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The Environment as a Commodity

ARILD VATN

*Department of Economics and Social Sciences
Agricultural University of Norway
Postbox 5033, 1432 Aas, Norway
Email: arild.vatn@ios.nlh.no*

ABSTRACT

This paper addresses problems related to transferring market concepts to non-market domains. More specifically it is about fallacies following from the use of the commodity concept in environmental valuation studies. First of all, the standard practice tends to misconstrue the ethical aspects related to environmental choices by forcing them into becoming ordinary trade-off problems. Second, the commodity perspective ignores important technical interdependencies within the environment and the relational character of environmental goods. These are all properties that have made many such goods escape the commoditisation pressure of markets in the first place. Further, it is shown that these interdependencies are the source of some of the ethical dilemmas observed. Finally, inherent characteristics of the environment tend to make the concept of the margin, so indispensable to economic calculus, either difficult or irrelevant to define. The commodity 'fiction' twists the perception of the environment from systems preservation to items use or transformation. This is a problem of increased importance as we approach potential systems perturbations.

KEYWORDS

Economic theory, environmental ethics, systems theory, valuation

1. INTRODUCTION

In today's society there is a strong tendency to look at the market as the ideal institutional structure for securing the best use of resources. Still, there are a lot of things of value to us that are not distributed through markets. One very important group of such goods is environmental ones. In making decisions about these, market-like assessments are still advocated.

This raises at least two questions. First, what is it that defines the extent of the market? Second, if the market does not cover all goods, why should we use market-like assessments to evaluate the protection or use of these goods? Doesn't the fact that the good is excluded from the market indicate that other types of appraisals are more relevant?

In economic theory the market appears as an highly abstract structure. It abstracts away from time and place, from history and social context. Actually, it gains much of its analytical strengths exactly from this operation. There is a price to be paid though – the loss of dimensionality and the subsequent reduction in realism. Analytically this poses a problem in that there is little focus on the difference between the 'abstract' and the 'real' – in other words between when the model helps us to gain insight and when it fails to do so.

Real markets are constructed sets of institutional regulations that have normally developed over long time. While the development is interpreted in various ways in the literature – see for example Polanyi (1957), North (1981) and Bromley (1989a) – there is broad acceptance among economic historians that market development is an uneven process led by societal or political decisions concerning both the form and extent of the market. Certainly, technological development is an important part of the story. The potential for trade and specialisation is far greater today than say two hundred years back. Still, the question about where markets can or should exist is in principle the same.

The expansion of the market in our days is tremendous. It is still limited by two forces. First, we have ethical and cultural considerations. In any society there exist goods which its members consider wrong to sell or buy. Thus it may be that changing items or relations into commodities may reduce their value or pervert their functions. In our culture, friendship and the right to vote are typical examples of things not sold. This may also be the case with some rights to specific natural goods, laws regulating the labour market or the ban of some types of drugs as legal commodities.

Second, we have the technical constraints inherent in the character of the good. Here I have in mind that it may be technically impossible or at least very costly to transform the good into the physical form of a commodity. In the form of a function, it may not be possible to demarcate at all.

Both the above explanations are very important when we consider environmental goods. More emphasis will, however, be put on the second problem – the technical characteristics of the environment and their implications for the ethical issue.

2. MARKET EXPANSION AND ECONOMIC THEORY

Humans distinguish themselves from animals not least by their ability to produce institutions to define rights and responsibilities amongst themselves and towards

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the rest of nature. Humans' access to resources is not primarily based on physical possession, but on generally accepted and enforced rules.¹

The evolution of such institutions has been a long term and very gradual development. While plant or animal species develop according to their ability to utilise or compete over given resources gradients, human history is mainly about how this particular species has managed to develop institutions supporting its transformation of the physical surroundings – i.e. intentional creation of new gradients. Further, what may seem to be a relationship between man and nature, is primarily about the regulation of access to resources amongst people themselves. It may well have started with the development of a hunting organisation and the rules about the rights to the captured animal. It may have continued with the organisation of the first primitive agriculture. Thus, over time an increased set of physical resources came under some sort of human control, and hence their use became intentionally regulated.

