

# Landscape: A New Vector in the Concept of Sustainable Development?

Maria Leonor Oliveira<sup>1</sup>, Manuel Pacheco Coelho<sup>2</sup>

<sup>1</sup> *ES Santa Maria, Beja, Portugal*  
Email: coelha41@hotmail.com

<sup>2</sup> *ISEG/Universidade Técnica de Lisboa, SOCIUS, Lisboa, Portugal*  
Email: coelho@iseg.utl.pt

**Abstract** - The main objective of this paper is to discuss if landscape can be associated with sustainable development at the conceptualization level and in its program of operation research. It starts with the analysis of the concept of sustainable development in an historical perspective that put attention to the way it was constructed, as the emergence of environmental threats was imposing a new reflection to decision makers. Then it analyses the fundamental issues that this conceptualization put to the three pillars of approach: economic, environmental and social, and the way they must reconcile. Finally the concept of landscape is introduced and its role in the support of sustainable development is discussed. The landscape as a concept that, both, incorporates a vision of the global system of interactions between natural and human aspects in the territory, and a practice of intervention on the area (aiming to develop the quality of living from a perspective of intergenerational equity) emerges as an integral element of sustainable development concerns.

**Keywords:** Development, Sustainability, Landscape.

## 1. Introduction

Sustainability and sustainable development are terms widely recognized in ordinary language that people use today. However, the concept is relatively recent. It was only in the UN Conference of Rio de Janeiro, 1992, that the concept of "Sustainable Development" was placed on the agenda for the first time.

The concept was formalized by the Report "Brundtland" in 1987, where sustainable development was defined as *the development that meets present needs without compromising the ability of future generations to meet their own needs* (World Commission on Environment and Development (1987), *Our Common Future*). Until then, it was still a systematic debate between an ecologist vision that put in question the model of development based on unlimited consumption and an economic view, which did not accept limits to resource consumption and economic growth. Afterwards, the concept of sustainability introduced the need to accept an increase in standards that allow its continuity in time.

Economic growth is a "one-dimensional" phenomenon, quantitatively measured by specific indicators, ranging from gross domestic product or per capita income, up to industrial production index. The development, in turn, is distinguished from a mere quantitative growth to the extent that, far from being a one-dimensional phenomenon, puts into question the quality of the relationship that man establishes with the wild nature and introduces the socio-cultural values; thus, subtracting the cost of its gross degradation on the indicators of economic growth. Adding up: to be durable, the development will have to meet present needs without compromising future generations.

The term has this double meaning that a simple semantic analysis appears to boost. *Development* as progress toward a more perfect state than before, improving the welfare and quality of life; and *Sustainable*, the one that can sustain, or below, that can be extendable. In an integrative perspective, Sustainable Development suggests economic growth with social dimension that supports a proper intertemporal management of natural resources and the environment.

Although established, the concept is far from being perceived in the same way by all stakeholders. The discussion around the concept, and in particular its operationalization, remains open. According to several experts, the worst that could happen would be to drive the concept to a situation of banal commonplace, with no content. Particularly - if it could not introduce new rules in the global game and public policies to a more equitable and efficient management of the gifts of the Earth.

Our analysis starts from an approach based on the historical perspective to highlight the evolution of the concept due to the emergence of environmental problems and evaluate how the various scales (local/national/supranational) were responding to new realities;

Then, we switch to the identification of the key pillars of the concept approach (economic, biophysical and socio-cultural) to assess the needs and possibilities for a comprehensive analysis;

Finally, one wonders to what extent, the landscape, whether natural or humanized, can be another vector for sustainable development at the conceptual level and its implementation.

## 2. Evolution of the Concept of Sustainable Development: Historical Perspective

The Industrial Revolution, beginning in the eighteenth century, made the world smaller. Trade and all kind of exchanges became general. The natural resources began to be exploited in a systematic, intensive and unlimited way. The man had not (yet) need to worry about what would be left to later generations, nor about the imbalances caused by the liberal model of development spurred by the Industrial Revolution.

The rapid economic growth of post-war (1945-1975; the 30 "Glorious" years) led to serious environmental problems, of which only became aware in the 70s, when it was discovered that the economic activities caused visible and localized environmental damage, such as waste, gases from factories, soil erosion, pollution of water courses, etc.. Also, the officers were easily identifiable. Thus, awareness started mainly at the local level.

