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New Sustainability Dimensions: An Illustrative Case, Amazonia

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Abstract
This article proposes to enlarge the significance of the sustainability concept and its application to several scenarios immerged in the nature-culture universe. The projection of macro-scenarios has been established as a methodological axis, considering the sustainability as a generative and explanatory matrix for the subjects presented. It prioritizes the sustainability of nature and scenarios of the sustainability of development. Finally, Amazonia and diverse controversies and uncertainties from the twenty-first century placed by sustainability concerning ecological issues are presented as a process of production and reproduction of the structural conditions for sustainable development.

Keywords: Sustainability; Amazonia; environment; natural sciences; development

1. Sustainability: Foundations and Principles

Sustainability is the main utopia from the twenty-first century. It apprehends the differences and cultural diversities in the perspective of building a more sensitive and humane world.

Universal history marches in a language anchored for material and spiritual metamorphoses. The different roles played by these categories, matter and spirit, are pondered by the reach of hegemonic civilizing conceptions, being unfolded in a tendency of multiple scenarios that compose the substratum of sustainability. These complex scenarios embrace wide subjects and are apparently disconnected from themselves, such as history and physical reality; symbolism and economy; science and religion, amongst others, forming the basis of sustainability (Vivien, 2001).

Sustainability should be understood as the knowledge field that potentially all arrangements and combinations of the flows of symbolics and materials elements in a human enterprise. Sustainability presupposes the reality of knowledge and of action while entities intertwined with each other move themselves, melting the nature in the culture, transfiguring the conception of the civilizing processes, in quality and intensity.

In the broad sense, sustainability can be assembled in two major tendencies: the classic and the modern sustainability theories. The epistemological preoccupations of the modern sustainability theories transcend the elaboration of a theory of environmental preservation, clean development mechanisms, beauty, art, and its multiple cultural articulations. The central issue of sustainability is not restricted to the elaboration of a universal language that facilitates the understanding of the man's relationship with nature and of the aggregation process of "surplus-value" to that type of human labor; but that language should also hinder the reduction this value of human labor to the market regulation and to stimulate the intercultural nature that permeates the collective construction process and the historical praxis of man (Bourdieu, 2003).

Classic sustainability concentrates its studies on the analysis of the concept of "preservation of nature", although no consensus exists on the definition of this concept. The "preservation" as a transcendental idea, the "preservation" as protection of the planet and humankind, and the

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"preservation" as an immanent concept constitute examples of the different manners of the analysis of classic sustainability (Author and coauthor, 2014).

A peculiar aspect of sustainability is its intercultural nature that configures and, simultaneously is transfigured by the dialectic character of the space and time categories projecting different civilization sustainability, such as the examples that follow.

The civilizing processes, guided by traditions and in which a prisoner conception of the time, guided on the presupposition of repetitive actions, in the recurrent nature of events and of human acts, prevails. In this mental picture, the nature of time is apprehended in a cyclic form, and the future is confounded with the past once the self-nature of the events obeys this recurrent principle (Arantes, 1981). In this ritualistic universe, the arrival is interlaced with the departure, tendencies have been confounded with certainties, and objectivity becomes the prisoner of determination. On the other hand, in the philosophical schemes permeated by the perspective of progress, the construction of the new, the search for innovation, time has been allianced with space while the foundation of a civilization process is committed to the future. Between the departure and the arrival, there are intermediary stages. In an irreversible form, new realities emerge, facilitating the construction of multiple cultural tendencies, that unfold in ruptures to the predominant historical order. To be and not to be, life and death, tradition and metamorphoses, [...] local and world contradictions are incrusted in this civilizing panel.

The Western classic logic is binary; it is supposed that only two possibilities are associated with a statement: it is correct or it is denied. A third possibility is null – principle of the "excluded third" (Lacey, 1972). This foundation has permeated the concept of "physical reality" for several centuries. Reality built starting from properties of the matter accessible to our senses or through of the use of instruments and appropriate technologies, and that constituted the primacy of the matter up to the end of the 19st century (Heisenberg, 1987). Within this conjuncture, "space" and "time" are independent and absolute concepts, with causal law governing the phenomena of nature. With the emergence of modern science, especially that of relativity and of quantum mechanics, there has been an analytic rupture with this restrictive, rigid and narrow framework. Einstein showed that on the cosmological scale the indivisibility of the space-time category and the presence of matter in the Universe are finite and non-Euclidean, and that their existence is independent of a reference system to identify the events being unfolded at the principle of convertibility of the matter in energy, and vice versa (Einstein, 1958). In this conception, space is due to the extension of the bodies, dependent on the presence of the bodies, the absence of these being unfolded in its non-existence. At the other extreme, on the atomic scale it is verified that the properties of matter are transported by physical entities of the wave-particle through a process denominated as a "wave of probability". This wave corresponds to a possible tendency of the dynamics of a physical system in evolution […]. The primacy of matter is substituted by physical entities that do not need a material medium to propagate and to maintain their identities; entities denominated "fields" that articulate the multiplicity of possibilities on the properties of the phenomena of nature with our physical reality. Within this new sustainability, the subject is found melted in the method (Author, 2002).

