

DEBATES ON SUSTAINABLE DEVELOPMENT: TOWARDS A HOLISTIC VIEW OF REALITY

LEONARDO ALBERTO RIOS OSORIO^{1,*}, MANUEL ORTIZ LOBATO² and
XAVIER ÁLVAREZ DEL CASTILLO³

¹Universitat Politècnica de Catalunya, Edifici Campus, TR10, Calle Colom, 2, P.O. 08222 Terrassa,
Barcelona, Spain; ²UNED (Distance Education University of Spain), Terrassa, Barcelona; ³Universitat
Politécnica de Catalunya, Terrassa, Barcelona, Spain

(*author for correspondence, e-mail: rios@catunesco.upc.es;
fax: +34-937398295; tel.: +34-937398294)

(Received 10 February 2004; accepted 28 October 2004)

Abstract. The paper analyzes the concept of sustainable development in the light of the different interpretations existing on the issue since its appearance and establishment as an ideal to lead humanity's line of progress. Within these interpretations, a characteristic generation of diverse debates can be appreciated, arising from different perspectives, academic as well as ideological, aiming at describing, clarifying and determining their conceptual reach.

Based on these facts a model of categorization for these debates has developed, a model in which interpretations generated on the concept of sustainable development were catalogued into four realms: conceptual, contextual, academic and geopolitical.

The configuration of these four areas of debate, as well as the recognition of the diversity of interpretations existing on sustainable development, is a reflection of the intrinsic complexity of the phenomena, which affect the natural and social world, both at the local and global level. The analysis of this complexity is based on the subjectivity, which is inherent to the interpretation of these phenomena, with permanent reference to the cultural context from which the diverse discourses were structured.

This global perspective on the state-of-the-art controversy concerning the idea of sustainable development as an articulatory axis reveals the necessity of building epistemological models, which can give a new direction to scientific research. From these new models, based on the analysis of the holistic character of reality, the subjective and the objective must be integrated in the generation of knowledge, which contributes usefully to the unceasing reconstruction of our world-(view).

Key words: conceptual debate, contextual debate, disciplinary debate, geopolitical debate, sustainable development, sustainability, transdisciplinary.

Abbreviations: WCED – World Commission on Environment and Development.

1. Introduction

Since the appearance of the concept of *sustainable development* until its instauration as a guideline for humanity and its establishment as a subject in the academic field, one of the most transcendent aspects in its evolution

Readers should send their comments on this paper to: BhaskarNath@aol.com within 3 months of publication of this issue.

has been the establishment of a definition in which all aspects involved in its creation can be included.

The origins of the phrase, '*sustainable development*' can be traced back to 1983, when the UN General Assembly constituted the WCED. At the time, its main target was to design 'a global program for change'. The commission released its report to the UN Assembly in 1987, in a document known as the 'Bruntland Report', or *Our Common Future*, in which consensus was reached and the '*sustainable development*' expression was coined to include decision-taking processes and policies based on the interdependence and complementariness of economic growth and environment preservation. Apart from this, the document shows the necessity of reforming institutions and laws in the frame of *sustainability* in order to face the challenges of the future with the overall purpose of achieving inter- and intra-generational equity.

A pioneer definition generated by the commission, which is still in use, states that *sustainable development* is the one which satisfies the needs of the present generation without endangering the future generations' capacity to satisfy their own. (WCED, 1987)

However, the implicit generality of this definition, together with the transcendence associated to the concept, has stimulated massive response from diverse academic fields, which have tried to limit the conceptual reach of *sustainable development* according to their own area of knowledge.

Despite the efforts made, no conceptual agreements on *sustainable development* have been reached. The literature shows serious controversy on the issue. Criticism on the primary definition, its objectives, the coherence of their strategies and even the reasons that caused its appearance has been made from different disciplines, political standpoints and even the civil society. Nevertheless, no institution has questioned the necessity of reaching the ideal of *sustainable development*, no matter the ambiguity of its definition.

In this sense, debates on *sustainable development* present in the literature can be classified into four thematic areas in accordance with the general characteristics of the different analyses: conceptual, contextual, academic and geopolitical subdebates can be found, the arguments of which will be analysed in the following pages.

2. The conceptual debate

Within this category, we include the works on sustainable development that focus on the study, of its etymological origins, the semantic features of the phrase and the analyses of the concept carried out from a linguistic point of view.

The information generated within this category allows us to build a body of theoretical and critical knowledge that puts into question, from a linguistic point of view, the validity of the use of the concept in different cultural contexts, even when these concepts may have opposite or contradictory connotations:

The phrase 'desarrollo sostenible' is an Anglicism: it comes from *sustainable development*. But the Saxon expression 'sustainable' does not have the same connotation as the Spanish word 'sostener' or 'sustentar', which means "to hold down an object steadily, to keep a thing in a medium or place without letting it fall, or letting it fall slowly, to suffer, to tolerate, to preserve a thing in its essence or state". These meanings are present in the English word, but it also conveys a dynamic positive connotation: to keep going continuously, endure without giving away, that is, to advance continuously, to keep the march, to resist without faltering, to persevere in effort. The English expression refers to a process whose pace must be maintained. It is a dynamic, non-static conception that introduces a long-range temporal vision. Whereas the Spanish word connotes a necessary effort in order to prevent something from falling, or to "preserve a thing in its present state", with a static conception, the English word refers to the effort necessary in order to maintain a dynamic process and to overcome any possible obstacles. The English expression, therefore, forces us to identify the necessary conditions not only for survival but also to allow for its continuous progress. (Bifani, 1999: 105–106).