In the 80s, it was discovered, and made known to the public, the existence of global phenomena of pollution and climate change, the hole in the ozone layer, acid rain, desertification, greenhouse effect, deforestation, etc. These violations of natural resources are diffuse and their origins and relationships of cause and effect are not clearly identifiable. The problems of the environment became global problems.

At the same time, it appeared that economic growth was no longer supplied for the vast majority of populations, particularly in the South, where there was a large population growth that had disastrous effects on social conditions and caused serious damage in the environment. Thus, with extreme accuracy, it could be stated that "poverty is the most severe pollution".

The overall size of the problem has helped bring this debate to the level of international organizations.

Thus, already in 1962, the publication of the work of biologist Rachel Carson, entitled *Silent Spring*, made the international community to know more qualified information and data about the great danger posed by the use of agro-chemicals on crops, which gave rise to a large discussion on the preservation of the planet's natural resources.

In this line, in 1968, UNESCO organized a first international Conference on the rational management and conservation of the Biosphere.

Four years later, in 1972, the Club of Rome published the *Meadows Report*, usually known for his theory of "Zero Growth". Assuming that the non-renewable resources of the planet are not unlimited, the authors argued that the levels of use and consumption could not be maintained forever. In this report, the scientists concluded that the only way to curb the inexorable scarcity of natural resources was to drive the growth to a zero level. This proposal led to a strong

criticism because the idea went against the dominant ideology at the time, according to which only the growth of economic activity was synonymous of prosperity.

Also in 1972, the pollution problems led the UN to convene an international meeting in Stockholm. It was in the preparation of this meeting that the cosmic vision of the humanist Dubos, embodied in his work *Only One Earth*, was condensed in his famous phrase "think globally, act locally".

In this first United Nations Conference on Environment and Development, the participants, trying to find a compromise between economic and ecological imperatives, concluded that economic growth would not be, in itself, objectionable but, nevertheless, it should be associated with the "desideratum" of ecological feasibility and of recognized benefit to humans.

Although this meeting did not really put into question the models of development or international relations, at least it raised the creation of national and international environmental institutions. It appeared, then, the former Ministries of Environment. In the context of the then-called European Economic Community it was time for the 1st Action Program on Environment and, in Portugal, it was created, within the JNICT, the National Commission for the Environment.

The scientific community was progressively mobilized around the challenges of reconciling economic growth and environmental protection. After a final rejection of the idea of zero growth, the demand for another model of development was structured, little by little, around the concept of *Eco-Development*.

In 1980, the IUCN (International Union for the Conservation of Nature) provided a scientific basis to alert the world about the political impact of human activities in the renewal of land resources and referenced, for the first time, a concept that helped eco-development to emerge: sustainable development.

In 1987, the United Nations Commission on Environment and Development, known as the Brundtland Commission, published a report, *Our Common Future*, which emphasized "the progression of ecological interdependence among nations". The report highlighted the correlation between economic development and ecological issues and defended the eradication of poverty as a fundamental and indispensable condition for developing a viable Planet. This document presented the official definition of the concept of Sustainable Development, focused on four main aspects:

- Preservation of Nature
- Elimination of Poverty
- Economic Growth
- Assurance of Legacy for Future Generations

This document recommended the total rethink of the rules of human behavior for a thoughtful and rational environmental management and a development

that did not benefit a minority at the expense of most or all of the future.

The Brundtland Commission popularized the term "*sustainable development*", defined as the transformation process that meets the needs of the present without compromising the ability of future generations to meet their own needs. So, sustainable development is not an "equilibrium", but rather a process of change, in which the exploitation of resources, the choice of investments and the orientation of development are determined by both the current needs and future needs.

It can be argued that the concept of sustainability herded the notion of *Ecodevelopment* developed by Ignacy Sachs and Maurice Strong. This conceptualization had a short shelf life. The concept was based on the ideas of social justice, economic efficiency, safe ecological conditions and respect for cultural diversity. International agencies tried to tame its meaning, for its disclosure.

Now, note that, at the European level, this year of 1987 was designated as the "Year of the Environment" and that the environmental dimension was included in the text of the Single European Act. This was followed, since the early 1990s, by the relevant work of the European Agency for the Environment. In Portugal, this framework leads to the emergence, in 87, of the Law on the Environment and the Basic Law of Associations of Environmental Protection and the subsequent (1990) creation of the Ministry of the Environment and Natural Resources.

