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# Ecological Metaphors and Environmental Rhetoric: An Analysis of *The Ecologist* and *Our Common Future*

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## SUMMARY

This paper discusses two different environmental political projects, the journal *The Ecologist* and the report *Our Common Future*. The former deems it necessary to substitute current patterns of production and transformation of the social structure with radical alternatives, claiming that they lie at the roots of our environmental as well as social crisis. The latter rejects this thesis and prescribes minor administrative changes, regarding the environmental problems as management problems with management solutions. Both, however, employ terms and often concepts derived from Ecosystem Ecology to build up their ideas of 'stability', 'limits' and 'control'. Since the environmental issue has recently become an unavoidable problem for scientific as well as political fields, there is a great deal of traffic between these two domains, leading to concepts and ideas in one domain being transported to the other.

Ecology has often been described as a deviant science – one that seeks not just to describe and explain but to be normatively prescriptive about society's actions over nature.<sup>1</sup> This paper is concerned with exploring one aspect of this 'deviance' – the manner in which the science of ecology is used to support various, often contrary political discourses about the environmental crisis. It is based on the journal *The Ecologist*, which I have analysed from its founding in 1970 to 1993, and the report of the World Commission on Environment and Development, published in book form under the title, *Our Common Future*.

I chose these sources for their differences as well as their comparability. One is a militant journal wherein people very clearly committed to ideological perspectives explore environmental issues in support of their theses. The other is a report of an inter-governmental commission which had been given the task of finding the best solution for certain social problems affecting the environment. One is a forum wherein each thought has a name and in which authors assume and defend their positions, while the other is the result of the work of a great

number of contributors, and systematised by the chair of the Commission. Moreover, one is marginal and subjective while the other holds high legitimacy (both political and scientific) and claims objectivity. Yet, they address each other constantly.

### THE *ECOLOGIST* AND ECOCENTRIST THOUGHT

*The Ecologist* is one of the most important sources for studying the expression of environmental perspectives committed to intervening in society. Since 1974 it has defined itself in the sub-title as *The Journal of the Post Industrial Age*. Its stated aim is:

to analyse the social, political and economic forces which drive modern society to destroy the biosphere, and to explore how these forces may be halted and how the biosphere may be protected and restored (*The Ecologist* Guidelines to Authors, 1992).

The 'post industrial age' is defined by the founder-editor Edward Goldsmith as the age of the *stable society*, a desired product of deep social transformations which will render it environmentally sound and cybernetically controlled.<sup>2</sup>

*The Ecologist* is also a significant source for studying the relations between the production of political discourses on the environment and scientific discourses. Although authors are warned not to submit articles of a 'purely academic, scientific or technological nature' (*The Ecologist* Guidelines to Authors, 1992), many of its associated editors and contributors are from academic sites (7 of the 21 associated editors in 1994 held academic institutional positions).

For much of the period being analysed in this paper (1970 to 1991) *The Ecologist* was edited by Edward Goldsmith, although toward the end of this period its editorial board had three other members. Each issue had a set of standard features, such as an editorial; feature articles; and sections entitled 'Reports', 'Comments', 'Books', 'Letters' and 'Coming Events'. Other sections have varied from one issue to another. Approximately one third of the contributing authors came from academia. Among them have been E.P. Odum; J.W. Forrester; P.R. Ehrlich; Marshal Sahlins; René Dubos; and Robert Goodland.<sup>3</sup>

Most of the articles can be classified into the following overlapping thematic blocks:

- *Alternative society/catastrophist critiques*. Articles with assumptions about the need for radical subversion of social relations; analyses of the causes of the purported disintegration of our present society; general plans of utopic new societies; and strategies for accomplishing the desired changes.

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- *Theory of science / analysis or critique of science.* Analyses of the purported inadequacy of modern science (for the needs of a stable society, for understanding the world, etc.); projects for the reformation of science and discussions for new science-society relations.
- *Lifestyle / modernity / technology.* Articles focusing on lifestyles, especially urban life, and wherein technology and urban organisation are criticised (e.g. transport, re-cycling and re-use of materials, food processing, energy sources related to daily life, etc.).
- *Progress, development, economy.* Articles which attack economic growth and the economic structure of industrial society, in general.
- *Other cultures / alternative models of nature representation.* Articles about other cultures, either present or past. These articles emphasise the knowledge and wisdom therein and frequently stress the disruptive violence done them by our society. Religion, understood as the form of knowledge or expression of wisdom of traditional peoples and bearing their specific models of nature representation (mostly depicted as wiser and more adequate), is discussed under this category.
- *Hazardous chemicals (pollution, drugs, hazardous chemical compounds in agriculture and food) and Nuclear Issues.* Articles criticising the indiscriminate use of industrialised chemical products, either in agriculture, in manufacture or in food processing; articles criticising the use of atomic energy and warning against its threats.
- *Population / population growth.* Articles about the threats of population growth, generally with an alarmist perspective.
- *Conservation / threatened environments.* Articles on a range of issues in the environment-development interface and about specific ecological contexts, such as tropical environments and the policies that affect them.

Of these, population growth and industrial chemical products are localised themes, very typical of the early days. Lifestyle issues and the exploration of projects for an alternative society were also typical of this period. Other issues – such as development, problems involving tropical environments and ‘global’ issues – come later. ‘Science’ and its problems, traditional peoples and conservation seem to be a constant concern in *The Ecologist* over the years. In addition, four other categories were important at one time or another. They were: ‘global environment’ (peaking around the late eighties and early nineties), ‘religion’ as an isolated theme, important here and there in the mid-seventies or early eighties, ‘hunger’ (in 1985 and 1991) and ‘feminism’ (in 1992). The distribution of the proportion of articles in each of these and other related categories over the years is illustrated in Figure 1.