From other areas, criticism has focused on the existent ambiguity between the concepts that form the phrase '*sustainable development*', a combination that shows incompatibility between systems of thought:

Most of the contemporary indefiniteness comes from the effort of matching economic growth (or development) with the idea of *sustainability*, when, in fact, the two concepts refer to different levels of abstraction and systems of thought. The notions of economic growth (and development) find their definition in the homogeneous monetary aggregates of "production" and the derivatives that stem from the common idea of economic system whereas worries about *sustainability* fall on singular and heterogeneous physical processes. In fact, the working definition of economic growth (or development) made by economists is completely dissociated from the physical world and has no other concrete and measurable meaning rather than the increase in the figures of the National Income. That is, in monetary aggregates which, by definition, are abstracted from the heterogeneity of the physical natural processes that generate them. Therefore, they lack in information and criteria to judge the *sustainability* of the latter. (Naredo, 1997).

According to these analyses, conceptual ambiguity in *sustainable development* will not be solved by a greater description and discrimination of both theoretical and practical components involved in the literature.

At the background of this conceptual debate lies an elusive dilemma between two completely opposed thought systems, which are faced because of the heterogeneity of the perceptions of reality on which each is based:

In the first place it must be noticed that background conceptual ambiguity cannot be solved by mere terminological hues or by more comprehensive descriptive or enumerative descriptions of what must be understood as *sustainability* (as happens with the notions of production or development, which implicitly find their definition in the idea of economic

system itself). At the decisive moment, the content of this concept is not an outcome of explicit definitions, but of the thought system applied in its approach. It is evident that if no system in which 'sustainability' acquires a precise definition is applied, the word will maintain the levels of shadowy generality that it owns today. Without the disappearance of these shadows, it does not matter how much we try to provide explicit definitions and how much we discuss the possible translations of the English word 'sustainability' as 'sostenibilidad', 'durabilidad' or 'sustentabilidad'. (Naredo, 1997).

However, the implicit ambiguity in these concepts is not only reduced to an opposition between different thought systems. Together with the *sustainable development* vision in the Western world, other interpretations that point out transcendental aspects to the construction of the concept can be found. However, to the moment, they have been ignored.

Lourdes Tibán analyses *sustainable development* from the cultural domain, a field in which she recognizes the existence of two different understandings of the concept: the Non-Indigenous and the Indigenous view. The non-indigenous view is based on the arguments proposed by the Bruntland report, and its analysis of the concept of *sustainable development* identifies it with a pro-economic, liberal ideology, whose main objective is economic growth. Within this conception, the preservation of ecosystems, culture, nature and the environment are just tools for its achievement.

On the other hand, the Indigenous view is originated within the cosmovision of indigenous peoples, who understand nature as a whole, as life itself. Therefore, nature cannot be instrumentalized on the grounds of further material gains. The essential idea in this interpretation is that the value of nature is mediated by ethic principles that are grounded, simultaneously, in cultural values built along centuries of harmonic coexistence with and within nature:

This cosmovision has a series of principles that stem from the idea of the sum of living beings coexisting in an ecosystem must be preserved and respected. The land must be preserved and promoted, human consumption products must be protected in order to improve the family's and the community's standards of living; nonrenewable resources protection, promotion of the community so that it takes care of their environment, its socialization at the level of organization in order to understand environmental protection as a guarantee for a life full of dignity for generations living and to come. (Tibán, 2000).

Consequently, from the indigenous world a different model of *sustainable development* is proposed; one that could be called 'Integral Development' or 'Ethnodevelopment':

They insist on respect to traditional strategies and ancient forms of relationship between man and nature, which historically have turned out to be protective and respectful to the environment, and safe for social life [...] it implies a *sustainable development*, integral or alternative, without denying cultural diversity, based on its own culture, knowledge and organization, and not decreasing human welfare. (Tibán, 2000).

Culture manifests itself as an indispensable element in order to interpret the concepts of development and *sustainability*. As a result, the different cultural representations from which both concepts are conceived are reflected in the construction of different value scales: what development is and what it should be; what *sustainability* should be, and what it is.

Criticism has been made from other stances regarding the use of the concept of *sustainable development/sustainability* in exaggerated generalizations, and in contexts in which its implementation is only possible when all spatial and temporal limitations are taken into account:

Sustainable development is one of those modern expressions widely used although imperfectly defined or formulated. It arose from a rough idea developed in the sixties, in the context of nature and natural resources preservation and entered the discourse of ecologists, economists, agriculturists, developers and politicians after the Rio Conference of 1992 [...] *sustainable development* is a concept easily grasped and perfectly understood when applied to pre-technological human populations, where trophic needs are met by production inside their geographical domain. In urban societies, those limits become progressively blurred until they extend to encompass the biosphere. Products are imported from all over the world, and are available irrespective of seasonal limitations. So, a heavy toll is exacted from the whole biosphere, which cannot be expected to be able to sustain the growing world's populations with a minimum standard of living. (Ávila-Pires et al., 2000: 266).