In this way the human species started to develop institutions that in themselves came to affect evolution, and human rule became attached to an ever increasing set of resources.² These institutions have varied substantially in time and space, though. The river dynasties of the ancient world were very different in organisation from the contemporary nomads of, say, Africa. Still, some basic features have dominated, as Polanyi (1957) states: 'Broadly, the proposition holds that all economic systems known to us up to the end of feudalism in Western Europe were organised either on the principles of reciprocity or redistribution, or householding' (pp. 54–5).³ I believe the geographical relevance of this claim is far wider.

The commoditisation of goods, *which is the production of goods for sale*, is historically a rather new phenomenon. This does not imply that goods were not exchanged in ancient times. As Polanyi emphasises, however, this trade played a minor role in economic and social life even as late as eighteenth century Europe. Actually, to talk about a specific economic sphere made no sense in the societies preceding what we now describe as western market economies.

In this very brief historical account, the most important change to acknowledge is thus the gradual establishment of the market as a more general motor of resource allocation, production and distribution. We shall just focus on two basic characteristics that follow from the more universal role of markets:

- the need to transform a wide range of use and even existence values into a uniform system of exchange values – i.e., prices
- the capacity to commoditise, including the physical demarcation of various resources.

The price of even the most simple commodity only captures a subset of the dimensions of its importance, worth and meaning to humans. The conditions under which it is produced may, for example, concern us for different reasons. This is, however, abstracted away from in the market-clearing process, where

exchange value is decisive.⁴ According to the model of rational choice, exchange value only tells us that for the buyer the good – in its form of a commodity – is at least as valuable as what it is traded against.

What the market does is to simplify greatly the process of allocation of resources and distribution of goods. This is an achievement. On the other hand, a lot of relevant aspects concerning both production and consumption are lost in that process. Compressing complex realities into a simple metric of monetary value may result in a non-trivial loss of information (Vatn and Bromley 1994). These problems are especially prominent concerning the values of labour and nature. For, again to quote Polanyi (1957),

A market economy must comprise all elements of industry, including labor, land and money..... But labor and land are no other than the human beings themselves of which every society consists and the natural surroundings in which it exists. To include them in the market mechanism means to subordinate the society itself to the laws of the market. (p. 71)

The implication is that a market process, or more precisely a market-based calculation, cannot capture all that is at stake. There are several value dimensions involved that cannot be reduced to a single metric. They are incommensurable (O'Neill 1993). Ethical aspects are among the most prominent non reducible concerns (Etzioni 1988).

Let us look at labour first. In market economies labour is a commodity. It is sold and earns its price. In that process it becomes simply a means. Labour is, however, also the aim of production in all its wider contexts and relationships. The point is that the right to a dignified life cannot be secured through the exchange process of a market. Thus we observe both the appearance of labour legislation to secure some basic rights, and in many countries the emergence of specialised ministries with the responsibility of preventing the transformation of the human into mere labour – e.g., ministry of social affairs.

The complex welfare state – with its parallel development to the enlargement of the market economy – is thus best understood as a way of institutionalising some of these various other issues that markets do not handle. It is not to be understood as some 'interference' with the superior free market forces. It is instead a way of making markets work and at the same time securing a sense of society. It is a multi-dimensional decision-making system covering a wide range of concerns that fall outside the market valuation process – i.e. the logic of exchange. What is characteristic of these value dimensions is that general trade-offs are hard or often impossible to make. Thus we observe that different interests are institutionally defined and defended within specialised and partly autonomous sets of authority structures. Certainly, objectives and aspirations may vary between countries, but still, there are many parallel developments to be observed. The ministry of social affairs is, as already indicated, best understood as responsible for the equity dimension and the formulation of a general security net

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in society. The ministry of health has a similar responsibility in its field. If there exists a ministry of development, it may be seen as responsible for parallel obligations in relation to citizens of third-world countries.

