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Journal of Environmental Management ■ (■■■■) ■■■-■■■

 Journal of
**Environmental
 Management**
www.elsevier.com/locate/jenvman

Environmental economic, political and ethical integration in a common decision-making framework

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Received 7 February 2006; received in revised form 13 November 2006; accepted 6 February 2007

Abstract

This article develops a decision-making framework for environmental management that integrates technical, economic, political and legal, and ethical decision levels. It attempts to show how these decision levels can be ordained, integrated and interconnected and postulates a hierarchic concentric sphere system that proposes an environmental management model for long-term solutions. This model can be used as a check list for environmental management decision-making and also as a guide for environmental conflict resolution where environmental problems necessitate several levels of decision making. It integrates various environmental ethical positions and evaluates political decisions into a comprehensive, broadly applicable multidisciplinary approach. The objective of this decision-making model is to interconnect into a simplified sequence different levels of environmental management processes in order to account for sustainability, efficacy, efficiency and the acceptability of environmental management processes in the long term. This is done by observing when an environmental problem needs to be solved within a certain sphere of solutions and when it requires wider frameworks, how these can be established and how this process proves that solidarity is the widest and most reasonable sphere.

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Keywords: Environmental policy; Environmental economics; Environmental ethics; Solidarity; Concentric spheres model; Lexicographic preferences

1. Introduction

Environmental management necessitates various tools. Economic, ethical, legal or technical instruments are applied to solve environmental conflicts or problems in many cases without there being an underlying theory able to establish relationships between them. As relationships are found between these tools, more specific and wider models can be developed to provide integrated solutions.

Many environmental managers begin the solving processes with a given system of values that are assumed but not included, nor even judged, as a component of the

process. Environmental values are seen as separate from technical solutions. They are considered as starting points. However, values as well as tools can be integrated into the decision-making process and can be judged according to the results.

Since Aldo Leopold wrote “The Land Ethic” there have been many attempts to incorporate environmental ethics into the economic and policy decision-making process. At first ethics were considered as a limitation to economics or politics. This article attempts to incorporate environmental ethics into the decision-making process by proposing a model to integrate environmental, economic and political sciences with environmental philosophical and ethical disciplines. It tries to provide a theory in order to determine, ordain and give coherence to the different environmental management decision-making levels.

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2. The problem of the concept of value in the decision-making methods

2.1. The problem of environmental economic values

A value is an enduring conception of the preferable which influences choice and action (Brown, 1984). Traditionally, neoclassical utility theory has assumed a value monism, i.e., all values are commensurable and ultimately reducible to a single measure: some form of implicit or explicit cost-benefit analysis or calculation lies behind almost every human action, object and behaviour (Frank, 1997). Based on this metric, we should be able to measure people's preferences and values for environmental goods.

Rosenberger et al. (2003) suggest that some people may be using non-compensatory decision processes when making choices regarding environmental issues. These non-compensatory choices have been studied by many authors. The holding of a deontological or rights-based ethical approach towards natural areas and spaces has been proved to be inconsistent with pure cost-benefit analysis (Stevens et al., 1991; Hanley and Milne, 1996; Spash, 1997). Holland (1995), O'Neill (1993) and Sagoff (1998) have raised awareness of the importance of the refusal by individuals to make trade-offs based on ethical grounds demonstrating how this can make that application of economic efficiency a controversial policy goal (Spash, 2000).

Non-compensatory choices have been used to explain the lexicographic theory approach. Lexicographic behaviour is considered when preferences to one commodity are given with absolute priority over all others, implying a strict ordering, such as in a lexicon. As Rosenberger et al. (2003) state, lexicographic preferences are important to environmental valuation in that they violate the assumption of continuously defined, differentiable, and convex preferences in standard neoclassical theory. Value incommensurability denies the ability to map continuously defined indifference curves among certain values. However, lexicographic preferences may be compatible with consistent (transitive, complete and reflexive) preference expressions in a hierarchical model of values (Lockwood, 1996a).

There have been attempts to explain lexicographic behaviour using wider paradigms. Drakopoulos (1994) proposed the concept of "target setting" procedures which allow for a considerable degree of substitution within hierarchical behaviour. Spash (2000) proposed a model where the aim to consume a certain quantity of given commodities starts only after consuming others, and Rosenberger et al. (2003) proposed a modification based on the thresholds idea of Georgescu-Roegen (1954) to explain the two forms of lexicographic preferences, strict and modified proposed by Lockwood (1996a). His argument states that there exist certain thresholds, or minimum levels of a good, that are necessary and prior to choices for other goods.

As far as lexicographic theory allows, considering that there are thresholds below which level choices are unacceptable, it can be inferred that a certain type of hierarchical choice behaviour with no substitution between goods can have a moral basis. The lexicographic preferences theory attempts to introduce ethics into a rational explanation that neoclassical economics is unable to give as it assumes all goods are exchangeable.

Combining both lexicographic theory and neoclassical economics, compensatory and non-compensatory behaviours can be better understood as parts of a more general theory of decision making where a moral basis must have its place. As Lockwood (1996a) affirms, lexicographic preferences are likely to be operative when a good is essential or has a moral or other irreducible form of value, while neoclassical exchange economics works well when no type of this value appears.