An important foundation for sustainability is unity. The things of nature are presented to us at the same time as concrete matter. The flowers, for example, have many qualities - color, smell, flavor, forms, etc. - but all these qualities are in a singular physical entity. They are not separated one from the other: the smell here, the color there, but the color, the smell, the flavor are configured in a unity, though they appear as distinct. This unity cannot be built mechanically. Each part of the leaf has all properties of the whole leaf (Hegel, 1983).

Ernest Mach (1838-1916) proposed the elimination of space as cause activates in the frame system of mechanics, the knowledge field that studies movements. He developed the hypothesis that a material point moves with non-accelerated movement not in relation to space, but in

relation to the center of all masses of the universe. Interdependence exists among all masses in the universe. As if the movement "isolated" from a body depends on the configuration of all other bodies in the universe reaffirms the thesis of the unity and of holistic interdependence among the entities that compose nature.

When they are moved, space and time are apprehended by history, as forms to express relationships among events or as substrata of ideas, linguistic structures, myths, people's fiction, human feelings, and relationships among the communities and people; they can also constitute part of the scientific and technological foundations that move the technical world. The universe in which the sciences of nature, especially physics, chemistry, and biology, move in an uninterrupted rhythm. They invent new explanatory foundations for the scenarios of nature; scenarios, which, continually, are created along with other senses and ranges (Author, 2008), transfiguring the sustainability projections of the civilizing processes.

Sigmund Freud made a fantastic synthesis: the physical and historical reality of the world depends on our psyche; with this, he places new elements in the "nature × culture" confrontation. He created the technical conditions for the emergence of the sustainability of the psyche, where the sources and the wombs of rationality and of irrationality "cohabit"; sustainability that has a complex articulation with time.

The studies on the qualification of the nature of time are controversial. For Kant temporal entities are subjective, unlike Newton who conceives time as an objective entity. Newton and Mach had different understandings in relation to the mental experiments because of their different conceptions as to the nature of the scientific laws. For Newton, his laws were valid for all objects in the Universe, and at any moment, independent of the configuration and distribution of those objects in the Universe. The application of these laws, according to Newton, does not depend on the eventual characteristics of the Universe, relative to its constituents, or on the relationships among them. On the other hand, for Mach, the physical laws have to do the correlations among experimental facts. They are not a general truth for all objects: they express pure contingencies. Their applications depend on the eventual characteristics of this Universe.

The mechanical nature of time is a common characteristic of these two conceptions. Kant proposes that the space and time concepts, in principle, are forms of pure intuition; they are articulated with our relationship with the nature and not with the nature itself (Kant, 2003). They are indispensable for the description of the same, and therefore, are a presupposition for the understanding of our experiences, and not a result of our experiences.

Edgar Morin built a thought scheme that embraces all these human dimensions and which can be synthesized in a type of "universal sustainability" that has the "man-nature" indivisibility (Morin, 1977) as presupposition. This scheme recommends the need to build a human science with its incorporation in the consciences, in the spirits, and in the human life in holistic form and, in all its political, artistic, and economic dimensions; the requirement to construct new scientific methodologies to impel science in the unmasking of complex subjects, facilitating, simultaneously, which will have historicity, acquire self-knowledge and critical self-conscience; the importance of science to conceive man in all its bio-anthropological and bio-sociocultural complexities, actors of a plural and ethical universe; and, the urgent exigency to deconstruct the biologist conception in universal history, because there is a rupture between the life's notion in human beings and biological survival. Morin (1990) also privileges a type of "educational sustainability" in the necessary process of improving mankind.