As has been seen above, it is possible to observe generality and ambiguity in the relationship between development and *sustainability*, as the conceptual combination of both refers to different thought systems. These concepts alone do not specify nor limit the kind of relationship between them, but... What kind of development are we talking about? Is it economic? Biological? Social? Political? Cultural? Besides, what kind of *sustainability* is implied? The one institutionalized in the Rio Summit, which relates the maintenance of contemporary development standards somehow managing to preserve natural resources? Could it be derived from the basic meaning of the verb 'to sustain'?

The difficulty in answering these questions shows that the relationship between the two concepts will depend on the scientific domain or the particular cosmovision from which they are analysed.

Discussion and analysis on the etymological and semantic origin of the concepts in question may seem excessive, but it must be considered a necessary approach in order to understand that there are words and phrases which cannot be homogeneous in every culture, since every one of them possesses a different value system, which is simultaneously based on a different perception of reality. The lack of interest in knowing our way of seeing and understanding our world in depth, and the levity with which we commonly accept as our own doctrines and ideologies like that of *sustainable development/sustainability*, are a sign of the process of global cultural homogenization in which we participate unconsciously. It is for this reason

that discussion on the conceptual debate cannot be obviated by a simple proposal of more complex and detailed definitions, because underneath them lies a reality which is much more complex than its own definition. Therefore, we cannot limit the debate to a sterile discussion on what is the best view, and not to consider any other just because of their relative distance to our own particular worldview.

The first step is to recognize that the necessity of overcoming chaos in definitions is paramount. Nowadays the literature on *sustainable development* has become stagnant because of this debate. From now on we need to generate new processes, alternative pathways that let us face our social, economic, political, environmental and cultural reality from a common point of view according to our historical-cultural background.

3. The contextual debate

When scholars and researchers refer to the contexts of sustainable development, the institutional and academic standpoints of the concepts are alluded. The institutional stance refers to the agreements and strategies involved in the concept of *sustainable development*, which have been reached by an international consensus through diverse conferences and world summits sponsored by the UN.¹

Apart from them, the academic context of *sustainable development* is related to the scientific approach, which has been on the base of political-institutional debates since its very beginning, as the original cause of the emergence of the concept.

Scientific analysis within the frame of *sustainable development* originated in the early seventies, when the group known as the *Club of Rome*² asked the experts at the System Dynamics Group of the Massachusetts Institute of Technology (M.I.T.) to study and evaluate the trends and interactions within a limited number of factors that threatened contemporary global society: causes and long-term consequences from population growth, industrial capital, food production, resource spending and pollution.

The report was aimed at answering a series of fundamental questions: (a) What would happen if world population growth were not kept under control? (b) What would the environmental consequences be if development should keep its contemporary pace? (c) What could be done in order to ensure a human economy which could be maintained within the physical limitations of our planet, and that should provide for the needs of all human beings?

The outcome of the research was made public in a report released in 1972, by the name of *The Limits to Growth* (Meadows et al., 1972). Short

after its publication, world alarms went off in the face of the apocalyptic future projections shed by the research. The key statements of this report were the following:

1. If no change is made in the trends of world population growth, industrialization, pollution, food production and resource exploitation, our planet's limits of growth will be reached sometime within the next one hundred years. The most probable outcome will be a sudden and uncontrollable decline both in population and in industrial capacity.
2. It is possible to alter these growth trends and to establish valid, *sustainable* conditions for economic and ecological stability. The state of global balance can be designed in such a way as to provide for all basic material needs of human beings on Earth. In that sense, every person, with no gender distinction, will have equal opportunities to achieve their individual potential to the maximum.
3. If world population decided to head this way, the sooner a common effort is started, the bigger their chances for success will be. (Meadows et al., 1992).

At that very moment, science was placed at the service of *sustainable development*. Efforts have been made by different disciplines in order to develop new technological tools and new theoretical knowledge, through which the central issue of environmental disequilibrium and their possible economic and social consequences could be deeply known. Because of the interrelationship of the political context of *sustainable development* with the scientific domain, within the latter a new necessity has appeared. Together with a claim to develop a *pro-sustainable* style of scientific thought, a new, common language that could be understood by all members of the debate is also paramount. To that end, a series of structural concepts have been created, which are summarized in the following paragraphs.

A first analysis of the concept of *sustainability* has divided it into 'Normative' and 'Positive'. The first refers to 'what it should be', and the second to 'what it actually is'. In other words, Positive *sustainability* deals with the scientific analysis of *sustainable development* and *sustainability*, from the economical and ecological bias mentioned above. However, an agreement on 'what must be sustained' has not yet been reached.

On the other hand, 'Normative' *sustainability* is what this paper has referred to as 'institutional'. It involves the agreements and proposals generated within the conceptual frame of *sustainable development* originated at the international meetings sponsored by the UN since 1972³.