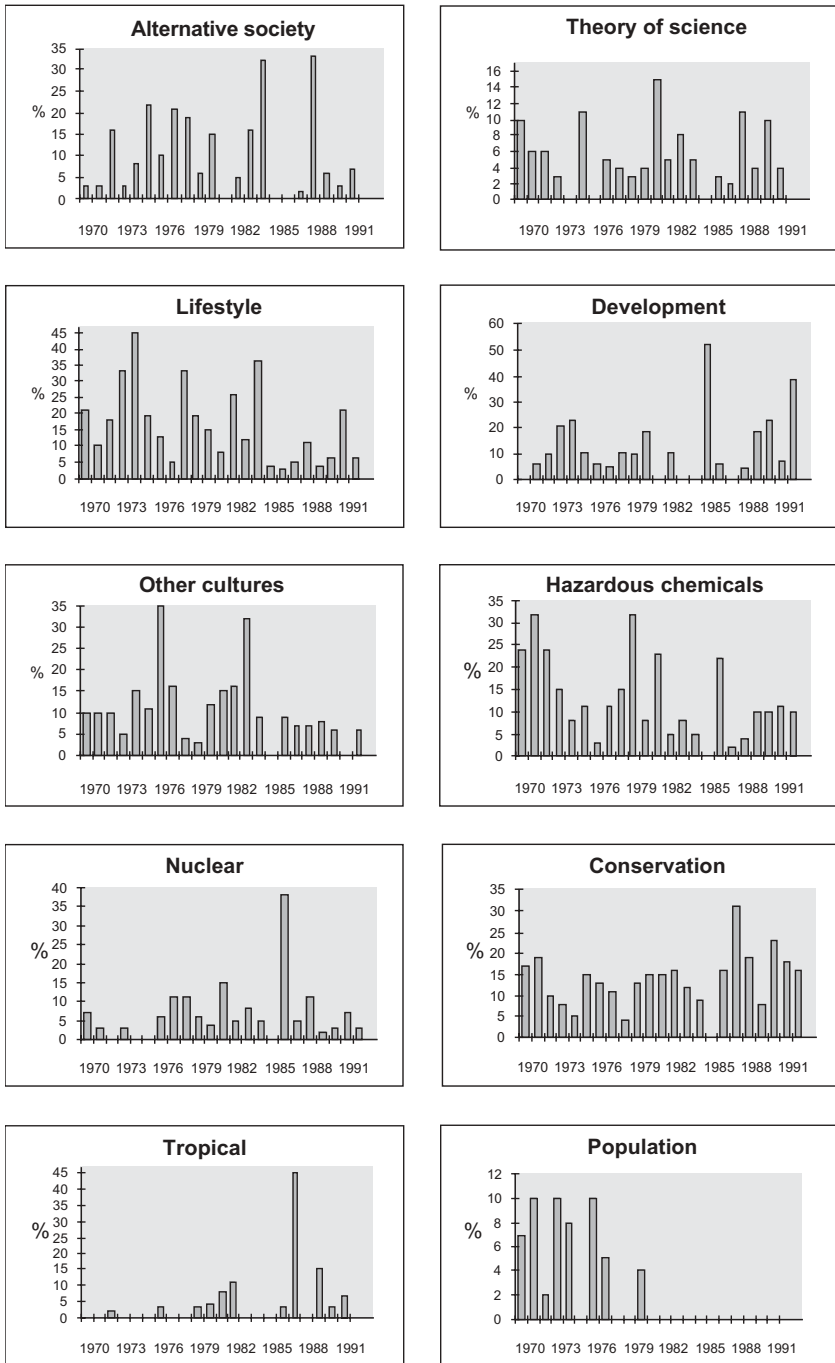


FIGURE 1. Thematic distribution of articles in *The Ecologist* from 1970 to 1991.<sup>1</sup>

*An Alternative Perspective*

One of the central concerns in *The Ecologist* is the idea of an alternative. By 'alternative' is meant an alternative to something established, which explains the strong emphasis on critiques of science – the legitimate source of true knowledge in our 'modern', 'industrial' society. The word is also used to point to other cultures – especially traditional peoples' cultures – wherein, it is argued, alternative systems of knowledge might be found, which have completely different models of nature-society relationships.

One of the most fundamental features of this perspective is its *criticism of modernity*. It rejects the patterns of rationality and the forms of power that underlie the modern condition and result in our characteristic way of life, as the basis of our inadequate relationship with nature and with other men.<sup>4</sup> The attack on the techno-productive system is presented in several ways, and resonates with the work of other prominent authors and publications on the issue. An example is the thesis of Cohn-Bendit and Castoriadis (1981), of unlimited expansion of rational mastery in all spheres of life, ensuring not only a predatory relationship with nature but the surrender of individuality and self-determination under the resulting power system. Another example is Fritjof Capra's (1982) attack on the fragmented and reductive modern world view as leading to the same state of affairs, an attack very frequently repeated in *The Ecologist*, especially by Goldsmith.<sup>5</sup> In both these cases, technological solutions are rejected for what are seen as problems caused by the uses of technology: the modern urban way of life and the idea of progress as indefinite growth of economy. A society that grows indefinitely, like ours, is depicted as 'unstable' and 'anti-systemic', and therefore, not viable. Consequently, these authors search for other models of interpretation of society and for other models of nature representation. As a result, the origins of unsound environmental actions are located in the breaking of an ancient pact with nature. The banishment of the sacred element from nature is, they argue, a prerequisite for the development of rational mastery. The establishment of a reverent attitude towards nature, whereby it can be considered an object of ethical concern as well as of love and admiration, requires the restoration of the sacred. Implicit in this argument is the idea that traditional religions play an important cybernetic role in the maintenance of a 'stable society':