The understanding of man's complexity demands a type of sustainability of mankind in which the representative language of those same processes of the nature transgresses the economic and political contours, being committed with the social realities of the places, regions, continents, and of the world (Author and coauthor, 2013a). In this context, nature and culture are interlaced with each other, the confrontations and the contradictions of each one of them lose their identities,

and they start to constitute, in a structural form, a new epistemological universe, creating new sustainability, committed to the destiny of mankind.

In this scenery, the notions of man, time and space are intertwined to form the substratum of sustentation of the historical and scientific realities that compose the social, economic and political framework in course. These three notions make the theories of the sustainability sophisticated, placing new problems for the specialists. Problems of the type: In what sense the sustainability while expression of the theory of the sensibility is imposed as an articulation element of the foundations of the thought schemesse? Which scenarios do the sustainability of the freedom project for the 21st century: scenarios anchored on the powers of individualities or scenarios molded by the collective responsibility to construct the future of everybody? In which ways do sustainability move the "totality × unity" confrontation? In which forms do the space configurations demarcate the existence of time, configuring new sustainability scales? To what extent does the sustainability of the political asymmetries contribute to the maintenance and construction of socioeconomic models? What role the sustainability play in the scientific and economic processes? How can sustainability be used to print political contours to the current world economic order? In what sense and intensity do the sustainability processes apprehend the temporal-space metrics, originating new senses and explanatory languages of the cultural processes?

These complex subjects merge in the very studies of philosophy and social and natural sciences and need to be unmasked for a better understanding of universal history.

2. The Sustainability of Nature; a Brief Overview

The relationship between man and nature also includes the relationship between men in war and in peace. Anthropology specifies that the study of the relationship between man and his environment can be established through two different methods: The form by which the cultures of interest intervenes and are articulated with the habitat; or, A certain environment is delimited, and the space and temporary variations of the cultural adaptation are analyzed within predetermined limits (Meggers, 1987). The epistemological approach of anthropology embraces, necessarily, the interlacing of culture with the environment and with the contours of the research object.

However, the concept of nature is more sophisticated than the concept of the environment that requires the use of more knowledge fields and other scientific methods for the analysis of a relationship of the type: man-nature. The nature concept demands not only what is external to the man; it also demands the necessary articulation of the singular with the universal searching for a cosmic sense for the human existence.

The accumulated knowledge on nature portrays an age, a form of human intervention on natural processes; it also embraces the existence and the human condition in all its dimensions. In this reciprocal interlacing, "man-nature" has been moved, creating a history for the world, new forms emerge, and the reinvention of the cosmos continues being projected as a myth with the universal thought reaffirming the nonexistence of eternal civilization or definitive ideology. The thesis that the dialectic is not only the life of thought, but the life of the nature, the idea that the nature cannot be conceived without movement, that the movement is inseparable from the matter, from the idea of organic totality, and from life, in all its degrees of complexity, and that nothing in the world is isolated, has been crystallized (Garaudy, 1983). It is possible to say that there are sustainability of life that have privileged the scientific processes in post-modernity, obeying laws reducible to the physical-mathematical formalisms. These constructs are restrictive and deterministic and have as source a same onthology: the "man × nature" dissociation.

The hegemony of this scheme of scientific thought with a drastic simplification shows great

difficulties in the understanding of universal history that takes us to expose some controversial elements of history of the science, taking the modernity as reference.

This definitive separation between nature and man and the subsequent fusion of this duality throughout Western-thought schemes has guided the development of the natural sciences in the modernity, unifying the different conceptions of nature in a philosophical scheme that admitted just a type of nature: uniform and reductable, in last instance, to matter and to movement. The maximum reference, Descartes, disentailed the nexuses of the nature sciences of the human condition and theological precepts, establishing the fundamental elements that determined, starting from them, the mechanical nature of the sciences of nature (Descartes, 1996). He also conceived the principles that facilitated the reduction of the unmasking of nature to the explanatory language of the mathematics, creating the necessary technical conditions for the emergence of the experimental method as criterion of the legitimatization of a scientific theory.