Concerning its positive or scientific character, it needs be clear that the concept of *sustainability*, as we know it, is an adaptation of the notion used in the agrobiological domain. Within this area, it is defined as 'the capacity of a system to maintain its productivity against disturbances'. (Jiménez Herrero, 2000: 100)

In the following years, the concept was widened to include all natural systems, therefore acquiring an ecological-preservationist character. In the end, this stage has been overcome and it has come to refer to an environmental domain in which economical, social and cultural criteria have been progressively included⁴. Consequently, a new concept of '*Integral Sustainability*' has emerged, so that it can incorporate different views proceeding from diverse fields, as has been mentioned above. Nevertheless, this fact is not a random event. It is a fundamental characteristic of the new *sustainability*, and this fact leads us into another important aspect in the analysis of the context of *sustainable development*: the difference between the concept of *sustainable development* and *sustainability*.

To this point, it can be appreciated that the distinction between the political and the scientific is common in both concepts. From this complementariness between the two domains, integral concepts are generated: that of *sustainable development* and '*integral sustainability*'. However, this apparent similitude as regards the analytic structure developed about both concepts does not match the philosophical and ideological background underlying each one of them. In this sense, both concepts differ. Whereas *sustainability* refers to the capacity of keeping a state, *sustainable development* implies a process, which is integrative in essence, and that tries to maintain a state of dynamic balance in the long run. Therefore, *integral sustainability* may be considered as the central idea of *sustainable development*: the origin, the spatial and temporal character, and the contexts or reference systems integrated in a development process.

A mixture of the concepts and the process towards believing that they are just one brings up an arduous ethical dilemma, which is more relevant than usually accepted. Jiménez Herrero has stated: "misuse and abuse of the notions of *sustainability*, when applied to development, has even favored the presuppositions that what is rationally desirable is possible, and even more, that everything that is possible is desirable in itself". (Jiménez Herrero, 2000: 100)

Here lies the discrepancy between the two concepts: *sustainability* and *sustainable development* differ as to how the final objectives are pursued. *sustainability* poses an indisputable argument, because whatever the final objective is, it must be conjugated with balance in the use and spending of natural resources. Therefore, the search for environmental *sustainability* is an integral part of that ultimate target.

Sustainable development is based on the preservation of natural resources, that is to say, on the same objectives as *sustainability*, and is complemented with the search for a social, cultural and economical equilibrium, which is 'theoretically' the subject for discussion in the World Summits on Environment and Development.

4. The disciplinary debate

The disciplinary debate is partially linked to the academic context mentioned above, but it also focuses on the evolution of the research model that is required to face the complexity of the situation created by the emergence of *sustainable development*. It shows that new scientific approaches are being incorporated, such as Complexity Theory, System Dynamics, or Transdisciplinarity, giving birth to a new scientific age that could be characterised as that of the trespassing of disciplinary limits and the rising of new epistemological models.⁵

The disciplinary debate, from the epistemological point of view, is configured as an emergent area that includes theoretical, conceptual and methodological proposals, which aim at explaining the evolution in the areas of knowledge traditionally involucrated in the analysis of *sustainable development*. As a result, the appearance of new disciplines is proposed.

A representative example of this kind of disciplinary debate is the concept of 'Postnormal' science proposed by Funtowicz and Ravetz (Funtowicz, 1997; Funtowicz and Ravetz, 2000), which represents a criticism to the epistemology of classical science, based on a reductionist concept of phenomenal reality and studied within the contexts of disciplines increasingly more specialized and esoteric.

'Postnormal' science is based on the integration of hard and soft sciences, or natural and social sciences, as Funtowicz calls them. Both at the level of epistemological structures and at the basic level of mere comprehension of contemporary problems, *postnormal science* seeks to integrate them within the frame of holistic explicative models that will transcend reductionist models of classical science. A systemic, synthetic and humanistic approach is adopted, and recognition of complexity and natural systems dynamism and their subsequent problems is paramount.

The appearance of a new kind of science is closely connected to the new technology that reflects and helps guide this development. In this new science, uncertainty does not disappear but is managed, and values are not presupposed but made explicit. The model for scientific argumentation is no longer formal deduction but interactive dialogue. The new paradigmatic science no longer can afford the fact that its explanations do not relate to space, time and process; the historical dimension, including the human reflection on the past and the future, becomes an integral part of the scientific description of nature and of our place in it.

Postnormal science does not oppose classical science and its methodology, but aims at the complementariness of both cosmovisions in an integral model that allows for the integration of phenomenal uncertainty. Classical

science undervalues uncertainty, but it is an intrinsic feature of reality itself.

5. The geopolitical debate

Also known as the North–South debate, it is related to the theoretical-ideological analyses which put the division between developed and underdeveloped into question, being the basis for the distinction the concept of ‘development’ of the Western countries.

January 20th, 1949 is considered as the starting point of the idea of Western development, with Harry Truman’s word in his inaugural speech as President of the United States.

More than half the people of the world are living in conditions approaching misery. Their food is inadequate, they are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to areas that are more prosperous. For the first time in history humanity possesses the knowledge and the skill to relieve the suffering of this people. . . I believe that we should make available to peace-loving peoples the benefits of our stock of technical knowledge in order to help them realize their aspirations for a better life. . . What we envisage is a program of development based on the concepts of democratic fair dealing. . . Greater production is the key of prosperity and peace. In addition, the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge. (Escobar, 1995: 3).