Although lexicographic and standard economic preference theories allow for a strong comparability, only the former allows for incommensurable values (Lockwood, 1996b) and therefore represents a great advance in the decision-making model. However, it still needs to be placed within a wider paradigm decision-making framework. This paradigm should be able to determine according to the nature of the problem how and when this theory or the neoclassical alternative approaches should be used and how ethical values should be placed when compared with the economics dimension. A more general theory for decision making is therefore required. This theory must be able to explain previous to any cost-benefit analysis, how reasons for stated behaviours do or do not allow comparisons.

If not, a social process of valuation will deny the existence of reasons undermining the values and decisions and therefore lead to a false interpretation. As Spash (2000) explains, if the monetary value fails to represent the values individuals associate with the environment, the interpreted responses as trade processes will result in misrepresentation of the motives lying behind the economic valuation. In such circumstances people may find the use made of their statements unacceptable (Burgess et al., 1995).

2.2. The problem of environmental ethics values

Environmental Ethics have also tried to approach the question of the concept of value. Ethics were considered first as a limitation by Hardin (1968). Probably based on the Hobbesian "*homo homini lupus est*" (man is a wolf to man), he suggested that the essence of ethics was to limit what he considered the natural tendency of human beings to accumulate goods for their own benefit. Since then, many authors have considered ethics as a limiting discipline whose purpose is to limit activities wherever they do not find a reasonable answer or where its postulates fail. For example, Allen Kneese testified before a US Congressional Committee in 1970, on how environmental economics

could eliminate the need for the development of an environmental ethics.¹ This kind of argument was based on the idea that a progressive introduction of ethical reasoning was needed and took place where, and in many cases only where, the market failed to provide an efficient and fair solution to the problem: the well-functioning of a market economy (with its environmental economic principles) would prevent conflicts because it creates a sustainable increase in wealth.² As Alonso (2003) has noted, in the field of politics, some environmental ethicists were so driven by the myth of the factual (versus value based) power of economics they built their ethical tools on value empty “scientific” grounds.

But the nature of environmental ethics has laid claim to its own position. As Hargrove (1998) has put it, “although economics is usually presented as a factual matter ... it is actually a naive blending of three fairly recent philosophical positions: utilitarianism of the middle of the nineteenth century; pragmatism from the turn of the century; and logical positivism from the early twentieth century. Each contributes to the elimination of value from consideration of policy and decision making”.³

As Wenz (2001) has authoritatively explained, those same positions are the basic elements of environmental ethics construed as the next step required for the correction of market failures.⁴ Nevertheless, as they are based on similar premises; they are also limited as ethical tools. They can solve environmental conflicts in situations where values are not needed, but fail to be useful where value is needed as a conceptual category to understand and solve the conflict. In this sense, the concept of value has been defined as “an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence” (Rokeach, 1973).

Many authors have proposed implicitly or explicitly different ethical approaches based on several notions of value, such as intrinsic value alien to utilitarianism, pragmatism or logical positivism. The most notable intrinsic value approaches have been the consideration of the life of non-human beings as a value in itself (Naess, 1984) of the overall value of the idea of mother ground proposed by James Lovelock (1979) in his work “Gaia Hypothesis” among others. These authors considered different types of intrinsic values as the only ones capable of solving environmental problems such as those with which society is confronted when dealing with animal rights (such as vivisection, sports, food security) or with rights for nature or with the preservation of individual

(genetic) species or ecosystem biodiversity.⁵ On the other hand, neoclassical utility theory could be considered as an example of pragmatic value.

Environmental ethics have provided guidance for problem solving in social conflicts where value systems themselves are at stake, such as ecofeminism or deep ecology and not only where conflictive values within the system require balancing or prevalence of a given value (Alonso, 2003). This reasoning leads to the need to place the type of value approach correctly inside of wider and understandable environmental ethics framework. This ethical approach then will be a relevant and integrated tool within in the decision-making process if a more general theory of decision making is required.

3. The different approaches to environmental solutions

3.1. First attempts: from techniques to economics

Some authors (Mass-Collel, 1994) have considered that substitution—the mechanism of changing resources and technologies over time—and technological advances will solve the present environmental crisis. Whenever a resource is finished, through substitution mechanisms—basically price—we can use another. When a process pollutes the air, the demand for clean air leads to the minimizing of pollution, creating appropriate technical and economic cleaning mechanisms. These authors consider history as providing proof of this hypothesis. This option, called “Scientific Technical Optimism” (STO), proposes that the inconveniences of scientific progress will always be surpassed by better scientific and technical applications (Vermeersch, 1998).

However, not all analysts agree with this analysis. The principal criticism is that this argument is based more on hope than on the actual situation of the planet. The US National Academy of Sciences and the Royal Society of London (1992) agree that if “current predictions of population growth prove accurate and patterns of human activity on the planet remain unchanged, science and technology may not be able to prevent either irreversible degradation of the environment or continued poverty for much of the world”.