*Religion: the control-mechanism of a stable society*

Let us begin by examining the nature of control. To control the behaviour of a natural system ... simply means keeping it on its right course, just like controlling a motorcar or a guided missile....<sup>6</sup> What is this goal? The answer is the maintenance of 'stability'. A system is regarded as stable if it is capable of maintaining its basic

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<sup>1</sup> All the articles from the section "feature articles" were classified according to the above theme categories. The percentage of articles in each theme relative to the total number of feature articles was calculated.

structure in the face of change.... What few people seem to realise today is that the religion of traditional societies, i.e. the religion of human beings in normal conditions, admirably satisfies these cybernetic requirements, and that, if we take religion as the basic social control mechanism, then the behaviour of a traditional society can be described in terms of the basic cybernetic model which, it can be shown, ensures the control of all other natural systems (p. 321). Objective knowledge has never yet served as a basis for truly adaptive social behaviour, and science which seeks, unsuccessfully as we have seen, to organise it, never has, and never can, replace religio-culture as the control mechanism of stable societies. (Goldsmith 1974, p. 325).

A second basic feature of such a perspective is what may be described as the *utopic project*: the ultimate culmination of such a programme is social transformation, a 'utopic project'. This project can be seen in a set of prescriptions for the social structure and mode of life to be adopted by a future society and a set of new values to support it. This set of prescriptions is based on the principle of *autonomy* – both at the individual and collective levels. By autonomy is meant decentralisation, a small scale economy, simplicity and local self-sufficiency.<sup>7</sup> In terms of power structure, these prescriptions translate into equality, self-determination, respect for individuality and democracy. Such an approach is compatible with anarchist beliefs, and many authors in fact perceive a relation between this type of contemporary discourse and nineteenth century anarchists.<sup>8</sup>

There are many important implications of this principle. First of all, it is clear that the future 'stable' society is necessarily rural, since this is the only condition in which all the requirements are met. Another important criterion is cultural diversity, since the requirements necessarily demand a flourishing set of local traditions:

*What is the new culture?*

My scenario of the diverse and pluralistic culture of post industrial society is as follows. The world view of such a culture sees human beings not as demi-gods, set by their creator to reign over and dominate the world of Nature, but, rather as part of Nature. In the diminution of the biosphere, post-industrial people see themselves diminished. Food is grown by the techniques that give highest yield per acre, not per person. People move back to the land and the countryside is repopulated by smallholders using organic farming techniques. Diets alter to local growing capacities and meat becomes a once a week luxury.

The new culture draws its inspiration from the deep mystical truths; it is not exclusive and doctrinaire in its treatment of deviants.

Post-industrial politics eschews the notion of bureaucratic management, small-scale communities concentrate on active, local participation in all political and economic decision making ...

Post industrial technology is soft, non-exploitative (Sharman 1974, p. 336).

A third aspect the outlook of *The Ecologist* in this period is a set of *new values* to counter the mainstream utilitarian approach to conservation, wherein a protective measure must always be justified in terms of the utility for society of the protected item (be it water quality or biodiversity). The utopic alternative envisages the protection of natural locations or beings on the basis of their intrinsic right to be. Such a reverent spirit is prompted by a biocentric ethic that apparently must be complemented by a properly religious attitude.

If human society is re-ordered, it will almost certainly have a religious basis – whether it is Aristotelian political and civic excellence, Christian virtue, Confucian rectitude, Buddhist compassion, Amerindian love of land, or something similar, old or new.’ More briefly, what is required is ‘restoring the category of the sacred, the category most thoroughly destroyed by the scientific enlightenment’, as Hans Jonas has put it (Chaitanya 1983, p. 128).

These features clearly borrow from several different strains of political and philosophical thought, ranging from religious perspectives, e.g. Buddhists, Taoists and Christians (see McKee 1974; Omo-Fadaka and Parsons 1974; Schumacher 1974; Etté and Bower 1977; Chaitanya 1983; Sylvan and Bennett 1988) to anarchist political formulations; and from deep ecologists to ecofeminists (Doctor 1975, Naess 1988). Since my aim here is not to discuss their differences but to identify the appropriation of ideas from Ecology, I will, for the lack of a better name and with no claims about their concreteness as an organised social entity, call this perspective ‘ecocentrist thought’.

### *Key Concepts of Ecocentrist Thought*

If we can recognise anything that really identifies what among the diverse contributions in *The Ecologist* make up ‘ecocentrist thought’, we would end up with certain basic, recurrent themes. They reveal the *key concepts* of this discourse, the set of which constitutes a deep structure that organises meanings.<sup>9</sup>

The first one is *disease and health in nature*. Nature, the biosphere, or Gaia,<sup>10</sup> would have found in man a being that evolved from symbiont to predator. In the state of hunter-collector, man would have been a symbiont or at most a commensal. Adopting agricultural practices, he would have become a parasite with mild negative interference on the health of its host. But when he finally produced an industrial society, he would have become a virulent pathogen, affecting the ‘essential parts’ of the host, as Lovelock (1979) or Goldsmith put it.

Thus, the parasitical activities of agricultural man caused only a localised infection which our biosphere soon learned to live with ...

What, it might be asked, is the pathology of this disease? In what way is our biosphere being affected? (Goldsmith 1970a, p. 3)



So nature is a living being, but not any living being: it is an organism with conscience. And not any conscience: a higher conscience. In many texts it is depicted as an entity that can recognise things as they 'really are', and not wrapped in the veils of illusion as we do:

If nature is correctly telling us in her own language that we are threatening her health and life sustaining power, we have obviously been failing in the virtue of prudence and have not been able to see things as they really are. (Schumacher 1974, pp. 319-320)

Such an interaction between an entity with superior conscience or even omniscient, on the one hand, and men deceived by their 'false conscience', on the other, is typical of the contact between gods and mortals. From this idea of nature as a sacred entity derives the conclusion that a way of life that leads to negative interference on the environment represents profanation. This, in turn, takes us to the second key concept, of *sin and punishment*, associated with the idea of catastrophe. Man has sinned against sacred laws – laws that can nevertheless be scientifically expressed through the ecological concepts of ecosystem, cybernetic control and homeostasis<sup>11</sup> – by abandoning the hunter-collector habit. Warnings and prophecies are found both in ancient traditional texts, such as Hopi inscriptions or the Bhagavad-Gita, or in the ecological literature.