A moment in history that coincides with the collapse of European colonial powers and with the most outstanding time of US economic and foreign policies.

However, it can be argued that development, just like underdevelopment, does not appear conceptually when Truman announces the paradigm of Western development. The occidental standpoint regarding these concepts is originated by the theoretical materialization of the western lifestyle, which influenced other civilizations in the world and imposed a new direction to them. The world was reordered and divided into first, second and third, according to the scales of development held by those who decide who is more powerful than the rest. Truman, therefore, only turned into an institutional fact what was already universally known.

Truman’s proclamation is a milestone in the modern conceptual view of development and, consequently, of underdevelopment. However, this new vision of the world ignores the vastness of that which is not the West. Edgar Morin and Anne Kern make the following remarks on this fact:

Development has two aspects. On the one hand, it is a global myth in which industrial societies reach welfare, reduce their extreme inequalities, and provide individuals with as much happiness as society can offer. On the other hand, it is a reductionist conception, in which economic growth is the necessary and sufficient engine of all social developments,

psychic and moral. This technoeconomic conception ignores human problems, such as identity, community, solidarity and culture. Therefore, the notion of development is severely underdeveloped. The notion of underdevelopment is a poor, abstract product from the poor, abstract notion of development. (Morin and Kern, 1993: 92–93).

Similarly, it cannot be said that underdevelopment is a by-product of development, not even that the concept in itself exists beyond the frontiers of the Western world. It is the Western's interpretation of the world that has been imposed because of the pursuit of economic growth at the basis of Western thought and development.

On the other hand, the distinction North–South does not only emerge with a clear reference to the near past, but we also find references to it in essays on political economy which point out this geopolitical differentiation within the context of the history of American's colonization.

For those who conceive history as a competence, the backwardness and misery of Latin America is just a result of their failure. We lost; others won. But it happens that those who won, they did it because we lost: the history of underdevelopment, in Latin America integrates, as has been said, the history of the development of world capitalism. . . . Potosí, Zacatecas and Ouro Preto fell sharply from the summit of the splendor of commodities into the deep hole of emptiness, and ruin was the destiny of the Chilean Pampa . . . and the Amazon rubber rainforest. . . ; sugar-producing North-West Brazil, Argentinian break-ax forests. . . or certain oil producing peoples in Maracaibo Lake have hurting reasons to believe in the mortality of the fortunes that nature gives and imperialism steals. The rain that irrigates the imperialist powers' nuclei suffocates the vast suburbs of the system. In the same way, and symmetrically, the welfare of our ruling classes – ruling inwards, ruled from the outside-is the damnation of our crowds, condemned to lead a life as beasts of burden. (Galeano, 1999: 3–4).

Therefore, the geopolitical debate, which had been configured as a countertrend in Western development, is readapted in our days in order to question the new ideology on *sustainable development*.

In Gustavo Esteva's view, *sustainable development*, also called by him 're-development', is an evolution of the model of Western economical development after the crisis of the seventies. Re-development proposes a new development starting from that which was done wrongly or which is now useless. It is characterised by having two clearly definite orientations that differ in geographical terms.

In the north, re-development is characterised by the dismantling, export, destruction or substitution of the development structures in vogue until a certain time, and that now are considered obsolete by different reasons. In this process of adaptation to the new development, emphasis was put on the velocity with which it should lead the changing phenomena.

In the south, redevelopment was imposed with the same set of features as in the north, but with the significant difference that the dismantling of the scarce development reached in the eighties was made with the sole purpose

of opening the markets to all ‘the dismantled, exported, destroyed and substituted in the North’:

Conceptually and politically, redevelopment is now taking the shape of *sustainable development*, for ‘our common future’, as prescribed by the Brundtland Commission. Or else, it being actively promoted as green and democratic redevelopment, for those assuming that struggle against communism, the leitmotiv of Truman’s speech, is over. But in its mainstream interpretation *sustainable development* has been conceived as a strategy to sustain ‘development’, not to support the blossoming and endurance of an infinitely diverse social and natural life. (Esteva, 1992: 19).

According to Daniel Wagman, *sustainable development in the West* is perceived as a metamorphosis of development models that dominated the second half of the XXth century:

The statement of the followers of *sustainable development*, in the sense that “we must not destroy the earth that sustains us”, which seems correct to all of us, cannot be said to be neither a great philosophical advance nor a guide to achieve it. What’s more, at a large measure, the application of the concept does not question the implicit *unsustainability* of an economy based on continuous growth and constant consumption increase. The use of the word “development” is, in a certain sense, a restatement of the same. The usage of concepts such as “capital” or “heritage” in order to speak of nature also reinforces a conception of the earth as a resource to be exploited. (Wagman, 2000: 59).

For anthropologist Arturo Escobar, *sustainable development* is a new theoretical construction that aims at transferring to the social field the problem of nature’s health preservation. This target posed by *sustainable development* to society is the argument that has permeated into Western world’s everyday life, and that must be imposed on the rest of humanity: the preservation of the environment.