In the late 80s, facing the increasingly concrete ecological threats and the worsening of the social conditions in the southern countries, the United Nations decided to convene a second Ministerial Conference on Environment and Development, exactly 20 years after the Stockholm Conference. This was the Conference of Rio de Janeiro, June 1992, called the "Earth Summit". This "Earth Summit" represented a relevant step. Decision makers and a significant number of State's Presidents and Kings were mobilized for the event, responding to the call of the civil society, and agreed on the importance of considering the interaction between social, economic and environmental impact and reviewing them as parts of a whole, in preparation of future public policy. So, at the end of the Conference, 182 governments officially recognized the need to implement sustainable development on a global scale, through the adoption of the Rio Declaration on the Environment and Development, and by adopting the Global Plan of Action on Sustainable Development included in the Agenda 21. In the Rio Summit were also approved by the international community, the Convention on Climate Change and the Convention on Biological Diversity.

The proposed measures are not mandatory, their application is left to the states, which, however, are pledged to "cooperate in good faith and in the spirit of

solidarity for the implementation of the principles" of Rio. We quote and adapt, for its importance, the contents of the Preamble of the 1st chapter:

"Humanity is at a defining moment in history. We are confronted with a perpetuation of disparities between nations and within nations, the worsening of poverty, hunger, health and illiteracy, and the continuing deterioration of ecosystems on which we depend for our well-being. However, if we integrate the concerns about the environment and development and pay them more attention, we can meet basic needs, raise the level of everyone's life, protect and better manage ecosystems and ensure a more prosperous and secure future. These are goals that any nation cannot achieve alone but the task is possible if we all work together under a partnership for sustainable development".

In 1995, in Copenhagen "Summit of Man", the world community returned to the Rio themes and, once again, recognized the need to design a new development model, based on the assumptions of the sustainable development.

In Kyoto, 1997, the central theme of the conference was tied to climate change, but the issue of sustainability, on a global scale, was also in evidence.

As a result of the growing concerns of large sectors of the global population, more recently, in September 2002, in the Johannesburg Summit, the world leaders declared that the deep rift between rich and poor represents a major threat to world stability and prosperity, and approved extensive plans to combat it, in which the main global specific targets focus on poverty reduction, water and sanitary conditions management and child mortality reduction. It was also reaffirmed, in addition to the assumption of the commitments on the Agenda 21, the intention of regulating the functioning of markets and the facilitation of capital and investment flows mobility, in order to properly integrate developing countries in the benefits of global development.

At the same time, it was emphasized the concern with environmental issues related to the loss of biodiversity and the depletion of fish stocks, with the advance of desertification, climate change, natural disasters and the growing vulnerability of developing countries. Finally, despite its size and scope, the Plan of Implementation resulting from this summit, calls for 2015, to halve the proportion of the world population who lives on less than \$ 1 per day, to halve the number of people living without water and sanitary conditions, as well as to reduce, by two thirds, the mortality rates and infant mortality under five years, and maternal mortality, by three quarters.

Close, the international community discussed again the fundamental issue of climate change, in Copenhagen and Cancun. The evaluation of the results of the Kyoto Protocol and the design of new mechanisms and targets for the reduction of CO<sub>2</sub> emissions were the fundamental goals to be obtained. Even if the results were not conform with the expectations, especially in

the case of the Copenhagen Conference, a basket of new tools and commitments were possible, putting again the focus on the cooperation between interested parties.

### 3. The Pillars of Sustainable Development

In the formation of the concept of Sustainable Development, clearly emerged three typical approaches that reflect the major concerns of humanity, starting from quite different areas and converging on the concept, giving it the necessary consistency to enter and remain in the consciousness of the growing number of people who are mobilized around the Sustainable Development.

It is relevant, in the concept of Sustainable Development, the confluence of the economic approach, the biophysical/environmental approach and the social/cultural approach. We then try to summarize each one of these approaches and discuss its main problematic.

#### 3.1. Economic Approach

The economic approach to sustainability aims to maximize the economic benefits resulting from the operation of a given set of existing assets, without compromising the future of those assets. Economists relate "sustainability" with the preservation of the stock of productive capital.