The list could easily be expanded, but this is not the point here. My aim is to focus on the complexity of value dimensions. The dilemmas open to us are maybe starkest when considering labour – its duality as both a means and an end. However, the problems also seem to haunt us severely when we move to land – i.e. the natural environment of the society.

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3.1 What constitutes a commodity?

Before we enter the analysis of the natural environment, it is necessary to be more precise on what makes something become a commodity. We have already defined a commodity as an object produced for exchange or sale. There are two types of prerequisites that have to exist before an object is saleable. These are institutional and technical.

The institutional prerequisites are ownership, including the right to trade. Ownership is a legal relationship defined between the owner, the object in mind and those not owning. It defines a right for the owner to undertake socially acceptable uses (Bromley 1989a). This also implies a duty to refrain from socially unacceptable uses, just as the non-owners have to respect the rights of the owner as defined. This understanding specifically emphasises that ownership or property is a social relation. It cannot be defended as a Lockean natural right subjected to the independent will of the owners only.

Ownership is thus a set of rights, for example, rights to possess, use, and manage. A right to ownership does not necessarily carry with it the right to trade the good, or the right to trade may be restricted (Honoré 1961). Typically, even in western market economies, the right to sell land is normally restrained or strictly regulated. Is it still a commodity? Given the nature of ownership as understood here, ownership is regulation. It thus gives no meaning to limit the concept only to an 'unregulated' right to trade. On the other hand, we would hardly call it a commodity if the good can be offered or sold only to one or a few persons in a specific position. Commoditisation demands some level of universality. I find it, however, outside the need of this paper to attempt to draw that line.

The technical prerequisite for something to become a commodity is attached to the need for defining boundaries of the good at stake – its itemising (Holland 1995). Without boundaries, there is no way a property right can be executed. Certainly there are differences between, say, a nail, an hour of labour or a set of environmental services concerning what defines their boundaries, what the goods contain, and thus their ability to be demarcated. We shall return to these issues.

3.2 Anomalies in the valuation literature – indications of problems with the commodity perspective

Monetary valuation of environmental goods has become a growing scientific activity. It represents an attempt to bring the use of these resources under the same technical form of evaluation as marketed goods. This has raised a lot of issues concerning the character of man-nature relationships. We can therefore observe an intense debate throughout the 1990s over both the scientific standing and the political relevance of monetary valuations of environmental goods (Arrow et al. 1993; Diamond and Hausman 1994; Hanemann 1994; Holland, O'Connor and O'Neill 1996; O'Neill 1993; Portney 1994; Spash 1998; Vatn and Bromley 1994).

This type of valuation signifies an implicit commoditisation of the natural environment in the sense that the pricing exercise makes environmental goods tradable with other goods. In economic theory the environment is generally conceptualised as a commodity,⁵ and as such the relative prices of environmental goods should determine how they are used.

The direct use values of nature are to a large extent commoditised in developed market economies – e.g., fish, fruit or metal ores. When commoditised these goods should not be termed environmental despite the fact that they are the result of nature's own 'productive forces'. Still outside markets are 'use-values' like scenic views, functional values like nature's life supporting functions,⁶ and so-called 'non-use values' mainly defined as 'option', 'bequest' and 'existence' values.

The functional aspect of nature is almost totally absent in the literature on monetary valuation. Here the distinction is dominantly between use and non-use. Again, it seems we are confronted with a situation where the commodity perspective drives the analysis. Nature seems to be understood as a collection of items that are (produced) 'for sale' like outputs of any other 'factory'. Natural objects may produce direct use value to us and fit the model well. The problem arises with all those other items that we do not directly use. The 'factory' may certainly be irrationally led and produce things we do not need, but still, people seems to appreciate even these elements. Thus, the concept of non-use values had to be invented. The mistake of not understanding many of these goods as functional – i.e. as something that offers important, but mainly invisible services to us – is a major problem. Still, it is easy to understand why it happened given the commodity perspective.