The explanatory success of the physical theories developed by Descartes, Kepler, Galileo, and Newton in the confrontation against the religious dogmas that "governed" the skies were fundamental to the understanding of the articulations of terrestrial and celestial phenomena. Space and time were assumed as absolute greatness, with the representation of an empty space being substituted by a space with lines, angles and, geometrics figures. The incorporation of the distance concept to the foundations of Euclides's geometry and its association to the movements of real objects with the possibility of experimental legitimatization, allowed its application in numerous predictions and problems of practical interest. Problems reverberated in biology that simultaneously, were revitalized with the pioneer works of the Swedish naturalist Lineu (1707-1778), the French naturalist Buffon (1707-1788), and other botanists in the 18st century, classifying and nominating vegetable and animal species, and assigning economic value to nature; the important studies of the French botanist Lamarck (1744-1829), author of the first scientific theory of transformation of species; the scientific revolution associated with the studies of Priestley, Cavendish, Lavoisier, and other chemists towards the end of the 18st century, with developments in the understanding of the respiratory processes in animals and in the nutrition processes of the plants; the researches on the distribution and dynamics of plants developed by the German physicist and geographer Alexander Von Humbold (1769-1859) and by Swiss botanist Augustin-Pyramus of Candolle (1778-1841) in the beginning of the 19st century; "The Principles of Geology", a book, by the Scottish geologist Charles Lyell (1797-1875) published in 1832 and who proposed a more sophisticated version for the notion of Lineu on the economy of nature, where he introduced the notion of equilibrium of live species; the creation of the "law of the minimum", precursor of the concept of "limit factor", by German chemist Justus Von Liebig (1803-1873) in 1840, the law that establishes that the growth of an organism is limited by the amount of nutritional element is it supplied, amongst other important contributions (Author, 2004).

Between the 17st and 19st centuries, the technical conditions that unfolded in the merge of science with the economy were generated, having the intensive exploration of nature as a paradigm, a process that has delegated a perverse and sterile inheritance to us. Perverse, because the notion of human condition was placed in a position of political subordination; sterile, because all scenarios projected by the scheme of thought structured with this foundation foresee a future of mankind modeled by the notions of space, time, and matter.

The consolidation of the theory of electromagnetism and optics during the second half of the 19st century merged to the physics foundations, the "field" concept as an entity with an autonomous anthological statute (Arantes, 1981). The posterior development of the theory of relativity demanded the revision of three basic concepts: inertia system, and space and absolute time. The field concept was consolidated as a category and the incorporation of a new foundation in the physical theories was required: the notion of mass inseparable of energy content of physical

entities.

In this same period, happened the development of biology with the publication of "The Origin of Species" by Charles Darwin (1809-1882) in 1859 explaining the evolution of the species by natural selection and inaugurating a new era for the sciences; the organization and delimitation of the contours of a group of themes around the "ecology" category introduced by the German naturalist Ernest Haeckel (1834-1919) in 1869 in his studies about the geographical distribution of the species; the introduction of the "biosphere" term in ecological studies by Austrian geologist Édouard Suess in 1875 and the improvement of this notion by the Russian geologist Vladimir Vernadsky (1863-1945), concepts that intertwines the existence of life with the physical-chemical-biological processes of our own planet; and the introduction of the climax concept by Henri Chandler Cowles in 1899, a term that designates the last stage of the progressive evolution of vegetation, in the hypothesis of this vegetation being free from disruptive or destructive actions.

These scenarios illustrate the process of crystallization of the sciences of nature in the European continent. Herein after, a fertile dialogue between nature sciences and human sciences has been established; dialogue that unfolded in the emergence of the sustainability of life.

The sustainability of life reserves a special place for the self-organized biology around the following inquiry: What is life? The possibility that life has originated from a single live entity, from an "initial protobacterium", or, the hypothesis of live germs being sent to Earth by other more advanced civilizations than ours, or finally, the forecast of existence of less complex physical-chemical scenarios, but sophisticated sufficiently to facilitate the formation of the first live entity on Earth, are controversial theses and very restrictive on the history of humankind. The astrophysicists' thesis, according to which the universe contains a great number of planets with conditions similar to that of the Earth and, therefore, with the possibility having of conscious life, still constitutes a feasible hypothesis, in spite of its imponderable character.

François Jacob (2002) reveals that life is a process, a level of organization of matter; life does not exist in a certain independent amount that we can characterize. He also attests that the biology has a long tradition in studies of that nature, of which he highlights the following theory: "(...) Towards half of the 20st century (...) the birth of molecular biology resulted in a new way of regarding the live entity: the idea is that the properties of the biological life should, necessarily, be explained by structures and the interactions of molecules which compose them (...) With such presupposition the way the study of live entities, their operation, their evolution has changed. The demand for molecular explanation won several branches of biology, cellular biology, virology, immunology, physiology, neurology, endocrinology, (…)." (Jacob, 2002). Thus, this resulted in impacts on all the fields of modern sciences and in a wide technological segment.