According to Escobar, *sustainable development* is based on the search for ‘strategies of global management and planning’, and with the apparent intention of globalizing the problems of environmental degradation, what is really intended is to involucrate the whole of humanity in the responsibility for degradation: “The degradation of the Earth is only redistributed and dispersed in the professional discourses of environmentalists, economists, and politicians”. (Escobar, 1995: 193)

As a strategy, it is proposed to manage the situation of Earth’s degradation, which must be, consequently, of planetary proportions. But at the same time, some questions arise: *Who is in charge of leading the situation? Who is in charge of guiding the process of adaptation towards world Sustainability? Who is going to define what is the way this ‘new development’ must take? What will be the guidelines be for that process?*

But who is this ‘we’ who knows what is the best for the world as a whole? Once again, we find the familiar figure of the Western scientist turned manager... It is still assumed that the benevolent (white) hand of the West will save the Earth; it is up to the fathers of the World Bank, mediated by Gro Harlem Brundtland, the matriarch scientist, and a few

cosmopolitan Third Worlders who made it to the World Commission, to reconcile 'humankind' with 'nature'. The Western scientist continues to speak for the Earth. God forbid that a Peruvian peasant, an African nomad, or a rubber tapper of the Amazons should have something to say in this regard. (Escobar, 1995: 193–194).

According to Escobar's analysis, the emergence of *sustainable development* in our days could be explained by the cooccurrence of events of economical, political and social relevance at a global level, events that have been narrowly related to environmental aspects, being the environmental aspect the cause and its consequence. This new construction of reality has been incorporated to political agendas and speeches, and has been supported by scientific expertise. Some of the most important facts which have affected this new view have been: the assessment of the feasibility and the impact of development projects in third-world countries, the increase in local-scale knowledge production, the assistance to development carried out by charities, the dramatic social and ecological problems generated by the wrong implementation of development projects and the emergence of new ways of social protest associated to these mistakes. Finally, technological advances in the measurement of global environmental degradation, together with the new international division of labor and the globalization of ecological degradation, build up a corpus of factors that configure today's complex reality, a reality that has allowed for the blossoming and instauration of *sustainable development* as something desirable, necessary and unquestionable.

However, it is not only these facts that can explain the appearance of *sustainable development*. In its emergence as a redemptive strategy of 'the world we live in' we can perceive a logic thread. Escobar points out four aspects of *sustainable development* that can be analysed in order to understand the logic that gave birth to it.

Firstly, the appearance of the concept of *sustainable* concept is a part of a wider process of insecurity about global survival, which has given place to the resurgence of the analysis of the relationship between nature and society. However, the details about what and how reality must be put into question vitiate the process. What is to be preserved? Cultures? Ecosystems? Economies? Lifestyles? Then, how should we do it? The logic that prevails is, of course, that of the survival of the fittest. Besides, if we consider that the conception of globality is defined from the dominator's point of view, all human beings will be considered as equally responsible for the reality we are putting into question. The criterion used to assign responsibilities should be the magnitude scale. Starting from the fact that this world is unequal, unfortunately, we must understand that the share of our action in the problem mentioned has never been the same.

The second aspect is the problem of the economy of the responsibility for environmental degradation. *Sustainable development* has displaced the

seventies' vision in which environmental degradation was mainly caused by the ambition of economic growth and exacerbated industrialization, only to be replaced by a view of poverty as destructor of the environment in the eighties: "The poor are now admonished for their 'irrationality' and their lack of environmental consciousness" (Escobar, 1995: 195). This way, any shadow of blame covering industrial polluters vanishes and reality is distorted so that poverty is seen as a predator of the environment: "it is seldom recognized that the problems are rooted in development processes that displaced indigenous communities, disrupted peoples' habitats and occupations, and forced many rural societies to increase pressure on the environment". (Escobar, 1995: 195)

Thirdly, Escobar deals with how the view of ecodevelopment, which permeates most of the literature on *sustainable development*, reproduces essential aspects of the capitalist economy and developmental theories. As a result, *sustainable development* has been based on an accumulation of ecological conceptual strata that are intertwined with essential aspects of classical developmental theories (growth): "basic needs, population, resources, technology, institutional cooperation, food security, and industrialism are all found in the Brundtland report, reconfigured and reshuffled. The report upholds ecological concerns, although with a slightly altered logic. By adopting the concept of *sustainable development*, two old enemies, growth and the environment, are reconciled" (Escobar, 1995: 195). The altered logic of the literature on *sustainable development* can be perceived when the negative effect environmental degradation on economic growth is mentioned; however, the role of economic growth as a cause of environmental degradation is not questioned at a similar scale.

Finally, Escobar's last point poses the emergence of environmental conscience as a consequence of nature's transformation into environment, within the frame of a capitalist economy focused on the satisfaction of human needs. Nature is no longer a synonym of life on earth and becomes 'the environment', whose main feature is being the resource bank for fulfilling human needs, and the creation of new ones. (Escobar, 1995: 196)

From this argument, it is revealed that anthropocentrism is one of the main characteristics of *sustainable development*. Philosophical and religious thought in the Middle Ages conceived nature as existing for humankind's benefit. Human destiny involved nature's dominion. In our days, this 'dominion' has turned against us, placing all forms of life on Earth at stake. Notwithstanding this fact, *sustainable development* uses an anthropocentric language that only understands the effect of environmental degradation from the point of view of human survival.