Some critics of environmental valuation like Diamond and Hausman (1994), think that the source of the problem is that people do not have preferences over 'non-use values'. While I disagree with this view, since people certainly appreciate the broader contexts of nature, it is my position that we have problems in *expressing* these preferences in monetary terms. One potential reason for this is captured by Diamond and Hausman (1994) when they state: 'It is precisely *the lack of experience* both in markets for *environmental commodities* and the

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consequences of such decisions that makes contingent valuation questions so hard to answer and the responses so suspect' (p. 62, my emphases). While this statement is an excellent illustration of the standard conceptual framing of the problem earlier hinted at, it is far too narrow. Experience is one thing, relevance is another. Monetary assessments may just not fit the characteristics of the problems at hand and the way people understand them. The commodity concept may be a wrong metaphor.

This is not the place for a complete review of all the questions at stake here. We are only interested in aspects related to the commodity concept, and thus I shall raise the following issues:

- the effect of unclear or absent property rights on value estimates;
- the ethical issues related to trading the environment;
- the problem respondents face when comparing across goods and value dimensions; and
- the problem of defining the boundary of environmental goods and perceiving them under the logic of exchange.

Since the environment as defined here is not formally owned, the first problem faced in valuation studies is that ownership must be assumed. This introduces uncertainty, as the studies also show that 'who owns' has immense effect on the pricing exercise. Normally a willingness to pay (WTP) format is used – i.e. the respondent is assumed not to have ownership of the good. The opposite rights structure would demand a willingness to accept compensation (WTA) measure, which is sometimes used, but deemed less appropriate (Arrow et al. 1993).⁷

As long as the good at stake demands a payment that is only a marginal fraction of the evaluator's income, economic theory concludes that the difference between WTP and WTA should not differ much (Willig 1976). Studies undertaken show, however, quite the opposite. According to Gregory (1986) WTA estimates tend to be at least three times as high as WTP estimates.

Explanations appeal to 'loss aversion' (Tversky and Kahneman 1986), the endowment effect of environmental goods (Bromley 1989b), or intrinsic value/ethical concerns (Boyce et al. 1992). The ethical issue is of special importance here, and takes us further than just explaining differences between WTP and WTA. People may simply find it wrong or incomprehensible to trade ethical principles against monetary values. This may result in various forms of protest bids (Spash 1997). A somewhat opposite reaction is exhibited in an extra willingness to pay for a good cause – the so-called 'warm glow' effect (Kahneman and Knetsch 1992).

While ethical concern illustrates the existence of incommensurable value dimensions, there exists a more general problem of comparison across value dimensions or scales. Much of the empirical evidence for this comes from the literature on preference reversals (Slovic and Lichtenstein 1983; Tversky, Slovic

and Kahneman 1990). Essentially, the point is that the procedure of measurement influences the resulting value expressions. This is indeed problematic for standard economic thinking, where institutions in themselves should not influence preferences or value expressions.

The final issue in the above list – the boundary problem – relates to the physical character of the good, its complexity, its functionality and, as a consequence, its imprecise demarcation. One aspect of this problem has emerged in the valuation literature under the concept of ‘part-whole bias’ and ‘embedding effect’ (Kahneman and Knetsch 1992; Diamond et al. 1993; Carson 1997). The problem has been that peoples’ willingness to pay is not sensitive to the size of the issue, like protecting one lake against protecting a series of lakes. Some authors consider these problems to be basically of an informational character (Hanemann 1994; Carson 1997). As I will argue later, the fundamental problem may instead relate to the functional character of the goods as such. They may in principle not be demarcatable at all. Further, the ecological reasoning about resilience of ecosystems may turn our thinking towards preserving the resource as it is, not towards trade and exchange.