The 'Original Sin' or niche principle: The hunter-gatherer mode of life appears to be the only one compatible with the maintenance of a climax ecosystem. Any departure from it must mean at least a measure of biological and social disruption. The greater the departure the greater the disruption. (Goldsmith 1973, p. 349)

There is a certain gradation in the evil: the fall from Eden is indeed the abandonment of the hunter-collector habit, but the pact with the 'beast' could only have been sealed with the emergence of industrial society:

According to Adam Smith to follow the teaching of Jesus is to impoverish your fellowmen and society ... It is hardly surprising that this invisible hand promotes an end which is not part of the agent's intention: for he is, after all the Devil, assuming one of his pleasing shapes, to lead our intellectuals astray. (Waller 1974, p. 325)

Punishment comes in the form of a great collapse of the social system provoked by a huge ecological catastrophe. Nevertheless, there seems to be a way out: the sinful man might repent and is given a second chance. To have it, he must be able to hear again the secret talk of Gaia (or nature, or the gods, or god) and finally act according to her laws. The new priests of these holy words are these misplaced social actors, those who presently have the knowledge to hear them: the scientists. *Redemption*, the third key concept, takes then the form of a radical substitution of current cultural codes:

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However, more serious minds are by now convinced that redemption is possible only through a radical change in outlook. (Chaitanya 1983, p. 127)

To achieve this we need to recruit teachers, philosophers, zoologists, biologists and ecologists to re-awaken in the young a sense of wonder, humility and *responsibility*. (Etté and Bower 1977, p. 82)

The encounter with scientific ecology takes place in the subtle frontier designed by the prescriptive mode, wherein scientific discourse judges and prescribes social action, and ecocentrist thought assembles its action plans, its platforms and programmes as well as its projects for the transformation of society. A site where these two meet and interact is the applied ecology of the sixties and seventies. It is in the exercise of making identical warnings and prescriptions – each with its own set of arguments – that elements originally articulated in one discourse are freely employed by the other.

To deepen this dialogue with ecology, ecocentrist thought demands a ‘wider ranged’ ecology. *The Ecologist* therefore sought, from its first number, consciously to attempt the task of transforming science. Ecologists and scientists in general are actively called to play a role in the proposed subversion of society. Indeed, Edward Goldsmith, the editor of *The Ecologist*, states more than once that his interlocutors are strains of ecosystems ecologists and basic systems theorists.<sup>12</sup> In this critique of science, a distinction is made between ‘shallow’ components of science, which stress objectivity, reduction, stochasticity and rationalism (all with an evident negative valuation) and ‘deep’ components, such as subjectivity, teleology and intuition. The meaning of this partition is that the essential aspects of reality are the latter (the ‘deep’) and they are what are worth seeking in any knowledge system.<sup>13</sup>

The resultant ‘holism’ found in ‘deep’ expressions of ecology represents a providential bridge over the much disputed frontier of scientificity. The following quotation from *The Ecologist* illustrates the representation of the ‘ideal ecology’ dominant among ecocentrists.

Ecology supports a mystical view of existence in so far as it conceives nature as a multiple structure which co-operates to create an integral whole.... Ecology and religion together teach us that there is an indivisible structural trinity – humankind, nature and God. Nature is the link between the two. (Waller 1974, p. 331)

A more fundamental identity seems to lie in the interaction between this strain of ecology and ecocentrist thought. This identity refers to the organising function of the already mentioned key concepts. From the warnings and prescriptions derived from ecological literature emerge the same fundamental structures identified in ecocentrist discourse: *nature as a conscious being whose health is affected by society; sin and punishment; and, finally, a redeemer*

*revolution*. In this manner, an ecosystem can be ‘insulted’ and can ‘slap back’ (Kormondy 1969, p. 195), a succession displays a wise ‘strategy’ (Odum 1971, p. 251), etc.

To exercise the sensible option of letting nature do a lot of the work, large areas of land and water have to be set aside for this purpose... (E.P. Odum 1971, p. 438).

...the greatest obstacles for ‘designing with nature’ in this manner are legal, economic, and political... (E.P. Odum 1971, p. 439).

What is important, however, is to realise again that what we are dealing with are by-products, the wastes of a natural ecological agent – man. He is, and his wastes are, as much a part of the living world as the microbe and his wastes. But man has a peculiar and potential dominance over his ecosystem even though he is in no way independent of it; when he insults an ecosystem, he can expect to be slapped back. (Kormondy 1969, p. 195).

In a word, the ‘strategy’ of succession as a short-term process is basically the same as the ‘strategy’ of long-term evolutionary development of the biosphere, namely, increased control of, or homeostasis with, the physical environment in the sense of achieving maximum protection from its perturbations. The development of ecosystems has many parallels in the developmental biology of organisms, and also in the development of human society. (E.P. Odum 1971, p. 251)

For example, the goal of agriculture or intensive forestry, as now generally practiced, is to achieve high rates of production of readily harvestable products with little standing crop left to accumulate on the landscape – in other words, a high P/B efficiency. Nature’s strategy, on the other hand, as seen in the outcome of the successional process, is directed toward the reverse efficiency – a high B/P ratio, as is depicted by the relationship at the right in Figure 9-2 (E.P. Odum 1971, p. 267).