On the other hand, if the solution of an environmental problem is only a question of applying better scientific techniques, how do we explain environmental problems that seem to have increased at the same rate as technology during the last half of the past century? Radically different problems, such as deforestation, mainly related to poverty, and carbon dioxide emission, basically related to high

¹Statement prepared by Dr Allen V. Kneese, The environmental decade: hearings before a subcommittee of the Committee on Government Operations, House, 91stCongress, 2d session, 1970, 191.

²See Wenz (2001, Chapter 2).

³Hargrove, E. (1998). Taking environmental ethics seriously. In: Dallmeyer, D.G., Ike, A.F. (Eds.), *Environmental Ethics in the Global Marketplace*. University of Georgia Press, at 20.

⁴Wenz (2001, Chapter 2).

⁵Although the emphasis is still economically driven (biodiversity services and not biodiversity non-economic values are the main rationale for its conservation and sustainable use (Global Biodiversity Outlook, UNEP/CBD, 2002; see also the WSSD Implementation Plan of Johannesburg 2002), it is more and more conceded that it may become impossible to halt the global loss of biodiversity without a value-driven cultural public awareness policy.

standards of living, have been shown to require changes in lifestyle. The former requires help to provide clear-cutting peasants with a different means of livelihood, and the latter necessitates changes in the consumption patterns of developed societies. With no mechanism other than substitution, it is possible that deforestation or global warming will cease, but when?

The objective of technological advances has been to become more efficacious, that is to produce more output in relation to the amount of input used. As technology does not incorporate the notion of scarcity obviously present in almost all resources, economic science is required. Considering the scarcity of resources, it is important not only to be effective, but also efficient, which is to examine different production processes in a wider frame, where scarcity can be also considered.

Green economists have proposed the market as the keystone to solving the problem. Cairncross (1996)⁶ assumes that as no voluntary changes in lifestyle are going to happen, economic mechanism, represent the only realistic alternative to solving environmental problems. The only alternative is the market. By studying demand, markets can establish priorities and measure the magnitude of the problems. They can trade-off between environmental expenditure and other investments. Certain conditions are required in order to provide market efficient tools: environmental goods and services must not be freely acceded, but privately or publicly owned. According to his theory, externalities must be measured and valued monetarily, and it must be assumed that any environmental problem can be traded off. Therefore, standards of pollution must be negotiated but not necessarily totally abated. According to Coase (1960) voluntary negotiations between affected parties would lead to an efficient result so long as negotiation costs were not excessive. The Kyoto Protocol can be understood as a compromise in these terms.

Apart from the technical difficulties of implementing environmental markets for many goods that are now free, such as clean air, two difficulties arise at this point. The first addresses the theory that supports the economic theory. Efficiency does not necessarily imply social equity or fairness. As decisions based on markets consider only actual needs or desires, trade-off between the parts can even increase their previous disequilibria, even if both are better-off after the negotiation.⁷ Economists recognize therefore, the need to establish or acknowledge rights which precede or that are previous to the negotiation process. Problems such as environmental injustice⁸ have

⁶Francoise Cairncross is the editor of the environmental section of "The Economist".

⁷A prisoner can trade off with his jailer a glass of water for his fortune. Both will be better off after the negotiation but the situation will be more unfair.

⁸In countries such as the United States with very well-established markets, economic instruments have failed in the attempt to avoid that the greatest environmental disposals affecting mainly the more vulnerable sectors of society. This same problem is not solved on a planetary scale.

not found a clear solution within the field of economics and require other approaches. The establishment of rights does not belong to the sphere of economic processes, but to other fields that economic sciences take for granted.

The second difficulty deals with the premises that require environmental economics. Valuation of externalities is a complex matter that presents many difficulties. The basic moral consideration took place perhaps for the first time when American Indians were routinely persuaded to trade their homelands for commodities. The incommensurability between the lost values and the money still remains today. The process is remembered more as the Indians being bribed to relinquish higher values than a triumph for economic logic (Spash, 2000). There is a basic and prior sense of justice in the sentence posed long ago by Chief Seattle (1854) "how can you buy or sell the sky, the warmth of the land... if we do not own the freshness of the air and the sparkle of the water, how can you buy them?"

Valuation of externalities does not necessarily take into consideration the interests of marginalized groups, future generations, nature or rights that last beyond the lifetime of the current generation or fits well with values that are incommensurable; but even if it did, according to the lexicographic theory, we would not be sure than the cost-benefit analysis would provide a more stable solution to the problem. Economic solutions based on externalities without any other considerations could postpone problems, but not necessarily resolve them.

3.2. From economics to policy and ethics

Environmental policy may be defined as a purposive course of action or inaction followed by an individual or group, mainly an organization, in dealing with a matter of concern regarding the environment (adapted from Cubbage et al., 1993; Anderson, 1984; Heidenheimer et al., 1983). This course of action is proposed by the group through the statement of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.⁹ Policy aim is to achieve these objectives, and therefore a criterion for judging its success is the grade of implementation of the policy which depends both on the strength of the policy implementer and the acceptability of the policy itself towards the problem or matter of concern. If a public policy is analysed within a democratic system, it must reflect social choices. Therefore, the most relevant criterion

(footnote continued)

Environmental justice movements demand an equitable distribution of these charges. They consider that "environmental injustice is only another manifestation of social inequality and unfairness (or open racism or socioeconomic discrimination), or even a breach of human rights" (Alonso, 2003).