There seems to be a common feature of most of the observed anomalies in the valuation literature. Neither people’s assessments nor the good itself fits well with what is assumed in the theory. Going into this more in depth, we shall distinguish between ethical and physical considerations.

4. ENVIRONMENT AND ETHICS

As already indicated, transforming environmental values into commodities may create a lot of ethical concerns or problems. Basically, perceiving the environment as a commodity deprives it of much of its meaning and worth.

In many cultures, a sense of sacredness is attached to the natural environment or parts of it. Even in our more secular type of society, the natural environment is of great importance in creating identity and defining belonging. It is further viewed as heritage by many – i.e. primarily as something we inherit with the responsibility to hand it on to later generations in good shape (Burgess, Clark and Harrison 1995). As such it becomes difficult to put it within the bounds of a trade-off calculation. Conceptualising it as a commodity is a category mistake (see e.g. Sagoff 1988).

Going further into this, one observes several issues that do not conform well to the commodity concept. I will distinguish between the issues of ‘nature’s own right’ and the moral concerns raised by the interconnections of humans through their common environment.

Holland (1997, p. 130) emphasises that the first issue ‘arises from the fact that the natural world contains many items which undeniably in the case of sentient

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animals, or arguably in the case of other animals and plants, have moral claims on us'. Being arguable, conclusions about the nature and extent of the moral claim will vary between cultures and over time. This does not, however, eliminate the challenge.

Certainly, a definition of 'nature's right' has to be culturally or socially defined. This follows from our reasoning about what constitutes life and the position of our species in relation to other species. Some have questioned why the utilitarian calculus is defined only over human interests and needs, as it seems to be an absolutely arbitrary choice. Environmental economics has in a way tried to alleviate this problem by introducing the concept of 'existence value'. This way the rights of nature – as each individual perceives it, though – becomes part of the calculus. Following Sagoff (1988) and Holland (1997) this reveals a serious misunderstanding about the character of moral claims. They have to go beyond *individual* evaluations, as ethics and morality are social phenomena. They belong to another category than those to which ordinary trade-off calculations are appropriate.

Concerning human interconnectedness, it is my position that much of the ethical dilemma highlighted stems from the interdependencies that the natural environment creates between humans. The act of one influences in a direct way the possibilities for others. This is the case with smoke emissions and with the destruction of a habitat. Services will be lost for these others.

Both the above perspectives may explain a great deal of the confusions and protest bids observed when monetary valuations are made. A rational response to the ethical dimensions involved would be to classify values in different categories, between which there are no or very restricted trade-offs. This is exactly what is observed in the work of Spash on lexicographic preferences (Spash 1998; 2000).

The situations described produce ethical dilemmas.⁸ A response to such predicaments may be what we like to term state intervention – e.g. the introduction of environmental taxes etc. to change the pay-off of different individual strategies. Historically this option has been less viable. Even today many issues can hardly be solved this way. Instead we observe a tendency in society to develop rules of good conduct, even moral commitments concerning uses of 'the common good'. These rules are based on practical judgement and reason (O'Neill 1993), and are part of the continuous creation of a society. One does not need to adhere to a Polanyian perspective of history to see that an inquiry about the monetary value of something considered to be a societal principle will be met by confusion or even hostility. What we are talking about here is nothing less than the essence of what a society is. Thus the monetising exercise may even endanger processes taking place in the continuous recreation of a society. Moral commitments are confused with individual satisfaction. To pay is to bribe.

5. THE ENVIRONMENT AS A SYSTEM

While some goods are kept outside the market place purely on ethical grounds, some are thus handled because of their physical characteristics. While there actually may exist some relationships here, we will first focus on the effect of these physical attributes on the possibility of making trade-offs.

