetic Experience

Just what an aesthetic experience is becomes clear most easily when contrasted with economic or material values. Metals, trees and water are of value to us predominantly because of their instrumental character. If used to make tools or generate electricity, they are useful with regard to things we value, things we 'need'. By experiencing them aesthetically, on the other hand, we value natural things in a different way, as being valuable in themselves. If we observe the beauty of a river or a tree, this is not an act of instrumental value, it is valuing for its own sake. Aesthetic value is intrinsic value. Alongside the biomedical and material relation we have towards nature, the aesthetic relation is therefore important as well, being that of intrinsically valuing natural things. Again, this kind of value is anthropocentric: the beauty of natural things is regarded from our human viewpoint. Especially in a materially wealthy society, the uselessness of nature may even represent its most important value for us.

The structure of human experience, its quality and categories determines what aesthetic value humans find in nature. Even if the whole of nature is an aesthetic resource, not everything in it is. Also there is flexibility and personal interpretation in what is naturally beautiful. Intrinsic aesthetic value is, then, in a twofold sense less normatively binding than moral value. Not every natural thing must be beautiful *per se*. Whether it is or not depends on the human view. And not every valuable thing has a right to exist, there being so many other valuable things. If species 'X' dies out, some other species of aesthetic value will exist.

Across the world, natural or semi-natural (e.g. in Europe) biotopes compete with the direct and indirect consequences of economically motivated human activity. The destruction of landscapes is often irreversible, their original wealth of species cannot be recreated. This situation usually provokes the intuition that future generations are being deprived of natural goods because present generations are using them up. And yet the only two reasons why species and biotopes should be classed as goods at all are, first, their potential value in the future, e.g. for agricultural, medical or general scientific purposes, and, second, their aesthetic value.

Neither of these are reasons strictly suggesting sustainability – quite apart from the fact that it is practically impossible to freeze biodiversity at its present state. The potential value of species also depends upon the scientific and technological abilities of future generations: maybe they will find a way of compensating for their diminished biogenetic inheritance. The aesthetic value of biotopes and landscapes is not constant, but changeable. Compared with us, future generations will probably be as stylised in their ideas about life in natural surroundings as we are compared with people living a century ago. Each new generation has its own opinion about nature and natural landscapes, developing different leisure and travel preferences from the generation before.

Photo: S. Laske

An element of stability can be introduced to the aesthetic valuing of nature by the traditional character of aesthetic evaluation. In practice, aesthetic values are often embodied in communal traditions. How we experience the existence of for example woods, mountains, rivers or different species of animals is linked to local and translocal traditions concerning the communal and often social relationships we have towards other humans and towards natural things. To be sure, traditions need not be kept up forever, and some are better dead than alive. But if there are traditions of living with nature in terms of experiencing the aesthetic value of natural things, such traditions cannot be bad ones. Normally they will lend an important quality to individual lives. And if we think that aesthetic valuing has to be learned, actively practised and socially shared we can only have a preserving attitude towards 'aesthetic communities'. It is not impossible to build new ones either.

Aesthetic values are often embodied in communal traditions.

To sum up, aesthetic sustainability finds its most enduring expression in communal traditions of valuing natural things intrinsically.

Policy Recommendations

Sustainability programmes cover a wide range of scenarios – technology, material cycles, consumer behaviour, and so forth. There is no single common value that can be appealed to as grounding these programmes. Each such programme needs to be accompanied by appropriate criteria, both for measuring progress and direction and for providing motivation. All such measures come with inescapable suppositions about value, which need to be made explicit. Accordingly, policy-makers need to recognise:

- the importance of measures and indicators to the effectiveness of any sustainability programme;
- the cultural assumptions that are built into decisions about what to measure and how it should be measured;
- the limitations of 'one-shot' indicators, whether these be biophysical, economic or cultural;
- the need for economic, biophysical and other indicators to be woven into a meaningful social fabric;
- that different values and different levels of urgency are appropriate to specific sustainability programmes;
- the importance of social capital for any sustainability programme – especially the bequest of an adaptive capacity to make use of whatever resources are available;
- the need to develop ways of integrating the various perspectives;
- the likelihood that integrated perspectives will be found not in formulae but in dynamic and self-correcting procedures that negotiate both how problems are perceived and what solutions are appropriate.