⁹These objectives are the overall environmental goals, arising from the environmental policy, that the organization set to achieve, and which are quantified where practicable. Official definition of the Public Entity Environmental Management System Resource Centre (PEER).

for judging a public policy, apart from its feasibility and applicability, is its acceptability.

Environmental policy tries to prevent, manage and solve conflicts in a wider framework than mere economy. Policy can use cost-benefit analysis, but is also influenced by values such as justice and equity among many others.

Under certain conditions where the markets operate, environmental policy based merely on economic instruments can provide acceptable solutions for all stakeholders. An example of this is when a market economy (with its environmental and economic principles) prevents conflicts because it creates a sustainable increase in wealth.¹⁰ However, there are other cases where the market fails to provide an efficient and fair solution to the problem, and then policy can use other instruments such as other non-economic values. For example, the use of the precautionary principle proposes a way to overcome the uncertainties of science and the need to invest in research into new technologies, which is not usually considered in an economic cost-benefit analysis. As pure economics is not value-free; the way policy makes decisions is to assign citizens “rights”. The outputs from the political systems depend on the rights that these systems concede for the stakeholders.

If the aim of technology is to provide effective solutions within a given framework, and the aim of economic science is to compare and look for the most efficient framework to provide technical solutions to a conflict, then the realm of politics is to ensure that any solution provided is socially acceptable in order to prevent potential conflicts and high transaction and enforcement/implementation costs, and that society does not oppose the solution (Alonso, 2003).

If policy is understood as a science that deals with economics among other types of moral values, the origin of conflicts can be considered through three different means (Amy, 1987; Floyd, 1993) or by the concurrence of some of them (see Table 1):

- Conflicts that proceed from disinformation of any of the parts.
- Conflicts that proceed from opposite interests.
- Conflicts that proceed from opposite basic principles or values.

At this stage a distinction between interests and principles or values can be made. Interests can be defined as personal adaptations of a will. Principles can be defined as applications of general or common wills that apply to a majority of people. A principle can shelter different interests. Democracy can be understood in this sense as a principle or value that, when it is accepted, allows the development of different ideologies that reflect different interests. Without the principle of democracy, particular interests would not be respected and conflicts would occur. The meaning of money—the ability to exchange it for

goods and services—is a common and accepted value although every person with his particular interest tries to maximize his own utility. Without a common value, negotiations or agreements between different interests are not possible. Values are the axes, the common dimension where different interests can find a common point of respect and reference that allows trade-offs between them. Values can also be considered as interests that rest on higher values. A given currency accepted by a community as the currency reflects a power proportional to its exchange rate. Democracy can also be considered as one method among others to achieve higher values such as peace, dignity or human development.

The first type of conflicts can be solved easily; misunderstandings can be overcome with information. Politicians can also solve the second type, conflicts that proceed from different interests. It requires searching for and negotiating into a common framework¹¹; money can be one. On the other hand, trying to provide a solution that is socially acceptable to all parties where conflicts arise from different principles or values is a task that requires more than negotiation.

Non-negotiable principles lead to a higher sphere of solutions than politics in order to achieve an understanding of the problem. Politics as a science is exhausted at this stage; it is unable to give a comprehensive explanation of the principles. Environmental ethics now appear, not as a mere limitation of politics or economics but as a comprehensive framework, where the values that support different principles need to be studied. Ethical science, policy and economics are not mutually exclusive; thus, ethical science is at the base of every economic or political negotiation or conflict.

3.3. Further than environmental ethics: environmental philosophy

Several environmental ethical systems of values¹² have appeared since Aldo Leopold established the need to go beyond mere economic welfare criteria to manage nature.¹³ Each of these systems of environmental values has put

¹¹Sometimes, discovering and making this framework explicit and concrete and searching for different issues to offer parties is an incredibly difficult task. Simon Peres once said that negotiation is more a question of creativity than a market issue.

¹²First statement of land ethics declared by Leopold. “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise”.

¹³For Leopold, “a land ethic changes the role of Homo Sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such”. He considered environmental ethics as “the differentiation of social from anti-social conduct” for the common good of the community, and declares that a land ethic, wherein the ecologies in which we erect our developments would be considered an integral part of the community, amounts to the same thing as social ethics. A land ethic, in the author’s terms, means a “willing limitation on freedom of action in the struggle for survival”.

¹⁰See Wenz (2001, Chapter 2).

Table 1
Sources of environmental conflicts

	Source of environmental conflict	View of compromise	Appropriate political forum
Misunderstanding model	All share concern for environment. Disputes result from miscommunication and misunderstanding	Few basic interests are in conflict. Dialogue and communication leads to solutions	Dialogue forums, because they increase mutual understanding
Conflict interests model	Inevitable conflicting interests of industry, government and environmentalists	Compromise is necessary, a realistic and just solution gets each party some of what it wants	Negotiation, because give and take facilitates compromise
Basic principles model	Conflicts result from basic differences in values, principles and world views	Compromise is unacceptable. Environment decisions involve choices among incompatible principles	It requires a deepening of the environmental values. Legislature, courts and agencies can help to a certain point in long-term solutions

Adapted from Amy (1987) and Floyd (1993).

forward a group of principles or aspirations that can never be conceded.