5.1 Functions and boundaries

The perspective advanced here is that the natural environment is characterised by an enormous number of processes/feed-back loops maintaining their internal and external balance as matter and energy flows through it. The system is self organised – i.e. evolved over vast time spans where biological and geochemical processes have developed their interrelationships in gigantic ‘experiments’ of trial and error. In the long run, only those processes that have reciprocally supported each other have survived. They have in this way *become functions of the system*.⁹

To illustrate, we can compare the living conditions of the early atmosphere of the earth with that of today. Geologists assume that the composition of the atmosphere, going back to the time when the earth’s crust started to form, was much the same as that of an erupting volcano. Here the gas composition is about 80% water vapour, 12% carbon dioxide, 7% sulphur dioxide and 1% nitrogen (Graves and Reavy 1996). There was thus no free oxygen in the early atmosphere. Today nitrogen dominates with about 78%; oxygen has stabilised at a level of 21%; while carbon dioxide is reduced to about 0.035% (ibid.). This is a tremendous change.

The transformation is an effect of biological life, which has so to speak created its own necessary conditions. Oxygen, for example, was a waste in the old system (anaerobic life forms). At a certain stage the content of oxygen reached a level in the atmosphere even harmful to life forms producing it. It did however foster a totally different development on the globe – the aerobic type of life which now dominates.

The atmosphere of today is continuously recreated by myriads of processes. They are fuelled by the low entropy of in-flowing solar energy, and carried out very much by the biota itself. To maintain life, circulation of matter and energy is of utmost importance. This circulation must take place within a certain order (Perrings 1987). The basic rule is simple: ‘The condition for stability is easily stated: the stocks in each compartment, or reservoir, must remain constant (at least on the average); and, for this condition to be met, the stock in some compartment must increase, at the expense of the stock in some other compartment. If the cycle does not restabilise, somehow, it will collapse’ (Ayres, 1993, p. 203).

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Thus a working ecosystem is a system of complementarities where the distinction between waste and resources is relevant only for each type of organism, but not for the set of all types of organisms as a whole. Rather it is the fact that waste for some is a resource for others that makes the system function.¹⁰

How do we define value, how do we draw boundaries and define distinct commodities – real or imagined – in such a system? We certainly may demarcate pieces of land. Still, our ability to capture the functions or processes attached to the system of land structures, water and air is illusory. Even if we could manage to attach ownership to each molecule, we would not be able to capture the relational aspects – the processes – and that is what counts.

When demarcating commodities, the point has been to take what we have considered valuable entities out of their natural circulation and into the circulation of the economy. Going back to our historical perspective, one can say that due to enhanced productive and institutional capacities, we have been able to commoditise an ever increasing number of the bits and pieces that the biogeochemical system consists of. From an economic perspective, we can postulate that commoditisation has stopped where the (potential) gain does not cover the costs of demarcation.

Transaction costs have thus become part of the story, as we also find in the literature on common pool resources (Ostrom 1990, Bromley 1991). There is, however, another problem related to taking resources out of their historically and ecologically defined positions – that is, when commoditisation means physical transformation and/or transportation. To the degree that the particular resource has had a specific function in its original position, that function will cease. A perspective viewing nature as a stack of physical resources to commoditise, will not see this as a problem at all. Thus we encounter two difficulties. Real, but incomplete, demarcation may destroy important functions. Complete, but imagined, demarcations may be illusory.

To my mind the embedding or part-whole effects mentioned earlier should be understood within this perspective. An explanation of the small increase in compensation required when the size of the environmental good increases, may follow from the idea that the respondents actually think about the good as part of a system. They may have a more sophisticated view of the good than the economic researcher assumes. Schulze et al. (1994) argue that in the case of species protection, it may not matter to the respondent whether we talk of, let's say, 1,000 or 100,000 birds. Furthermore, they may not only think of the species in itself: they may also include the ecosystem to which it belongs. 'Butterfly species in the Amazon are becoming extinct because of the loss of habitat. The only way to save one species is to save all of them by saving the forest as well' (ibid., p. 16). In the light of this the information problem in valuation studies becomes tremendous – most probably unsolvable.