#### *OUR COMMON FUTURE AND TECHNOCRATIC SUSTAINABILISM*

Published in 1987, *Our Common Future*, the report produced by the World Commission on Environment and Development, is a product of intense negotiation between governmental agencies, inter-governmental organisations, scientists and a new variety of actors working on environmental issues.<sup>14</sup> The Commission was formed in 1983 by the General Assembly of the United Nations, which appointed its chairman and vice-chairman. It was instructed to recruit at least half of its members from the developing world but at the same time to work with them as people whose presence was due to their individual capacities and not as representatives of their governments. Many of the commissioners held governmental positions as ministers of affairs related to the environment.

Of its 21 members, 11 came from developing countries and 4 from socialist republics. Many members held academic positions as well, or headed research projects on the environment. In its first official meeting in October 1984, the Commission solicited contributions from 'those individuals, scientific institutes, non-governmental organisations, specialised agencies and other bodies of the United Nations and national governments concerned with environment and development issues' (p. 357) and scheduled 'deliberative meetings' in many different countries where these interacted with people engaged in environmental work at local and regional levels. These individuals are named in long acknowledgment lists at the end of the report. In addition, special projects carried out by teams of specialists were ordered by the Commission from 'experts, research institutes and academic centers of excellence' to aid its discussions. Several advisory structures were devised to assist the works and some of the results achieved by these groups were published separately.

The result of this calculated and very carefully articulated process of negotiation was a provisional consensus on the meaning of the expression 'sustainable development' and a disqualification of catastrophist or otherwise radical discourses on the relation between society and the environment. This, in turn, was a largely a result of following one of the guidelines established at the Stockholm conference of 1972: to reach consensus, even if precarious, over the required scientific foundation of environmental policy. Catastrophist discourses were deemed to be scientifically illegitimate, 'environment experts' became popular, and the science of ecology, granted great prestige.

*Our Common Future* is a technocratic and optimistic text. It recognises the dangers of human activity over the environment but welcomes knowledge and science as the instruments to effectively solve the contradictions engendered by progress. Its main thesis is that the current type of development actually generates severe environmental problems, most of which have a potentially disruptive impact on nature and society. The report states clearly, however, that the solution is not halting development, but substituting this type of development by another one.

This Commission believes that people can build a future that is more prosperous, more just, and more secure. Our report, *Our Common Future*, is not a prediction of ever increasing environmental decay, poverty, and hardship in an ever more polluted world among ever decreasing resources. We see instead the possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base. And we believe such growth to be absolutely essential to relieve the great poverty that is deepening in much of the developing world. (p. 1)

This other development is *sustainable development*, celebrated, at least until 1992, as the great idea of the end of the century.

Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future. Far from requiring the cessation of economic growth, it recognises that the problems of poverty and

underdevelopment cannot be solved unless we have a new era of growth in which developing countries play a large role and reap large benefits. (p. 40)

The ‘environment’ is, in this perspective, a wide ranged entity and includes almost everything from wars to famine, and from migration to poverty. Moreover, according to this perspective, every problem can ultimately be reduced to bad management and every solution, to a better understanding of the ‘system’:

The deepening and widening environmental crisis presents a threat to national security – and even survival – that may be greater than well armed, ill-disposed neighbours and unfriendly alliances. Already in parts of Latin America, Asia, the Middle East, and Africa, environmental decline is becoming a source of political unrest and international tension. (pp. 6-7)

This very likely derives from a general systemic perspective, wherein nature, society or anything can be understood as systems and, therefore, manageable entities. This perspective is nevertheless, more rhetorical than actually theoretical. To give some examples:

- The earth is an organism because

From space, we can see and study the Earth as an organism whose health depends on the health of all its parts (p. 1)

- Nature and society have to be understood together through a common perspective, because

These related changes have locked the global economy and global ecology together in new ways (p. 5)

- Things have to be understood as good or bad for the functioning of ecosystems, because

The diversity of species is necessary for the normal functioning of ecosystems and the biosphere as a whole (p. 13)

When it comes to actually mobilising concepts to manage nature/society, however, things get complicated:

Equally important are the vital life processes carried out by nature, including stabilisation of climate, protection of watersheds and soil, preservation of nurseries and breeding grounds and so on. Conserving these processes cannot be divorced from conserving the individual species within natural ecosystems. Managing species and ecosystems together is clearly the most rational way to approach the problem (p. 147).

If we examine the bibliographical notes on the chapter in *Our Common Future* on ‘Species and Ecosystems: Resources for Development’, we will find that support for assertions about conservation came from sources with diverse

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theoretical commitments. There is, for example, E.O Wilson's *Biodiversity* – itself a volume with structural-functional ecosystemic contributions as well as population biased ones; a contribution by D. Simberloff, a radical anti-ecosystemist, population oriented ecologist; and many other scattered works with different approaches.

Since the basic features of the perspective put forward in *Our Common Future* are its belief in the power of rational management to overcome all the problems involving the relations between society and its environment (which includes almost all the problems society actually faces) and the claim that its application will lead to sustainable development, I have called it *technocratic sustainabilism*. Like ecocentrist thought, the goal here is *system's stability*, wherein the stable society is not one that respects limits, but the well and scientifically managed one. Its basic assumptions are (see Figure 2):

- *All is system*. Society is reduced to nature as social disparity and conflicts arising from class and national inequities are seen not as stemming from social contexts with independent explanations, but as 'natural' outcomes of an unbalanced world (natural) system. Parallel to this is the assumption that *systems can be managed*.
- Since all is system and it is assumed that *systems parameters define systems stability*, it follows that systems can be managed to become stable. Therefore, the nature-society complex can be managed to prevent bursts of conflict and to continue indefinitely with the same stratified social structure.