Sustainable development finds its objective in the maximization of the flow of benefits generated by a set of assets without compromising future generations. This requires the preservation, or even increase, the asset base over time. It, therefore, included here, as a primary concern, the economic growth.

The novelty, compared to the traditional attitude of most conventional economics, stems from the measurement of the asset base of a country that can be extended to include the "natural capital" beyond the "productive capital" (the capital goods produced by man) itself and the "human capital".

This "natural capital" is here understood in view of the Capital Theory framework: natural resources are considered as any other capital resources, in that its consumption can be deferred in time, that is, it is possible to conserve the resources in the present to increase the possibilities for future consumption. The issue of investment (conservation) / disinvestment (exploitation-present use) in the resources should be understood as a simple problem of intertemporal consumption. The central objective is reflected in the utility maximization of consumers, the problem being subject to the inter-temporal budget constraint.

There are, however, specific and very important aspects to consider in the management and economic exploitation of these assets:

- The "produced capital" is not independent of "natural capital", since the man often resorts to the second to produce the first;
- Natural capital performs life support functions that are not performed by the man-made capital (e.g. ozone layer);
- The economic interpretation of substitutability between assets cannot easily apply to natural capital due to its multifunction.

These points highlight some key issues in sustainable development.

First, attention is given to the rules of efficient use of nonrenewable resources and a more conservationist use of renewable resources that will allow a recovery of stocks. In fact, the pressure on resources can create difficulties in the production of capital goods that are directly derived from the exploitation of natural resources. Note, for example, as high oil prices, a result of overexploitation of the deposits, may affect potential rates of economic growth, whether in developed or in developing countries.

The second aspect is that time scales and rhythms of change of human life (especially with regard to economic growth) and the biosphere do not always coincide. This must be reflected in a prudent view of the surrounding human activity. It is a kind of recognition of the "smallness" of man in relation to the wider ecosystem in which it appears.

Finally, some authors argue that it is essential, when developing a sustainable economy, maintaining the natural capital stock, as the technology improves the efficiency of resource use and man can create substitutes for this natural capital. This concept may have some acceptance in some restricted types of resources, but we should not give it an universal scope, which is the inability to ensure that technology can always provide replacements in time.

These concerns are mainly due to efficiency issues but issues of income distribution and equity problems in the development process, still have a significant role in this discussion. The issue of sharing the benefits arising from development, and getting the environmental conditions to support this development, are, certainly, not the least complicated. Take, for example, the whole discussion around the Kyoto Protocol and how some countries call for operating rules of the market in emissions of greenhouse gases that do not interfere in the growth capacity of their economies.

Likewise, in the economic approach, the issue of vulnerability and resilience of economies in developed and developing countries is very important because it's very low the margin of flexibility between sustainability and un-sustainability. Any shock, mainly external, may have severe consequences for society.

### **3.2. Biophysical/Environmental Approach**

Biophysical scientists relate "sustainability" with the regeneration capacity and integrity of physical and biological systems. In the biophysical perspective, the concept of sustainability is linked to the idea that the dynamics of the processes of the natural environment may become unstable as a result of pressure imposed by human activity. It is intertwined with issues of biodiversity and species conservation.

According to some authors, the sustainability, in this type of scenario, is reachable, maintaining the stability of such systems, by reducing human pressure on ecosystems. The stress of human origin must therefore be compatible with the overall stability of the system. This desideratum can be achieved only by protecting the resilience of fragile ecosystems and the maintenance of natural capital. Thus, this approach is to emphasize the importance of concepts such as carrying capacity (corresponding to the maximum stock of resources consistent with environmental conditions).

Ecological sustainability implies basically the preservation of biodiversity at a precaution level. In this context, it is meant by biodiversity (as defined by the UN Environment Program / Intergovernmental Negotiating Committee for the Convention on Biological Diversity), the genetic viability, ecological and taxonomic coverage among living organisms, including the variability within species, between species and biotic components of ecosystems. Biodiversity conservation is the basis for sustainable development. It supports the productive chains. In practice, the values of future requirements are unpredictable, and given that the current knowledge of ecosystems is insufficient to be certain of the role and impact caused by the removal of one of its components, a cautious approach is needed. In the long term, consumption of natural resources must not exceed the rate of renewal.