5.2 The elusive margin

Following what has been said so far, the definition of the margin – so critical to all valuation and standard economic decision making – becomes difficult to operationalise. The above perspective can be developed in two distinct and seemingly opposite directions.

First, it is the perspective of functionalised wholes – situations where each element of a system plays a distinctive role for the dynamics and the continuation of the entire structure. In such a case each element is necessary to avoid huge alterations or breakdowns of the system. This can best be illustrated by the organs of a body. The margin is definable in this case – each organ defines a margin – but the value of each becomes equal to the value of the whole. This is the embedding effect taken to its limit.

We know, however, that the environment is rarely functionalised to this extent. This takes us to the second direction. Because of all the variations in the interplay between the elements of an ecosystem, it could not have been sustained without a high level of resilience. Holling (1973) defines resilience as a measure of the perturbation a system can absorb before it crosses an unstable manifold and converges on another equilibrium state. Such a change is also termed an attractor shift. This means that a process or species function may be covered by another process or species if a change occurs that makes some of them cease or go extinct.

The problem is to define the resilience of the system. As highlighted by Perrings (1997), the boundaries of an attractor basin are not well defined. This means that it is difficult to determine what may finally change the working of the actual structure. Normally no single change will alter the working of a system – i.e. from the functional perspective of keeping the system within bounds, the marginal cost of each change is zero. It is only the sum of several changes that has the power to alter it, and the changes may then be substantial.

How do we make choices in such a situation? As Perrings (*ibid.*) emphasises, no valuation exercise can alter the character of the problem. Rather, my view is that valuation of single elements may instead shift our perspective away from a realistic understanding of a complex problem. The metaphor of the commodity is simply far too simplistic. The problem is how to protect systems resilience, not to search for marginal values that have no real meaning. The conclusion is obvious. The concept of the margin should play a marginal role in decisions about environmental goods.

5.3. Interdependence, ethics and institutions

The above arguments also give more insight into the thinking behind the previous statement that interdependencies in the domain of nature create a lot of ethical dilemmas for humanity. The environment is a common good in a specific sense. What I do influences you, whether you live today or generations ahead. In that situation I would like to talk to you about what it is reasonable to do, rather

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than to offer a price. Concerning the future I would like to reason with you as my contemporary fellow about how we can best secure the interests of those coming. That is the best we can do. This perspective directs the need towards a forum not a market (Elster 1986; Jacobs 1997).

Again, the above reasoning illustrates the consequences of the model and concepts we use for the conclusions we reach. The commodity concept is developed within a model based on independence. The only interdependencies that are familiar to the model are of the kind the consumer may freely create herself when combining different commodities in, for example, making a dinner or constructing a house. Interdependencies with ethical force are expelled from the core of the model and into its backyard under the name of externalities. And even here the ethical concerns are made largely invisible by proposing the same rule of calculation for the external as for the internal.

Certainly the whole endeavour of the neo-classic revolution of economics was in the end to remove any questions about what is the right or good way to live (O'Neill 1998). These issues are either understood as purely private and not open for debate, or the debate belongs to other spheres of society than the economy. Due to the interdependencies explained here, they cannot just be private. What I value will influence what you can get the opportunity to value. Thus the only solution is to construct spheres other than the economic within which we may make the judgements necessary. The economy must be embedded in a larger set of institutions.

This implies two things. First, in a system characterised by interdependence of outcomes across individuals, values and preferences need to be determined within some kind of social processes. Second, the institutions we construct must be formulated in a way consistent with this insight. Otherwise, as this paper has argued, confusion will appear. And as we know, from confusion a lot of bad decisions follow.