Technocratic sustainabilism	Deep structure	Ecosystems ecology	Deep structure	Ecocentrist thought
The whole world political, economic and nature resources use actions can be managed as a system.	ALL IS SYSTEM Systems can be managed Social relations are components of the major biosphere system	Modes of interaction of "man" and "nature": parasitism and predation Ecosystems can be managed	HEALTH AND DISEASE IN NATURE Man is the pathogen (society is the disease) Nature is a living being / a living being with conscience	Gaia / the Earth / Nature is a living goddess; she is wise and benevolent; man has been inflicting damage on her organs
The world system has been badly managed lately Sustainable development (prevention of disruption)	SYSTEMS PARAMETERS DEFINE SYSTEMS STABILITY Ecosystems can be disrupted Disruption can be prevented	Human population is dangerously approaching the limit of collapse. The energy flow in fundamental ecosystems has been dangerously altered up to disruption	SIN AND PUNISHMENT (catastrophe) Fall: abandonment of hunter-collector habit / disrespect for <i>limits</i>	Since the abandonment of the hunter collector habit man has infringed the <i>laws</i> There will be punishment for the profanation of the sacred
		Inversion of disruptive tendencies of human societies can prevent short term collapse	REDEMPTION (revolution / social transformation) Prophets: ancient prophets + scientists Reverence: hearing nature's commands	If man adopts a reverent attitude towards nature and resigns from growth and exploitation of nature, collapse will be prevented.

FIGURE 2.

## TENSIONS AND CHALLENGES

Assuming that ‘sustainable development’ derives from a systemic perspective,<sup>15</sup> however rhetorical, how can this derivation have occurred? The concept is generally associated with strategies involved in the indefinite maintenance of certain economic practices. Sustainability thus defines the environment’s ability to support a given activity indefinitely. In a certain way, it is inseparable from some conception about stability. I have already shown, however, that the idea of a society that can control its parameters, a ‘stable society’, is an important part of the previously analysed ecocentrist thought. Indeed, if we examine *The Limits to Growth* (Meadows et al. 1972) and *Blueprint for Survival* (1972), published as a special issue of *The Ecologist*, it seems legitimate to place the origin of the idea that economic activities should be thought in terms of the environment’s capacity to support them, in the context of these original catastrophist formulations. The idea that the environment imposes objective limits to human activities is clearly stated therein and the ideas of *support* or *sustainability* associated with the idea of *limits* and mobilised to dispute the unlimited growth view – and thereby challenge progress.

For technocratic sustainabilism it is the other way round: sustainability and control are to take place in the process of economic growth. An important aspect of their rhetoric is their need to challenge the rival perspective. The text is therefore full of subtle signs of dialogical activity: they mean stability, but not *that* stability; they regard constraints, but not *limits*.

Many clear references to previous catastrophist formulations about the prospects for the future of industrial society, such as those put forward in much of the contents of *The Ecologist* as well as in works like those of B. Commoner (1970, 1971) or the famous *Limits to Growth* (Meadows et al. 1972) can be found throughout the report. To give two examples:

Our report, *Our Common Future*, is not a prediction of ever increasing environmental decay, poverty, and hardship in an ever more polluted world among ever decreasing resources (p. 1)

We do not offer a detailed blueprint for action, but instead a pathway by which the peoples of the world may enlarge their spheres of co-operation (p. 2)

The alternative:

...in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investment, the orientation of technological development, and institutional change are made consistent with future as well as present needs (p. 3)

A similar attempt to differentiate one’s views from those of the rival can also, however, be identified in a text related to the opposite perspective. The following

quotations are taken from the article 'Grassroots Resistance to Sustainable Development: Lessons from the Banks of the Narmada' (Esteva and Prakash 1992), about the resistance movements against a development project for damming the Narmada river in India, along which several traditional communities dwell. It brings forth many of the statements broadly defined as ecocentrist thought. It claims allegiance with Gandhi's anti-technologic model of small, simple self-sufficient communities and the whole set of values implied in the 'utopic project'. Referring to the protests of the people displaced by the dam, it argues that:

Their protests push the debate towards the imperative to respect threatened cultures, because of their own intrinsic worth as well as for the ideal and practice of sustainability revealed by them (p. 49)

Sustainability, in this perspective, is a good thing, an ideal reiterated by the representatives of traditional peoples. Moreover,

Cooptation is the natural trap for grassroots groups to fall into when they shift their struggles on to the oppressor's territory: the sustainable progress of the sustainable growth of the economy. In this territory, the economic mind dominates, speaking the abstract language of 'human rights' and 'sustainable development' (p. 50).

On the other hand, if they continue to join their voices together with all the others that are rightfully demanding respect for the soil, the place, the fusion of culture and territory, the freedom to flourish and endure in their local spaces, then grassroots groups may be able to garner enough strength to resist the cultural damage wrought by sustainable development (p. 51)

Sustainable development, in the sense of *Our Common Future*, is thus a bad thing, which threatens the rights of traditional peoples to self-determination.

## CONCLUDING REMARKS

The establishment of the environmental issue as an unavoidable question not only promotes the environment and a certain 'environmental crisis' to concrete things about which everybody has to have something to say; it also sets the general frameworks for how to approach them. However mutually exclusive the views about the environment put forward in our examples are, they actually take recourse to the science of ecology in similar ways. It is important for both to talk about an integrated system where every part has its (functional) role, whether to state its manageability for the progress of modern society or to claim its fragility and incompatibility with the workings of this same society. To do this, the best way for both is to invoke ecosystem ecology, functional integration, biospheric organicism and trophic structure.



The two examples dealt with in this paper seem to reflect a wider phenomenon in the discipline of ecology. Throughout the history of ecology, the production of theories seems frequently to have been coupled with parallel intellectual efforts to produce representations of society as well.<sup>16</sup> As Latour would put it, the construction of nature and the construction of society have been one and the same process (Latour 1990). Not only have political discourses been constructed according to this ambivalent conceptual appropriation, the scientific discourse has also been assembled according to these diverse commitments (see e.g. Taylor 1988).