Key Points

There is no overarching value to be found informing the sustainability agenda as a whole, and available to guide environmental policy. Nor does this concept supplant or replace older, familiar, and contested concepts such as justice and the nature of the good life. Sustainability is best understood as an organising concept that brings a measure of coherence to a diversity of programmes. These programmes can be expected to be sites of conflict and negotiation. The role of the term 'sustainability' is to suggest ground rules of engagement for these conflicts and negotiations.

Key points of this policy research brief can be summarised as follows:

- The idea of a 'sustainable relationship with nature' or of the 'sustainable development' of whole societies expands immensely the original meaning of the term, which referred to the maintenance of, for example, a constant stock of fish or timber.
- Neither biocentric, nor economic, nor biophysical criteria are adequate by themselves as measures of sustainability; rather, economic, biophysical and other indicators need to be woven into a meaningful social fabric.
- It is necessary to recognise different 'spheres' of sustainability incorporating different perspectives and different criteria of failure or success corresponding to the diverse problems that are being addressed.
- Different values underlie different sustainability programmes, and vary in degree of urgency.
- Sustainability in natural resources comes down to intergenerational equality of opportunity regarding these resources. Social capital plays a key role in ensuring such equality. Furthermore, resource equality can be judged intergenerationally only if judged within a standard view of the good life.
- In questions about the sustainability and appropriation of material resource, economic valuation is inescapable.
- Aesthetic sustainability finds its most enduring expression in communal traditions of valuing natural things intrinsically.
- The integration of perspectives is a dynamic process with feedback loops where (re-)negotiations between affected parties can take place. Such process should allow parties to state their perceptions of the 'problem' and their ideas of potential 'solutions'.

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EVE Concerted Action

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Concerted Action on Environmental Valuation in Europe (EVE)

This policy briefing series communicates the findings from nine workshops and three plenary meetings under the EVE programme. These showed the diversity of research currently being undertaken in the area of environmental values and their policy expression. The type of information relevant to the decision process extends from ecological functioning to moral values. Thus a range of approaches to environmental valuation, from ecology to economics to philosophy were presented.

EVE was a 30 month project which started in June 1998 funded by the European Commission, Directorate General XII within Area 4, Human Dimensions, of the Environment and Climate RTD programme, Contract No. ENV4–CT97–0558.

The project was co-ordinated by Clive L. Spash and managed by Claudia Carter, Cambridge Research for the Environment (CRE) in the Department of Land Economy, University of Cambridge. The following research institutes were partners in the concerted action:

Bureau d'Economie Théorique et Appliquée (BETA), University Louis Pasteur, Strasbourg, France
Cambridge Research for the Environment, Department of Land Economy, University of Cambridge, UK
Centre for Human Ecology and Environmental Sciences, University of Geneva, Switzerland
Centre d'Economie et d'Ethique pour l'Environnement et le Développement (C3ED), University of Versailles Saint-Quentin-en-Yvelines, France
Centre for Social and Economic Research on the Global Environment (CSERGE), University of East Anglia, Norwich, UK
Department of Economics and Economic History, Autonomous University of Barcelona, Spain
Department of Economics and Social Sciences, Agricultural University of Norway, Åas, Norway
Department of Environmental Economics and Management, University of York, UK
Department of Philosophy, Lancaster University, UK
Department of Rural Development Studies, Swedish University of Agricultural Sciences, Uppsala, Sweden
Department of Applied Economics, University of Laguna, Tenerife, Canary Islands, Spain
Environmental Economic Accounting Section, Federal Statistical Office, Wiesbaden, Germany
Ethics Centre, University of Zurich, Switzerland
Fondazione Eni Enrico Mattei (FEEM), Milan, Italy
Istituto di Sociologia Internazionale di Gorizia (ISIG), Gorizia, Italy

The purpose of this concerted action was to analyse effective methods for expressing the values associated with environmental goods and services, ecosystem functions and natural capital, with a view to the achievement of the goals summarised in the concept of sustainability. The appropriate role of decision-makers and citizens in environmental policy-forming became a central focus in the debate over how different values should be expressed.

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