Nature transformed into environment has become the resource bank that must be preserved in order to guarantee present human survival and their offspring's. This 'environmental protection' is linked to the increase in the

efficiency of its use, and not really to the decrease of its degradation. It is, to sum up, a strategy based on a classical economic idea: 'Producing more with less'.

6. Some final remarks

Debates arisen on sustainable *development* constitute a theoretical body on which diverse models of analysis are being built in our days, models which try to approach the phenomena present at today's world conflicts: environmental degradation and its causes and effects in relation to human systems (economical, social, cultural, political), oriented towards human survival, and the upkeeping of the life standards achieved at present.

However, these theoretical models are split into reductionist analyses, a situation that prevents researchers from perceiving the complexity underlying *sustainable development* as a field of knowledge, and the reality that is being subject of analysis.

Every discipline analyses a different area of contemporary phenomena, but, as a result, others aspects which confer the main property of wholeness, of holism, are left out and become external or complementary factors. The situation is contrary to the philosophy of *sustainable development* itself, which implicitly acknowledges phenomena complexity and therefore the need to analyse them within the frame of epistemological models that include and assume a complex paradigm.

Disregarding this fact, normal sciences⁶ are still constrained by an esoteric conceptual scope, which builds conceptual fences against the intrusion of other disciplines into their particular linguistic universe.

The impermeability and inaccessibility of scientific language is a distinctive mark of positivist thought, still in vogue in the western world, and through which linguistic barriers keep different disciplines isolated. In the same way, scientific language is the instrument for inner communication within a collective formed by the different scientific groups, which allows them access to generated knowledge that is itself framed by those linguistic and disciplinary limits.

For those researchers who have focused on the study of *sustainable development* from each of their disciplinary domains, probably the first obstacle to be faced was the problem of the concept itself. This fact is perceived as a barrier that discourages its complete disciplinary configuration, and consequently, generates a wave of epistemological uncertainty.

The debate between reductionism and complexity has been the main metatheoretical element in scientific research for decades. As a result, nowadays a new phase is emerging, in which transdisciplinary knowledge is shaping as a new viewpoint in science⁷, and *sustainable development* has

arisen at this historical stance as a field of knowledge that offers the possibility of facing modern life's complex reality and its relationship with the environment and nature.

This paper aims at highlighting the necessity of going beyond reductionist analyses, both political and scientific, which continually distort the objective construction of *sustainable development/sustainability* as an area of knowledge.

Nowadays, it is impossible to democratize a naturally fragmented, esoterized knowledge. But we should consider if it would not be possible to think of a reform of thought which could face the formidable challenge present in the following dilemma: whether to suffer the bombing of uncountable items of information from the media, or to hold on to doctrines that only retain data that confirm them or are intelligible by them, and that cross out as mistakes or illusions all that contradicts them or is incomprehensible to them. This problem is present not only at the level of common world knowledge, but also at that of scientific knowledge of all human things and of scientific knowledge itself (Morin, 2001a: 22).

It is because of this fact that we consider that the different debates generated on *sustainable development*, as aspects of vital importance for the construction of new research models, are a reflection of reality's complexity in modern human life. Along the presentation of different debates on *sustainable development*, the general perception is of a clear cultural problem associated to the creation of concepts itself. This cultural problem has generated manifold interpretations: some of them being too general, ambiguous or contradictory. In this sense, the interpretation of concepts in *sustainable development* must be considered to be an opportunity for development at the epistemological level, rather than an obstacle. Recognition of the value of concepts, their function in the construction of individual cognition and the relevance they have in the making of a cultural and social reality is a new and necessary step in scientific research, and the importance they have in the construction of a cultural and social reality must be estimated, in such a way that the richness of all this diversity is integrated in scientific analysis:

Concepts travel and they had better travel and be aware that they are travelling. They had better not travel illegally. It is also good that they travel without being detected by custom officers! In fact, illegal traffic of concepts has allowed for the de-suffocation of disciplines, for their unknotting. Science would be completely knotted if concepts did not migrate illegally. Mandelbrot said that great discoveries are the outcome of errors in the transfer of concepts from one field to another, carried out, he added, by the talented researcher. It needs talent for the error to turn fecund. This also shows the relativity of error and truth. (Morin, 2001b: 161).

In our time, our world needs explicative models, together with metatheories that will allow for the understanding of reality in scientific domains. Contemporary models cannot embrace this complexity because of the inherent limits of the disciplines that have generated them. In this way, a new

reality can be constructed, based on the study of phenomenal complexity and the necessary transdisciplinarity at the scientific level, so that scientific research will be able to face a holistic reality.

Acknowledgements

Gratefulness to the Spanish Agency of Iberoamerican Cooperation for the economic support granted to Leonardo Alberto Rios Osorio for the realization of the Doctorate Studies in the program in Sustainability, Technology and Humanism in UNESCO Chair in Technology, Sustainable Development, Imbalances and Global Change of the Universitat Politècnica de Catalunya (Barcelona–Spain).