There have been many classifications of environmental ethical values. Although there are many positions, basically all authors tend to agree to classify them in an anthropocentric–biocentric *continuum* (Callicot, 1980) where animals right, equalitarian, utilitarian, logical positivist, pragmatism, consequentialism, integrity or synergism values can be more or less placed. Although this is not the place to describe biocentric or anthropocentric values, their extreme visions of the role of man in nature still remain in a dialectic confrontation. The question is then, how to solve environmental ethical or value disputes.¹⁴

If ethics is the branch of philosophy that deals with human obligations, there can be an ethical criterion to evaluate ethical proposals: coherence. If an environmental ethic is proposed as a framework on how to act, checking which attitudes and where these attitudes lead can give rise to an environmental ethical system.¹⁵ This is a necessary

¹⁴Inequities pose much bigger ethical problems that tension between anthropocentric and biocentric perspectives, but at this point my intention is only to make understandable how a honest discussion in ethics can require a wider philosophical approach. If I do not give emphasis to this more real and relevant problems is because they do not require a greater paradigm analysis. Poverty and inequality are not basically “ethical requiring philosophical analysis problems” in the sense of whether we discuss if they should happen or not. Basically, we all agree that we should not accept them at least in a theoretical way, (we accept at least this in theory because we accept a basic and previous and common intuition of solidarity). There is not an honest debate between defenders of poverty and inequality and supporters. It is just a question of coherence that must be basically faced at an ethical decision level or sphere: There should be no poverty but we let it happen. Therefore, although inequity or poverty are more relevant examples they do not allow to continue the argument. These ethical problems basically require to be solved at ethical and political levels. This does not mean that appealing to solidarity is a required claim for this problem or that philosophy can better enlighten the problem. They surely can and it is evident that solidarity is the framework, but the core of the problem is not there. We simply do not use this example because it does not provide a confrontation that lead to the need for searching solutions in higher spheres.

¹⁵Paul Johnson, in his book “Intellectuals” examined the coherence between life and the writings of 12 intellectuals that have most influenced life and values in the 20th century. He concludes by arguing that when

condition but not a sufficient one. Not only must coherence between proposals and actions be taken into account to explain ethics, but an understanding of the supporting philosophy is also required.

The search for a personal conception of one’s role in life leads sometimes to the adoption of a previous philosophy, other times to adapting it and on rare occasions, when a genius appears, to the elaboration of a new philosophy and to the development of a sense of ethics. As Pope John Paul II (1998) wrote: “All men and women are in some sense philosophers and have their own philosophical conceptions with which they direct their lives. In one way or other, they shape a comprehensive vision and an answer to the question of life’s meaning; and in the light of this they interpret their own life’s course and regulate their behaviour”.

Aldo Leopold’s Land Ethic also implied that ethics is derived from a wider philosophical perspective: “It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value. By value, I of course mean something far broader than mere economic value; I mean value in the philosophical sense”. In fact, the American conservationist tradition in which Leopold plants his cultural roots is a philosophical tradition. Transcendentalists such as Emerson or essayists such as Thoreau, and later on the first conservationists such as John Muir gave Leopold the philosophical framework which he shaped into a sense of ethics. Clear examples of the conservationist philosophical conceptions of these authors can be easily discovered.

Thus, if ethics is derived from a philosophical conception, the means to deal with environmental ethical disputes, apart from a coherence analysis between what is proposed and what is done and where it leads, require philosophical tools. Some of these basic tools include the “non-contradiction principle” or the confrontation of a philosophical conception with reality.

(footnote continued)

concepts are placed above people, “the worst of the despotisms: the heartless tyranny of the ideas” takes place.

At this point we can affirm that environmental value conflicts that cannot be solved using basic policy tools require a philosophical analysis. Confrontation between values must be raised to the level of philosophical discussion.

Anthropocentric versus biocentric philosophies can serve to illustrate how philosophical tools can shed new light on environmental disputes. Defenders of the anthropocentrism paradigm have highlighted the centrality of man in all his actions while the supporters of biocentrism have reaffirmed the intrinsic value of all things on earth. In the extreme versions of both ideologies, anthropocentrism considers man as the only important thing in the world, and as a result all other things are of instrumental value, while biocentrism has made the human species equal to all others, denying the value of human individuality (Martínez de Anguita, 2002).