### **3.3. Socio-Cultural Approach**

The sociologists relate "sustainability" with the concern of the adaptability and preservation of social and cultural systems. Thus, this approach emphasizes the crucial importance for sustainable development of socio-cultural aspects, such as values, beliefs, lifestyles and institutions that organize and regulate social activities.

This approach introduces the analysis on very relevant topics:

First, the issue of the methodologies of valuation of natural and environmental goods and services, especially when there are no markets or markets functioning are very distorted. This perspective emphasizes that the value of natural resources is influenced not only by economic factors but also by underlying socio-cultural values of peoples.

Another aspect, relevant to this type of approach, has to do with the wide disparities in wealth on the

planet (with the associated risk of wars, conflicts over scarce resources, migration and other effects of instability), obviously not desirable or sustainable from a social standpoint.

Moreover, this approach shows that the increasing access to media of the poorest countries, and the diffusion of the image of the richest, have created expectations that the governments can not meet with current resources and policies.

The central idea is that, just as it is intended to maintain biodiversity, it also must maintain cultural diversity, since, otherwise, it is likely to lose valuable information, held by traditional cultures, with potential improvement of our knowledge on how to achieve better levels of sustainability. Given the need of changing the dominant paradigm in industrial societies (which emphasizes on capital-intensive growth), it is stressed that the diversity of human cultures and societies, and the wisdom they contained, can be used more effectively.

We point out another significant aspect: the impacts resulting from the exploitation of the environment, such as the greenhouse effect and resulting climate change, may unpredictably alter the way humans relate to the same environment so that it justified a heightened attention to sociological questions. Finally, we must not forget that the sustainability of modern network society, depends not only on cultural pluralism, but also on how it is encouraged and managed.

### **3.4. Reconciliation of Approaches**

Any of the previous approaches have always sought the best use of resources to maximize social welfare, with lower costs.

Naturally, these objectives include the control and the maximization of some performance indicators, as a function of a set of variables, subject to the restrictions of its own natural dynamics.

But involves, also, some indicators of equity. There is currently a growing consensus that it is increasingly difficult to ignore the political issues of intergenerational equity (and intra-generational equity), because it becomes necessary to take measures to ensure the continued presence of the human species. For example, one of such measures could be the suspension of the creation of intergenerational externalities that result from an unsustainable management of renewable resources. Future generations will, if nothing is done otherwise, have to afford the cost of any reduction of capital flows caused by the reduction or degradation of the current stock of renewable resources. Problems arising from the use of existing resources such as groundwater contamination, climate change, placement of radioactive waste, overfishing, etc., should be considered, whilst bearing in mind the welfare of future generations.

This does not necessarily mean that anyone ignore the problems of intergenerational equity today, on behalf of future generations. The issues of poverty and differentiation in the current access to the amenities and benefits of development are fundamental in defining the "sustainability".

Note, however, how these issues suggest concerns arising from both aspects of economic, environmental and social analysis and require a multidisciplinary approach bringing together the economic, biophysical and socio-cultural dimensions.

In this perspective, we can say that the reconciliation of these approaches is essential and especially in terms that relate to the operationalization of the concept of sustainable development. Although this analysis is beyond the scope of this work, we stress the importance of the following questions:

- The economic modeling and the internalization of externalities;
- The valuation of assets and environmental impacts,
- The definition of the battery of indicators of sustainability,
- The definition of practical goals for sustainable development at different spatial scales (local, regional, global)

The economic modeling allows us to study rigorously interrelated issues, although the economic, "traditional", models have great difficulty in contemplating environmental effects and enhancing externalities. One of the most promising approaches to global sustainable development implies the appreciation of the various environmental and social components with its subsequent incorporation into conventional economic models of decision-making.

On the other hand, numerous issues emanating from the different approaches underscore the need of decision-making structures in enjoying, in addition to the qualitative information they provide, information or any quantitative assessments. That is, information such as to assign an economic value to a given resource, whatever. The choice between public policies based on criteria of cost-benefit analysis indicates how essential are the development of methodologies for environmental enhancement and valuation.