Notes

- ¹ The most relevant of which are: 1992 – Earth Summit, Rio de Janeiro (Brazil); 1995 – World Summit for Social Development, Copenhague (Denmark); 1996 – The Americas Summit, Santa Cruz de la Sierra; 1997 – Kioto Agreement and Rio + 5; 1999 – World Summit on Rainforests and *sustainable development*; 2001 – Marrakech Agreements (Kioto agreements are sanctioned); 2002 – World Summit on *sustainable development*, Johannesburg (South Africa).
- ² The Club of Rome is an international organization made up by relevant businessmen, statesmen and scientists.
- ³ This distinction can be found at Jiménez Herrero, 2000, pp. 99–100.
- ⁴ See Bifani (1999) as regards this issue.
- ⁵ More on these subjects can be read at: Mayumi and Giampietro (2001), Gallopin et al. (2001).
- ⁶ We use Kuhn's distinction between normal and revolutionary periods in science.
- ⁷ According to Morin, the need to the transdisciplinary rises as an answer to positive science's inability to provide explicative models that may give satisfactory accounts of phenomenal complexity perceivable at every level of our world.

References

- Ávila-Pires, F.D., Mior, L.C., Porto Agüilar, V. and De Mello Schlemper, S.R.: 2000, 'The concept of sustainable development revisited', *Foundations on Science* 5, 261–268.
- Bifani, P.: 1999, *Medio Ambiente y Desarrollo Sostenible*, Madrid, AIEPALA, p. 593.
- Escobar, A.: 1995, *Encountering Development. The Making and Unmaking of the Third World*, New Jersey, Princeton University Press, p. 290.
- Esteva, G.: 1992, 'Development', in W. Sachs (ed.), *The Development Dictionary. A Guide to Knowledge as Power*, London & New York, Zed Books Ltd, p. 6–25.
- Funtowicz, S.: 1997, 'Problemas ambientales complejos y la ciencia post-normal', in UNESCO Chair, Universitat Politècnica de Catalunya, *¿Sostenible? Tecnología, desarrollo sostenible, y desequilibrios*, Barcelona, Icaria, Antrazyt collection 104, p. 199–216.
- Funtowicz, S. and Ravetz, J.: 2000, *La Ciencia Posnormal. Ciencia con la gente*, Barcelona, Icaria-Antrazyt, p. 109.
- Galeano, E.: 1999, *Las venas abiertas de América Latina*, Madrid, Siglo XXI editores SA., p. 486.

- Gallopin, G., Funtowicz, S., O'Connor, M. and Ravetz, J.: 2001, 'Una ciencia para el siglo XXI: del contrato social al núcleo científico', *Revista Internacional de Ciencias Sociales* **168**, 47–201. <http://www.unesco.org/issj/ricsl68/fulltextl68spa.pdf> (09/06/2003).
- Jiménez Herrero, L.M.: 2000, *Desarrollo Sostenible. Transición hacia la coevolución global*, Madrid, Ediciones, Pirámide, p. 293.
- Mayumi, K., Giampietro, M.: 2001, *The Epistemological Challenge of Modelling Sustainability: Risk Uncertainty and Ignorance*, Paper prepared for FRONTIERS 1 Conferences, New Hall, Cambridge, UK. <http://www.euroecolecon.org/frontiers/Frontiers1/F1Contributions/F1papers/119-paper.pdf> (24/04/2003).
- Meadows, D.H., Meadows, D.L., Randers, J. and Behrens III, W.: 1972, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*, New York, New American Library, p. 207.
- Meadows, D.H., Meadows, D.L. and Randers, J.: 1992, *Beyond the Limits: Confronting Global Collapse, Envisioning a Sustainable Future*, Post Mills, Vermont, Chelsea Green, p. 300.
- Morin, E.: 2001a, *La mente bien ordenada. Repensar la reforma. Reformar el pensamiento*, Barcelona, Editorial Seix Barral, p. 182.
- Morin, E.: 2001b, *Introducción al pensamiento complejo*, Barcelona, Editorial Gedisa, S.A., p. 167.
- Morin, E. and Kern, A.B.: 1993, *Tierra-Patria*, Barcelona, Editorial Kairós, S.A., p. 232.
- Naredo, J.M.: 1997, 'Sobre el origen, el uso y el contenido del término sostenible', in Ministerio de Obras Públicas, Transporte y Medio Ambiente-Comité Habitat II España (ed.), *La construcción de la Ciudad Sostenible: fundamentos*, Madrid. <http://habitat.aq.upm.es/cs/p2/a004.html> (16/06/2003).
- Tibán, L.: 2000, 'El concepto de desarrollo sustentable y los pueblos indígenas', *Boletín ICCI "RIMAY"*, *Publicación mensual del Instituto Científico de Culturas Indígenas*. Year 2, No. 18. <http://icci.nativeweb.org/boletin/18/tiban.html> (16/10/2002).
- Wagman, D.: 2000, 'Los límites de la sociedad de consumo', *Medi ambient. Tecnología i cultura* **28**, 57–60.
- World Commission on Environment and Development: 1987, *Our Common Future*, New York, Oxford University Press, p. 400.