The hegemonic concept of the sustainability of life that has been projected is anchored on the deterministic and in the eugenics processes: European inventions that have their main basis in Newton and in Darwin. For the socioeconomic processes, the transposition of the fundamental principles from the works of these scientists, "Mathematical principles of the natural philosophy" and "The origin of species" has corroborated in the crystallization of a civilization scheme shaped by the accumulation and privatization principles; schemes that have also contributed to the quick consolidation and expansion of capitalism during the 19st and 20st centuries, definitively incrusting racism, poverty and the ecological destruction of the planet into universal history. These complex subjects have impelled the articulation of the sciences of nature with the world economic and political macroprocesses, facilitating the planetary irradiation of the models of development of central countries.

The division of nature into the world of the living and the world of non-living continued to be a deadlock in the construction of a holistic and systemic concept in the processes of nature. Nature is a process; as each choice process exhibits a sensitive conscience inside itself, it cannot give some explanation on the character of nature. Everything that can be made uses the language that

allows showing it in speculative form (Whitehead, 1998).
The physical macroscenery prevalent until the end of the 19st century established that the universe was developed in the three-dimensional space of geometry, as established by Euclides, and the events, flows, and transformations were present in a substratum called time. In this picture, space and time are represented as two receptacles of all physical reality, where certain material substance cannot be prevented from being placed into them: space being a single three-dimensional receptacle and time an entity of independent nature. Through appropriate movements, it would be possible to project a geometrical apparatus with every moment of the universal, cosmic, and human history on only one trajectory, where the simultaneity is expressed by an exact coincidence of the represented facts, with the succession and the relative order of the events being intuitively present. This scenery constitutes a simulacrum of the civilization processes; it also constitutes the denial of the human condition.
An intriguing aspect with respect to the cosmic insertion of the man has been its material substratum. The cells that form our bodies are constituted of atoms that if multiply, our biological structure grows. We can affirm, to the light of a positivist conception, that the substance is organized and self-organizes in atomic form; 109 different types of atoms compose the material base of the universe and whose different arrangements have composed the evolution and the organization history of the cosmos since the beginning of its existence over 15 billion years ago (Schrödinger, 1977). We can also affirm that since the appearance of the life about 4 billion years ago, cyclically during our physical existence, the flux of atoms transits in the two directions between the cosmos and the live being in uninterrupted form. What it reaffirms is the fusion of the history of the humankind with the history of the universe, creating articulations between the past, the present, and the future of the creation of man and the insertion of the cosmos in the process of life, and the life in the process of reinvention of the cosmos.
What unfolded in the definitive fusion of the human condition in the sustainability of the nature, transformed it in the sustainability of life; sustainability that also, definitively, incorporated the development notion in its existential universe.

3. The Sustainability of Development: Constituent Elements

The economic processes can be forecast; they have a strong structural dependence on technological innovations. Despite the actions and the movements of the political enterprises that give form and content to the unfoldings of this previsibility, the financial concentration continues attributing meanings and senses to these processes. Within this context, it is possible to conceive sustainability of development; sustainability that embraces development as a result of a determined historical process. The act of develop(ment) (move)ment through accelerations of real and virtual objects in the time and in the space aggregating "surplus-value" to the same does not, necessarily, result in development; a condition only legitimated by political action.
The physical base of this civilization process develops in the form of waves, with constructive and destructive overlaps with the cultural processes. The idea as the matrix of the "genesis", the free thought as agent of conception of the concrete, and the action as the operative instrument of this civilizing process, mediated by contradictions incrusted in the historicity of this human enterprise, unfold in the tendencies of the real and virtual scenarios of the national and world cultures (Hegel, 1983). Scenarios that when addressed for the construction of a citizenship commitment to the human metamorphoses, constitute a sustainability of development. Sustainability that has been moved, producing itself, or still, motion that is transformed in sustainability as it is apprehended by history, demarcating the contours and the mediations of the realities and of virtual aspects of the "development × culture" confrontation.
An important principle of the history of mankind is that foresees that modern societies cannot

exist without production. The ideas, the customs and the individual qualities of the members of a society have been altered and developed under the impact of the production relationships, having the processes that embrace economic, political, and scientific subjects as interdependent axes. Production, accumulation, circulation, and relationships of circulation are constituent elements of modern theories of development, which, with the help of the technology, have moved the national and international political and economic processes (Sen, 2001).