This question leads us to the mandatory question of sustainability indicators. The definition of practical goals for sustainable development and the design of appropriate policies, require further indicators that serve both to characterize the baseline, identify the desired targets and evaluate the performance. It is precisely at this level that it is justified a reconciliation of the approaches. Although they can keep some indicators of a more restricted to each of the approaches, it is obvious the need for indicators of multidimensional and intersecting thematics (corresponding, in fact, to the multidimensional sense of the concept of sustainable development). These, as well as the formulation of the

action lines of a sustainable development policy, at various spatial scales, are issues that justify, themselves, an independent research program.

#### 4. The Landscape as a vector for Sustainable Development

The concept of landscape is complex and allows for different approaches depending on the objectives and methodological position of the researchers.

The concept has itself evolved, progressively moving from the understanding of landscape as a *visual entity* (relating to landscape as a complex biophysical, but, above all, with the way it is visually identifiable), to a view that sees the landscape not only as a sum of various geographical elements but as *the result of the dynamics of space* evolution. The result of physical, biological and human dimensions reacting dialectically, make the landscape a unique and indivisible reality, in perpetual evolution (so, instable).

Note that the tender of this concept, the landscape may have both an *objective component*, comprising the physical support and the biological action of man, but, also, a *subjective component*, which corresponds to how each combination of these elements is analyzed by a specific observer.

Although there is not (still) a universal definition, there has been a convergence towards the concept of integrating the various views of different schools - from those that understand the landscape as a backdrop, the ones who sees the landscape as identifying the specific site with cultural expression, going to those that define the landscape as a system/ holistic entity.

In a perspective of analysis that may be significant in terms of approaching the concept of landscape to the concept of sustainable development, it is noted that some authors refer the interaction between the natural system and social system as conferring a territorial and cultural dimension to the landscape. They see this in the sense that the way the communities take "ownership" (in a symbolic meaning) of the present landscape varies, both, with the natural system and with the values of the society on which it operates. In this sense, the introduction of the subjective component mentioned above is difficult to measure but essential.

Going further, the development of an ecological perspective emphasizes the landscape as the result of the relationship between nature and society based on a material set of space that exists as a structure and ecological system, regardless of its perception. This interdisciplinary and holistic approach of landscape ecology (seen as the level of organization of ecological systems rather than the ecosystem; characterized by its heterogeneity and dynamics and governed, in part, by human activities; existing independently of their perception) reinforces the concept of landscape as a system. In this case, it is suggested a complex and dynamic system in which the natural factors and cultural

factors influence each other and evolve together in time, *determining and being determined by the overall structure.*

To this extent, the understanding of the landscape implies knowledge of factors ranging from relief to flora, climate, structure of land use, environmental and cultural events, the economy and the expressions of artistic activity, etc. A true multifaceted reality.

In the report "*The Face of Europe*" it is proposed a vision of landscape as a concrete and characteristic product of the interaction between human societies and cultures with the natural environment. Thus, landscapes may be identified as spatial units where specific elements and processes are subject to permanent changes (dynamic systems). This interaction between natural and cultural components gives rise to the notion of *landscape character*. At different scales, landscapes express the uniqueness of each place and identity, reflecting the natural and cultural history of a territory. The landscape is just the visible result of the processes of interaction between a-biotic, biotic and human dimensions that vary by place and time and contribute to a given character and identity of the place.

In this definition, the division between the natural landscape (as a result of exclusive interaction of physical and biotic factors prior to human action) and the humanized landscape (as a result of human actions on the natural landscape) is exceeded, and the traditional opposition between urban and rural landscape surpassed.

It should then ask: To what extent can the landscape be understood as a vector of sustainable development, both conceptually, and in terms of operationalizing the concept?

After what we have been explaining on the emergence of the concept of sustainable development: the different approaches it converges (economic, biophysical and socio-cultural), its systemic and dynamic perspective, the advantages and difficulties of its operation; and what we saw about the way the concept of landscape has evolved: from a perspective that departs, increasingly, from a mere role of backdrop, into a vision of a global system that emphasizes the interactions between nature and human activity on the territory, also through a systemic and dynamic perspective; the answer is easier.

The landscape, we can tell, means a part of the territory, as perceived by people, whose character comes from action and interaction of natural and human factors. The landscape is, above all, an important element of quality of life of communities (urban and rural areas, degraded areas and of great quality, areas such as notables as the areas of daily life). This relationship with the quality of life of the communities, and interest in its "maintenance" for future generations, connects directly with the objectives of sustainable development.