Following the example of the differences between anthropocentrism and biocentrism, it can be argued that although both philosophies are consistent, they present deficiencies if they want to be understood as “all-embracing” philosophies. If anthropocentrism consists of pure dominion by man in search of human comfort, denying any other possibility of finding meaning in nature, it would seem to be incomplete. On the other hand, biocentrism is rather difficult to transform into a positive doctrine; it is unable to specify man’s position in the ecosystem. How can we solve a problem of two opposing philosophies when both are consistent but contradictory between themselves? When separated, both paradigms can find themselves confronted with their incapacity to provide a global reply to the problem of man within the ecosystem and to the ethics of his actions. According to biocentrism the cardinal point of man’s attitude towards nature is indicated by an external reality. This means that man was made to conserve the integrity of the ecosystem. However, it does justify the singularity of man in the ecosystem. In radical anthropocentrism the singularity of man is the principal point and sees no other reason other than man as the ultimate person responsible for his actions. Both theories, anthropocentrism and biocentrism, could be justified according to alternate and exclusive realities whose origins remain unexplained. The question, “Why conserve the ecosystem?”, can be answered by the anthropocentrism theory: conserve for man (or for human uses or conservation of man). The question, “What is man’s function on earth?”, can be answered by the biocentrism theory: man’s role is to conserve. But the first question does not have an answer in the second theory and vice versa.

Confrontation between theories leads to the necessity of a new framework. This framework can be arrived at in two different ways. The first is by constructing a balanced hypothesis between anthropocentrism and biocentrism, which would lead to a new syncretic and negotiated philosophical approach based on the two preceding proposals. This trade-off between both proposals would

imply a renouncing of some of the postulates of both positions in order to reach a new negotiated one. The second approach is to build a more complete framework, to try to develop a new hypothesis that can integrate both paradigms by looking for an overall significant starting point. While the second approach can be applied by continuing to expand the boundaries of both philosophies, questioning what is behind the fundamental principles of each of the philosophies and looking for a more holistic starting point, the first approach is always more limited and, as far as it requires the abandonment of basic postulates, can be unacceptable to a party in conflict. If realism in philosophical terms is defined as taking into consideration all possible aspects of the reality, and the expression “most realistic” means the option that takes into consideration all factors as they appear in the reality, second approach is more realistic because it includes new elements of the reality that can provide a new commonly agreed framework to discuss.

Philosophical tools lead first to depurate the proposals, making them realistic and non-contradictory, and second by seeking wider paradigms. The question of which is the best environmental paradigm to solve an environmental conflict becomes a new question: how to build a wider and more realistic paradigm, or how can the fundamental elements of the different analyses be united to develop this wider framework in such a way that the resulting paradigm can remain open to new data and realities?

4. Building the greatest possible paradigm: solidarity

As we have seen, a criterion used to judge an environmental philosophy—in fact any philosophy—is how it fits reality—ontology—and its ability to be made comprehensible and acceptable from any starting point. Wider paradigms tend to have more explanatory power than narrow ones. The key, therefore, is how deep a philosophy delves into the question and at the same time how wide is its perception of reality. Since “all men and women, are in some sense philosophers and have their own philosophical conceptions with which they direct their lives”, participation is a fundamental requisite to widening the base of a paradigm in which to try to integrate opposing paradigms.

If we accept that the tool used to judge ethics is its internal coherence, and the tool to judge a philosophy is its realism, the criterion to evaluate any elaboration of wider paradigms could be solidarity, if this concept is defined as the ability to look at the reality through all possible perspectives. If reality contains different and opposed ontological criteria, problems tend to have, by their own nature, no solution. Therefore, solidarity cannot be reached unless there is a place that can be approached jointly. As it cannot be defined by every seeking it, it must be previous, given and must be found jointly. But this solidarity is inconceivable without a sense of respect for the integrity of the reality. If this reality, nature in our case, has

been given not built, then it cannot be just something dominated or to dominate, simple surroundings of man, natural source of raw materials, modifiable at our will, or usable for our activities would mean that man would not belong to nature. Nature would lack of value and would not have any other sense than what we wanted to give, and in the end it would not be respectable (Ramos, 1993). If solidarity is accepted, then integrity of reality, and therefore integrity of nature is valuable because it has a meaning to be discovered. This endless and common meaning that we are able to recognize in every piece of reality, very especially in nature, is what call it destiny.

If this common although unknown destiny is recognized, such as, being part of a single Earth and Universe, or part of the same evolution, where all living creatures have something in common which can be discovered, then solidarity is based on a possible common nature. If this assumption is accepted, solidarity can then be also defined as together moving towards a common destiny. Solidarity appears then as an ontological need that defines the widest possible participation framework based on the claim of recognizing in the integrity of the reality a meaning to be discovered.

In this sense, accepting solidarity as an existential principle can be understood not only as a sentiment but also as a requirement derived from reason. Searching for this destiny is an open and rational process requiring objectivity in its study as well as a deep development of the intuition. Objectivity requires that all factors of reality are considered. Intuition allows penetrating in the mystery of reality.¹⁶ Intuition based on the factors of reality has been widely explored by poets, writers or thinkers in any cultural tradition. Also in scientific terms the relationship between intuition and science has been expressed by scientist, such as Albert Einstein (1934): “anyone who does not admit the bottomless nature of the mystery cannot be a scientist”. In Naess (1973), Schwarz and Schwarz (1987), Palmer (1997), Dobson (1997) or Martínez de Anguita (2002) among many others, can be found deeper explanations of this sense of common destiny from different perspectives.

This common destiny requires a joint effort in the search for deeper meanings, and this search requires an authentic interest in revealing reality through the sum of all points of view. Contrary to negotiation, when it implies denying some aspects of the reality of a situation in order to arrive at an equilibrium point, dialogue and participation are here understood to be a requisite for our limited human nature that requires others to understand our common destiny. Finding common and stable environmental solutions based

on the available information requires accepting a common and meaningful reality that requires to not omit any of its given parts, that is to say, it requires its integrity.