## NOTES

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<sup>1</sup> Since the very beginning ecologists have questioned themselves as to the content of their discipline in this respect. Historians and philosophers have been concerned with this issue more recently. An inquiry into the possible normative content of Ecology has been carried out by Cramer and Van den Daele 1985.

<sup>2</sup> See for example Goldsmith 1974, mentioned in a following paragraph.

<sup>3</sup> E.P. Odum 1971; Forrester 1970a, 1970b; Ehrlich 1976; Sahllins 1974; Dubos 1976; Goodland and Bookman 1977. Besides these authors, Odum and Ehrlich were published again, as well as Dasman, who has been a prominent author in applied ecology: E.P. Odum 1977; Ehrlich and Holdren 1972; Dasman 1976a, 1976b.

<sup>4</sup> Observe, for example, the following passage in which scientific reasoning is disqualified as ecologically unsound: 'The Nunamiut Eskimos, who now live at Anaktuvuk Pass in the Brooks Range and who are authorities on the caribou, insist that the first herds of the spring should never be disturbed.... Most scientists are reluctant to listen to the findings of the Eskimos...' (*The Ecologist* 1(1), 1970, p. 31).

<sup>5</sup> An enormous number of examples could be listed here. A most outstanding one is Goldsmith's 1988 article 'The Way: An Ecological World-view', in which the author attempts to systematise a whole alternative knowledge system. An example from other authors is Jones, 'From Fragmentation to Wholeness: A Green Approach to Science and Society' (Part I, 1987, Part II, 1988).

<sup>6</sup> Notice an important conceptual element from Ecosystem Ecology or systems theory as a whole in this passage: it can be 'holistic' and generate a certain 'new organicism' because all is system, and therefore living beings, machines and societies all bear a structural similarity.

<sup>7</sup> Again, this is a major component of the 'way of life' texts in the primary sources. One of the most cited works in this modality of ecocentrist literature is E.F. Schumacher's *Small is Beautiful* (1973).

<sup>8</sup> This is evident in a large fraction of the 'way of life' texts of *The Ecologist*. One example where explicit claims as to anarchism are made is Woodcock 1974.

<sup>9</sup> The idea of 'key concept' is partially related to S. Cremaschi's interpretation of model relations and metaphor in science, and to the view of G. Lakoff and M. Johnson of the

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metaphoric character of conceptual systems. See Cremaschi 1987; Lakoff and Johnson 1980.

<sup>10</sup> The Gaia hypothesis is an actual ambivalent discourse, claiming legitimacy both from scientific fields and action oriented groups: it is at the same time a theory about the functioning of the world ecosystem which carries the organismic analogy to extremes (Gaia is a great living organism) and helpful framework for talking about 'mother Earth'. Gaia is frequently invoked in ecocentrist writing, e.g. Goldsmith's 'Gaia: Some Implications for Theoretical Ecology' (1988). Lovelock commented on the rejection of his ideas by the scientific establishment (Lovelock 1988). Nevertheless, although unacceptable to part of the academic world, Gaia hypothesis seems to have found its way in science, as D. Lindley comments in 'Is the Earth alive or dead?'. On Gaia, see Lovelock 1979.

<sup>11</sup> Some of the uses of ecological ideas are mostly rhetorical, as I have pointed out above. Ideas about stability, the world system or what has been popularised as 'Commoner's laws' – *Everything is connected to everything else; Everything must go somewhere; Nature knows best; There is no such thing as a free lunch* (Jones 1988: 33) – evidently owe their origin to items from the ecological literature, but there is no explicit and contextual commitment to Ecosystem Ecology. Nevertheless, contributions such as Goldsmith's comment on the implications of Gaia to ecological theory or his article 'The Way' (1988a; 1988b) are different, and there is a very detailed revision of the ecological literature before stating any commitment. Goldsmith rejects Clementsian early community organicism and claims allegiance to E.P. Odum's Ecosystem Ecology – he is very clear about Ecosystem Ecology not being homogeneous in its holistic perspective and only a certain strain of it would qualify as 'correct' or ecologically sound.

<sup>12</sup> And there he includes even L.V. Bertalanffy himself. See Goldsmith 1988a.

<sup>13</sup> This partitioning is well illustrated in the number of *The Ecologist* dedicated to Deep Ecology, and specially in Goldsmith's concluding article, 'The Way: An Ecological World-view'.

<sup>14</sup> The published text itself displays the marks of such activities, describing participants and their roles and the time required to produce the statements there contained. Comments on aspects of the interactions between involved social actors can be found in McCormick 1989.

<sup>15</sup> Worster seems to have a different opinion. He claims sustainable development, which he also believes to have been enthroned with the Brundtland report (*Our Common Future*), fails to recognise the interrelatedness of things and the organic wholes in nature. He associates this view to a shift having taken place in Ecology from more 'holistic' (community or ecosystemic based) perspectives to individualistic-populational ones. See Worster 1993, chapter 12, 'The Shaky Ground of Sustainable Development', pp. 142-155.

<sup>16</sup> See for example Worster 1977 and Mittman 1992, where the determinant role of political commitments adopted by ecologists from pre-war II periods is discussed as to their intellectual production.

## REFERENCES

- Blueprint for Survival* 1972. *The Ecologist* 2(1).  
 Capra, F. 1982. *The Turning Point*. New York: Simon & Schuster.