The purpose of landscape quality can designate, for a specific landscape, the formulation, by public authorities, of the aspirations of populations in relation to landscape features of their living environment. Likewise, the consideration of interactions between natural features (biophysical / environmental) and human aspects (economic, social and cultural) approach the concept of landscape with the concerns of multidisciplinary approach that the concept of sustainable development aims.

In a draft of the *Sustainability Focus Group*, to discuss issues relating to harmonization between the practices of "management" of the landscape, a group of architects, sustains the desiderata of sustainable development. In the report "*Sustaining Landscapes, Landscape Architecture and Sustainable Development*" this relationship is studied. Their concerns are revealing the importance that is given to the landscape in the context of demand towards sustainability.

First, it is restated that the term landscape acquires a broader definition when used in relation to sustainable development. In fact, it is, no longer, just a cultural and social concept, much less just a visual concept. The landscape becomes, so to speak, the environment changed and seized by the people that, simultaneously, fit our current lives and the lives of future generations. Since men are part of the natural world and depend on it, the concept embraces all other forms of life and the interactions that make up this global system.

And then added: The landscape has an interest and an important role in the cultural, ecological, environmental and social development.

At the same time, it is a feature that is helpful to the economy and whose protection, management and planning, can create jobs.

The landscape contributes to the formation of local cultures and the well-being of people and for the consolidation of identity.

*The landscape is a mainstay of quality of life.*

The landscape is a key element of the welfare of the individuals and communities - their protection, management and planning reinforces the sense of common responsibility.

In this context, the report recommends that the practice of landscape architecture should recognize that:

- The landscape is our common living environment and quality care,
- The landscape is a life support, a source of food and other forms of wildlife support,
- The landscape corresponds to a legacy of cultural, even emotional subjects, at various scales,
- The landscape changes through a combination of environmental factors (in a lacto sense) and can be destroyed or enhanced by man,
- Landscapes are multifunctional and are appreciated in many ways.

This requires a clarification of the direction (forward the profession) in order to operationalize its role in achieving sustainable development. In particular, we emphasize the need for community involvement and a transparent and accountable decision-making process. Also, in the area of "transformation" operations over the landscape, in the sense of a more operational intervention on reality, it is stated, un-equivocally, the important role of landscape as a vector of sustainable development.

Moreover, the actual level of difficulties in operationalizing the concept of sustainable development, the parallels are evident. In fact, the biggest problems arise here (too). The difficulties associated with measurability and the definition of indicators, face landscape conceptualization in the keywords of the "political landscape" (objectives, targets and evaluation of results).

## 5. Concluding

Few concepts have attracted, so intensively, both public and academic domains, as the Sustainable Development. This represents a policy goal for many nations, occupying a crucial place in the paragraphs of Agenda 21, which, at the Earth Summit- Rio92, took the overall stock of the global efforts of development for the future of humanity.

In order to reconcile the challenges of environment and economy into a development perspective with intergenerational equity, States are encouraged to pursue a global partnership and to commit themselves into a constructive dialogue, to create an efficient global economy and more equitable balance with respect for environmental, social and cultural rights.

The scope of the concept (generating some confusion), makes that sustainable development concept is often used as a black box, interpreted differently by economists, ecologists and philosophers. In essence, they put themselves the problems of operationalizing the concept, especially in the definition of sustainability indicators and assessment methodologies, in order to obviate the falling down into the void of banality of such an important concept to humanity.

The landscape as a concept that, both, incorporates a vision of the global system of interactions between natural and human aspects in the territory, and a practice of intervention on the area, aiming to develop the quality of living from a perspective of intergenerational equity; emerges as an integral element of sustainable development concerns. This is the fundamental result of our investigation.

Beyond the aforementioned issues of how to put in operation the concept of sustainable development, some questions remain as clues for future research. Our proposal is the following: There is a major rift between two opposing interpretations of sustainable development: "weak sustainability" and "strong

sustainability". The first leads to the so-called Hicks-Solow-Hartwick rule and treats sustainability as a new form of economic efficiency extended to the management of nature. It is thus an approach closer to the conventional paradigm of economics and more focused on concerns of the economic approach. The proponents of "strong sustainability" consider that efficiency is an inadequate criterion to satisfy the concerns of sustainable development, involving the "Steady State". They reflect a desire to integrate economic and ecological concerns. Legacy of natural capital is imposed. Attention is made to intrinsic values of nature and human culture.