5. Conclusion: the concentric spheres model

Environmental problems are in practice complex. Although in many cases economic, political, ethical or philosophical approaches are given for granted, they take place in every environmental decision process. In this “complex continuum of disciplines” where decision processes take place, different applied approaches used by environmental managers can be traced, and therefore simplified and modelled. This model tries to establish a path to penetrate in this “continuum” in order to take stable long-term decisions in a reasonable way. This approach is done by giving attributes to every single decision-making level. Attributes used in this model can be considered as a simplification of the “continuum”, and therefore they can be largely discussed and improved, but they can also be used as a starting point. Although they can need further specification and supplementation when the case would require it, they offer the possibility to ordain the decisions and the disciplines to use in different concentric layers.

For the sake of this model, criteria used have just been kept in a simple level as they have appeared in the discussion of the preceding sections. In Section 3 we have jumped from techniques to economics, from economics to policy and then to ethics, philosophy and ontology. Each of these steps claimed for a wider paradigm to become fully operative and at the same time retained some specific attributes inherent to the nature of the discipline. Efficiency is an attribute that deals specifically with the nature of economics but that requires to have previously settled property rights, a concept that belongs to the policy sphere. Acceptability should be a policy attribute, but it also depends on previous ethical premises accepted. Coherence could be an attribute for any ethical system, and at the same time this coherence will be connected to the philosophical values that a person stands for. Also, any philosophical approach, as it happens in the scientific method, can be judged by how much it approaches to the reality, by how much of reality is able to explain considering the sum of all the factors that constitute it.

Addressing when a problem needs to be considered within a certain sphere and when it requires wider frameworks means to simplify the decision processes involved in environmental management, especially considering that different decision-making levels are not mutually exclusive. But achieving a path to order this continuum can provide a first approach to deal with a problem.

The proposed model tries to be able to elaborate an ordained tool for conflict prevention and decision making. If the model is build from “inside “to outside”, it requires the following premises in order to ordain the different

¹⁶Only the consideration of nature as a mystery permits the possibility of advancement in knowledge and even more importantly, to be able to detect in it a meaning not given by man (Martínez de Anguita, 2002). Fundamental principles can therefore be always asked about their origins. The question “Why?” or “What is behind?” is infinite. Any philosophy can be understood as a way to penetrate the mystery. Mystery means something real, concrete, certain, which man is not able to explain in its total meaning.

decision levels: any solution must start with technical feasibility. However, the technical solution must also be economically viable. It is useless to impose a technical solution outside the economic viability circle. It also must be, at least in the long term, economically viable. At the same time, the solution must also be socially acceptable. In order to prevent high transaction and enforcement/implementation costs, the realm of politics should ensure that society does not oppose the solution. However, there is no sense in promoting a technical, economic, and politically viable solution if it collapses due to environmental ethical considerations. The solution that does not take into consideration the interest of marginalized groups, future generations, or the interests/rights of nature will not endure in the long term because the perpetuation of unjust situations never lasts. The problem will be postponed, not solved (Alonso, 2003). Environmental ethical proposals will be effective as far as they are derived from realistic approaches. Realism leads to the need of considering all different approaches and this participation leads to solidarity. In this wider framework problems will tend to be solved or even to dissolve themselves with time more easily.

This process can be visualized as a concentric sphere decision-making process (Fig. 1). Using this scheme, feasible and reasonable solutions can be sought.

However, another way of using the model can be made. The model can be also used with the inverse approach, form “outside” to “inside”. Instead of beginning the environmental conflict solution search process at the technical stage, it can be started at a higher level, the ontological, and then descend through the rest of the levels using solidarity as a preceding wider criterion to judge any environmental solution for conflict. This inverse process will help to search for a wider prospective when looking for a political scenario, an economical solution or a technical implementation. If solidarity is the widest and most

reasonable framework, studies for conflict prevention or resolution should start from this common viewpoint (through all eyes that seek its common destiny) and after define a paradigm wide enough to encompass all agents. This paradigm will lead to a realistic environmental ethic, able to settle political discussions and where different interests can be negotiated. The technical solution found will be the result of a process of participation and therefore will have more chances of being successful.

Also a third way of using this model can be also established. It can be used just to determine the most appropriate level of analysis required for a given situation. Not all problems require going up to the ontological approach. If there is already a consensus, probably philosophical or ontological tools are not required in that process, but it requires deepening into the ethical, policy, economic or technical tools. Inequities or poverty are not basically “philosophical problems” in the sense of whether we discuss if they should happen or not. Basically, we all agree that we should not accept them at least in a theoretical way, they are problems of coherence. Educative tools that help people to become more coherent (ethical sphere), new economic models as, for example, fair trade derived from ethical imperatives or adequate technologies to improve the production of fair trade products among others can be used. All of these solutions are contemplated in inner spheres to the philosophical one.