- Castoriadis, C. and Cohn-Bendit, D. 1981. *Da Ecologia à Autonomia*. São Paulo: Brasiliense.
- Chaitanya, K. 1983. A Profounder Ecology – The Hindu View of Man and Nature. *The Ecologist* 13(4): 127-135.
- Cittadino, E. 1980. Ecology and the professionalization of botany in America, 1890-1905. *Studies in the History of Biology* 4: 171-198.
- Commoner, B. 1970. Eco-catastrophe! In Love, G.A.; Love, R.M. (eds.) *Ecological Crisis*. Harcourt Brace Jovanovich, New York, p: 3-15.
- Commoner, B. 1971. *The Closing Circle; Nature, Man and Technology*. New York: Knopf.
- Cremschi, S. 1987. Remarks on Scientific Metaphors. In: Congresso 'Temi e Prospettive della Logica e della Filosofia della Scienza Contemporanea'. 1987. Cesena. *Atti del Congresso 'Temi e prospettive della logica e della filosofia della scienza contemporanea'*. 2.v. Bologna: CLUEB. 1988.
- Dasman, R.F. 1976(a). National Parks, Nature Conservation and 'Future Primitive'. *The Ecologist* 6(5): 164-167.
- Dasman, R.F. 1976(b). Toward a Dynamic Balance of Man and Nature. *The Ecologist* 6(1): 2-5.
- Doctor, A. 1975. Gandhi's Political Philosophy. *The Ecologist* 5(8): 302-321.
- Dubos, R. 1976. The Future of Infectious Diseases. *The Ecologist* 6(7): 258-260.
- Ehrlich, P.R. and Holdren, J.P. 1972. One dimensional ecology. *The Ecologist* 2(8): 11-21.
- Ehrlich, P.R. 1976. Eight Thousand Million by the Year 2010. *The Ecologist* 6(4): 121-122.
- Esteva, G. and Praksh, M.S. 1992. Grassroots Resistance to Sustainable Development. *The Ecologist* 22(2): 45-51.
- Etté, A. and Bower, J. 1977. Reverence and responsibility. *The Ecologist* 7(1): 82-83.
- Forrester, J.W. 1970(a). Alternatives to catastrophe – part 1. *The Ecologist* 1(14): 4-9.
- Forrester, J.W. 1970(b). Alternatives to catastrophe – part 2. *The Ecologist* 1(15): 16-23.
- Goldsmith, E. 1970. Editorial. *The Ecologist* 1(1): 3.
- Goldsmith, E. 1973. Adam and Eve revisited. *The Ecologist* 3(9): 348-351.
- Goldsmith, E. 1974. Religion in a Stable Society. *The Ecologist* 4(9): 321-325.
- Goldsmith, E. 1988(a). Gaia: Some Implications for Theoretical Ecology. *The Ecologist* 18(2): 64-74.
- Goldsmith, E. 1988(b). The Way: An Ecological World-view. *The Ecologist* 18(4/5): 160-185.
- Goodland, R.J.A. and Bookman, J.S. 1977. Can Amazonia Survive its Highways? *The Ecologist* 7(10): 376.
- Jones, A. 1987. From Fragmentation to Wholeness: A Green Approach to Science and Society (Part I). *The Ecologist* 17(6): 236-240.
- Jones, A. 1988. From Fragmentation to Wholeness: A Green Approach to Science and Society (Part II). *The Ecologist* 18(1): 30-34.
- Kormondy, E.J. 1969. *Concepts of Ecology*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Lakoff, G. and Johnson, M. 1980. *Metaphors We Live By*. Chicago: The University of Chicago Press.
- Latour, B. 1990. Postmodern? No, simply amodern! Steps towards an anthropology of science. *Studies in the History and Philosophy of Science* 21: 145-171.

## ECOLOGICAL METAPHORS

- Lindley, D. 1988. 'Is the Earth alive or dead?' *Nature* 332: 483-484.
- Lovelock, J. 1979. *Gaia: A New Look at Life on Earth*. Oxford: Oxford University Press.
- Lovelock, J. 1988. The Earth as a Living Organism. In Wilson, E.O. (ed.) *Biodiversity*, pp. 486-489. Washington, D.C.: National Academy Press.
- McCormick, J. 1989. *Reclaiming Paradise: The Global Environmental Movement*. Indiana University Press.
- McKee, D. 1974. Hands in the soil and heart in prayer. *The Ecologist* 4(9): 327-328.
- Meadows, D.H. et al. 1972. *The Limits to Growth*. New York: New American Library.
- Mittman, G. 1992. *The State of Nature; Ecology, Community and American Social Thought, 1900-1950*. Chicago: University of Chicago Press.
- Naess, A. 1988. Deep Ecology and Ultimate Premises. *The Ecologist* 18(4/5): 128-131.
- Odum, E.P. 1971. *Fundamentals of Ecology*, 3.ed. Philadelphia: W.B. Saunders.
- Odum, E.P. 1971. The optimum population for Georgia – factors that must be considered. *The Ecologist* 1(9): 14-16.
- Odum, E.P. 1977. Ecology: the Commonsense Approach. *The Ecologist* 7(7): 250.
- Odum, H.T. 1971. *Environment, Power, and Society*. New York: Wiley-Interscience.
- Omo-Fadaka, J. and Parsons, R. 1974. Ancestor Power. *The Ecologist* 4(9): 337-338.
- Sahlins, M. 1974. The Original Affluent Society. *The Ecologist* 4(5): 181-189.
- Schumacher, E.F. 1973. *Small is Beautiful*. New York: Harper & Row.
- Schumacher, E.F. 1974. Message from the Universe. *The Ecologist* 4(9): 318-320.
- Sylvan, R. and Bennett, D. 1988. Taoism and Deep Ecology. *The Ecologist* 18(4/5): 148-159.
- Taylor, P.J. 1988. Technocratic Optimism, H.T. Odum, and the Partial Transformation of Ecological Metaphor after World War II. *Journal of the History of Biology* 21: 213-244.
- Waller, R. 1974. Our Grandgrid Society. *The Ecologist* 4(9): 325-331.
- Woodcock, G. 1974. Anarchism and Ecology. *The Ecologist* 4(3): 84.
- Worster, D. 1977. *Nature's Economy*. Cambridge: Cambridge University Press.
- Worster, D. 1993. *The Wealth of Nature*. New York: Oxford University Press.