This division obviously has consequences, in the rules and in the sustainability indicators, and may involve an effect of more or less evidence of the role of landscape as a vehicle for sustainable development.

A final note, about the reflex of such preoccupations on the Portuguese Policy of Regional Development. As most of the rural, and even urban, areas are to be developed with a focus on the services sector, the re-qualification of natural and humanized landscapes gets a new meaning and relevance (particularly when there are tourism proposals), in terms of the sustainable development of all the country and of all of its diverse parts.

## References

- [1] AZQUETA, D. (2002), *Introducion a la Economia Ambiental*, Mc Graw-Hill.
- [2] BURGEMEIER, B. (2009), *Economia do Desenvolvimento Sustentável*, Instituto Piaget, Lisboa.
- [3] CANCELA D'ABREU, A., PINTO-CORREIA, T., e & OLIVEIRA, R. (2004), "Acerca do conceito de Paisagem", in *Contribuição para a Identificação das Paisagens de Portugal Continental*, Universidade de Évora, Direcção Geral de Ordenamento do Território e Desenvolvimento Urbano; Lisboa.
- [4] CANOTILHO, J. (1998), *Introdução ao Direito do Ambiente*, Universidade Aberta.
- [5] COMISSÃO MUNDIAL DO AMBIENTE E DESENVOLVIMENTO (1987), *O Nosso Futuro Comum*, Meribérica/ Liber, Lisboa.
- [6] CONRAD, J. (1999), *Resource Economics*, Cambridge University Press.
- [7] DALY, H. (1996), *Beyond Growth: The Economics of Sustainable Development*, Beacon Press, Boston
- [8] FAUCHEUX, S. & NOEL, J. (1995), *Economia dos Recursos Naturais e do Meio Ambiente*, Instituto Piaget.
- [9] FILIPE, J., COELHO, M. e FERREIRA, M. (2007), *O Drama dos Recursos Comuns*, Edições Sílabo.



- [10] GOODSTEIN, E. (1999), *Economics and the Environment*, 2<sup>nd</sup> edition, Prentice Hall, New Jersey.
- [11] GORE, A. (1993), *A Terra à procura de Equilíbrio*, Editorial Presença.
- [12] HACKETT, S., (2006), *Environmental and Natural Resources Economics: Theory, Policy and the Sustainable Society*, 3<sup>rd</sup> ed., M.E. Sharpe, New York..
- [13] HANLEY, N. et al. (1997), *Environmental Economics in Theory and Practice*, Mc Milan Pub.
- [14] MAXIMIANO, L. (2004), “Considerações sobre o conceito de Paisagem”, *R. RA'E GA*, Curitiba, Nº8, Editora UFPR, pp. 83-91.
- [15] MELO, J. e PIMENTA, C. (1993), *O que é a Ecologia?*, Difusão Cultural.
- [16] MUNASINGHE, M. e MCNELLY, J. (1996), “Key Concepts and Terminology of Sustainable Development”, in MUNASINGHE e SHEARER (eds), *Defining and Measuring Sustainability*, United Nations University e World Bank.
- [17] OPSCHOOR, H. e REIJNDERS, L. (1991), “Towards Sustainable Development Indicators, in KUIK e VERBRUGGEN (eds), *In Search of Indicators of Sustainable Development*, Kluwer Academic Publishers, pp 7-27.
- [18] PEZZEY, J. (1993), *Sustainable Development Concepts: An Economic Analysis*, World Bank, Washington.
- [19] PEZZEY, J e TOMAN, M. (2002), “The Economics of Sustainability: a Review of Journal Articles”, <http://www.rff.org>.
- [20] SCHIER, R. (2003), “Trajetórias do Conceito de Paisagem na Geografia”, *R. RA'E GA*, Curitiba, Nº7, Editora UFPR, pp 79-85.
- [21] SUSTAINABILITY FOCUS GROUP (2003), *Sustaining Landscapes, Landscape Architecture and Sustainable Development*, A draft policy statement for discussion, La Dell (ed.).
- [22] TIETENBERG, T. (2005); *Environmental and Natural Resource Economics*, sixth edition, Addison Wesley Longman, Inc.