For any of these uses, every decision-making level or sphere includes and defines the framework of the process of the interior spheres, lacking themselves all the tools required to solve the environmental conflict if they are not already settled. The decision-maker must look to the superior spheres to solve a problem when uncompromising conflicts appear at one stage. Every decision made at each sphere level can be judged according to the appropriate criteria of the upper level. For example, the use of neoclassical economics to solve a conflict must be accepted or not in the political sphere. If all agents agree to reduce to a single money measure the process, then neoclassical model is useful, and this will be possible as far as the values involved in the conflict have no incompatible interaction with other values of the ethical sphere.

An example can illustrate this idea. Let us consider the environmental problem of nuclear waste disposal. Normally, the first solution is a technical. Waste can be buried (technical sphere). However, this decision will probably be subject to an economic analysis (economic sphere). The place where it will be buried will normally be chosen from several alternatives and the cheapest one will probably be selected. Yet, perhaps the neighbouring villages will not accept this solution (political sphere). If an agreement is not possible, as has happened, the waste will probably be sent to other countries, perhaps developing countries where the cost of suffering radiation pollution is less or where the public cannot afford to participate in this kind of debate. At this point the conflict has not been solved, just displaced. Even if it has been accepted by the local

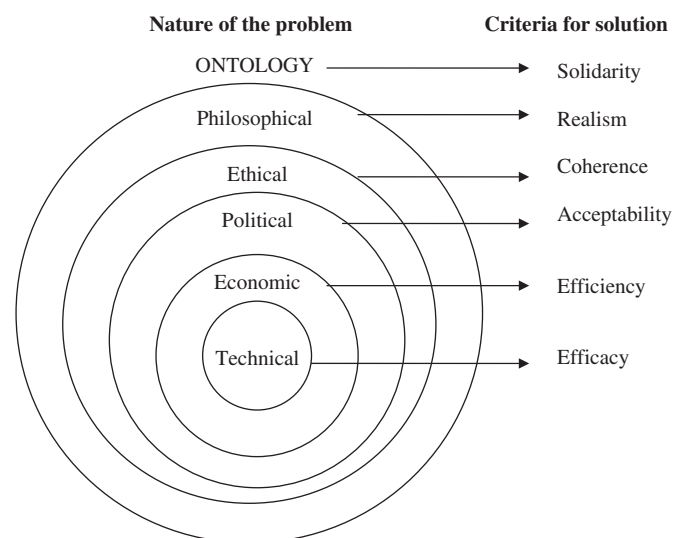


Fig. 1. Concentric spheres decision-making model.

authorities of a developing country, the most vulnerable strata of the society will pay the involuntary (unwilled) costs (ethical sphere). In fact, this is the origin of the environmental justice movement that has emerged in the past 30 years. Its hypothesis and objectives (philosophical sphere) were to clearly link environmental and civil rights¹⁷ (Alonso, 2003).

If the above-mentioned developing country is able to achieve development, it will probably start to produce nuclear waste and, at the same time, will not accept more waste as it has become a new producer. This process can be repeated up to a point where nobody wants to have nuclear waste in their country but the entire world is full of it.

If the environmental planner or the politician did not consider all these spheres he would probably spend many years trying to establish different solutions ascending through the circles as answers proposed from inner circles started to fail and the problem became even worse and more protracted. At the end, nuclear waste would probably be dealt with using better and more expensive technologies. At that point many people would have paid a high cost: years of involuntary and avoidable radiation.

The model of course can be employed as a checklist when used from the inner to the outer spheres. However, if instead of starting the decision-making process at the most immediate sphere (technical) the model starts at the most reasonable one—the consideration of the problem along with all its dimensions (extension) or ontology—the final outcome would be better in all spheres. Assuming solidarity as the most realistic, adequate and reasonable principle in long-term environmental decision making, nuclear waste disposal would probably be dealt with more thoroughly, through the use of more expensive technologies. Thus, the cost of total damage would be included in the final price of the energy provided, future generations would not have to spend time trying to clean up the waste from past generations, and human rights, which are at the base of progress, would be protected ensuring well-being for the future.

The use of this model for different environmental conflicts attempts to show how solidarity can generate more efficient trade-offs in the long term, more efficacious techniques, fewer conflicts of values, more protection of human rights and what seems to be the most important of all, the ability to give humanity a chance to build a more peaceful world and a sustainable future.

Acknowledgements

This article is a partial result of the Research Project HUM 2004-06569/FISO called “Análisis e implicaciones

¹⁷The core issues addressed by this movement have been the disparate treatment of racially/ethnically identifiable and low-income communities/neighbourhoods in the siting of waste disposal facilities, later extended to disparities in environmental conditions, such as water and air quality, hazardous waste contamination, heavy polluting industries...etc., “where we live, work, and play”.

éticas de los Principios de Protección Ambiental y de Desarrollo Sostenible del Consejo de Europa (Documento CO-DBP (2003)2)” funded by the General Direction of Research of the Spanish Ministry of Science and Education and the CICYT through the 2004–2007 National Research Plan. We would like to acknowledge the Sustainable Development Chair of Universidad San Pablo CEU for his support holding the environmental ethics seminars and discussions that made the paper possible. We are grateful to Brian Crilly Montague and Sue Prasad for their linguistic assistance.

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