6. CONCLUSION

Concepts and models are necessary tools to help organise our thinking and to analyse and support decisions. The main challenge is to know which concepts and models are relevant or least erroneous for what purpose. This paper has shown that expanding the market model in general and the commodity concept in particular to the domain of the environment may cause great mistakes.

The reasons for this are both ethical and technical. I have shown here that commoditisation of nature is accomplished in two different ways. First, we have the practice of turning certain objects into physically demarcated entities for sale. This is an historical process which has taken place with immensely increased speed over the last two centuries due both to technological developments and to cultural changes. Second, we have the procedure of mimicking this very same

practice in the domain of 'what is still left' as environment – be it tangible or intangible goods.

What the latter does is first of all to confuse the ethical aspects related to environmental choices by transforming them into ordinary trade-off problems. Further, it ignores the technical interdependencies within the environment and the relational character of these goods. The margin, so indispensable to economic calculus, is either impossible to specify or irrelevant to define. Finally, the commodity 'fiction' twists the perception of the environment from systems preservation to items transformation. While the resilience of ecosystems may be great, this practice stops us becoming aware of the approaching problem of potential systems perturbation.

One should avoid making a strict dichotomy between market commodities and environmental goods. Markets are always incomplete in the sense that they do not cover all that is of value in relation to the commodities traded. Markets simplify some types of communication and emphasise some types of value. Thus it is wrong to draw a strict borderline between commodities and other objects. By commoditising an object, something will always be lost. Something will also be gained. By accepting commoditising or by not accepting it, we make a judgement about what is most important of the gains and losses involved. The balance drawn will be culture specific. The problem is that without a continuous debate over the premises and contents of these choices, fatal errors may be made. A model that only recognises commodities will certainly be blind to such errors.

NOTES

¹ Some may like to compare the concept of an animal's territory with that of an institution. While this kind of territorial 'claim' may mirror some of the functions of an institution, it is a result of Darwinian selection and not of will and social consent.

² While the perspective advocated here owes much to Norgaard's concept of co-evolution (Norgaard 1984), I understand his perspective to focus more on a process where humans restrict themselves to developments that do not challenge the functioning of ecosystems.

³ Polanyi uses 'householding' in the Aristotelian sense.

⁴ Holland (1995) discusses the fact that people may also take into account how the commodity is produced while acting in markets. This characteristic becomes part of the exchange value so to speak. My understanding of this is that exchange may thus be partly blocked by a wider set of considerations, or people may want to pay more for a good produced under the preferred condition. This illustrates that an exact line between market and non-market evaluations cannot be made, since even non-exchangeable values may affect market pricing processes.

⁵ A typical example is Helm (1991).

⁶ What is more specifically meant by this, will be clarified later (section 5).

⁷ The arguments offered for this in the literature are in my mind highly questionable, and do not relate to the rights issue at all. They will still not be discussed here. For an exposition of my position, see Vatn and Bromley (1994).

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⁸ It is interesting to observe that social psychologists specifically define the issues raised here as social dilemmas (as an example see Liebrand and Messick 1996), while economists tend to term them externalities. Again the model or 'reference system' determines the perspective and the use of concepts.

⁹ My perspective on functions – i.e. nature as a functionalised system – deviates from the one advocated by Holland (1995, p. 25), who claims that there is nothing that dictates the function a certain element of nature should have. According to him, functions have to be assigned to natural objects, and can be anything – unlike a marketed good like a nail, where the function is inherent. My perspective is different in that function is seen as a general feature of nature itself. Holland's perspective may supplement mine as there are a lot of potential functions that a piece of wood, as an example, can be made to serve. Even a nail may be used for very many different purposes.

¹⁰ Certainly, the system will change over time. Some imbalance seems unavoidable. Thus, as soon as a new, unutilised gradient is developed, there exists a potential for a species to find itself a niche. Certainly some species may defeat others on old gradients. These processes do, however, normally develop very slowly.

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