A singular case refers to theories of economic development conceived toward the end of 1970s. These economic theories that had a process of intensive industrialization and the privatization and the exacerbated profit its main anchors, at least in the wide majority of the Western countries (Szentes, 1978).

A radically different picture has been currently presented. Laymert Garcia dos Santos affirms that "(...) after colonizing nature and the unconscious (...), now, by means of the appropriation of genetic and digital information, capital is now not colonizing the dimension of virtual reality but the virtual dimension of reality." (Santos, 2001).

Ecology, biotechnology, nanotechnology, cybernetics, [...] and arts are constituent elements of that new civilization framework. The eight plagues of modernity: racism, poverty, war, structural unemployment, ecological destruction, child work, moral crisis and Aids constitute a series of deadlocks for mankind in this new context of this century (Author, 2014). With the mediation of science, these plagues are being incorporated and pondered under a new "light" culture, that has been impregnated in to mankind's frame thought. An archetype that has restated the economy as the main reference to modernity. The meanings and senses of the national politics of development are reconstructed according to the perspectives of the asymmetric growth of the international market.

In this context, the "development × culture" confrontation constitutes a structural problem of modernity. The human condition can be reinvented; it can also be apprehended as an unfolding of progress. Put another away, the development, through the culture, fortifies citizenship by denying the "other"; it restates democracy without commitment with the diversity and the plurality, and constructs a non-integrated social and economic totality on symbolic universe imbricated in the human condition (Jimenez, 1977). The presence of these contradictions does not deny the concrete possibility of development; on the opposite, it reaffirms it. Reafirms the nature as a commodity and a eternal source of profit (Aknin, 2002).

In this context, Amazonia has been incorporated into the foundations of the civilization process as a main postmodernity ecological emblem. This tendency has reaffirmed the speculations on the role of Amazonia in the world and the role of the world in Amazonia (Author and coauthor, 2013b), a key-region for the future of mankind and for understanding of complex world issues on culture, natural sciences, and sustainable development.

4. New Sustainability Dimensions and Amazonia

Brazil has been put up as a leader in the construction of models of sustainable development. The success of their programs of social inclusion, its position as the largest environmental power of the 21st century, and Amazonia as the main world environmental locus are the major difference in this socioeconomic process.

Amazonia is the South American region totaling about 6.5 million km^2, of which 4.5-5 million km^2 is primary forests. This region is: a third of the world's reservations of latifoliaceous forests; a fifth of the surface fresh water of the Earth; and an important physical entity in the mechanics, thermodynamics, and chemical stability of the atmospheric processes in planetary dimension (Author and coauthor, 2013b).

Experts speculate that it contributes to the budgets of the main greenhouse gases. Amazonia's

ecosystems behave as a gigantic vacuum air cleaner, participating in the dynamics with an absorption, for photosynthetic effect, in the order of 0.25-0.5 giga-ton (250-500 million tons) of this gas per year (Gash et al., 1996), corresponding to the annual absorption of a tonne per hectare for 500,000,000 hectares of its forests.

The subject of the exchange market of the carbon is very polemic for being related directly with the greenhouse effect (IPCC, 2013). The aggregated value to the carbon cycle, especially the deliberations concerning the market of the Certified Reductions of Emission of the greenhouse gases, constitutes an economic and political problem of worldwide reach. Official registrations marked a deforestation of 16 percent (80 million hectares) of Amazonia's total area in the period of 1970 to 2000, a larger area than France's territory. The deforestation, the burning and the use of the soils in the tropical areas are problems with impact in the global scale.

These scenarios show the importance to fight the deforestation in Amazonia, to reaffirm the environmental preservation, and to build clean development mechanisms in this region.

The "*nature* × *culture*" confrontation at Amazonia has been put forward as one of the main contemporary political subjects. The constant tension of the *region-nation-world* is a fact that has become common sense in Amazonia. Sustainable development is the main agent of this historical process. Amazonia is inserted in this conjuncture on sustainable development in three dimensions. Internationally, Amazonia puts several questions to the world, with emphasis on its status as the largest alive and natural library in the planet; its socioeconomic representation as surplus-value and symbolic processes; its status as strategic region for Brazil and the world; its role as source of recycling and planet's thermostat; its physical functioning as a mechanism of climatic stability of the planet; and the main world natural laboratory for scientific experiments and sustainable practices (Author and coauthor, 2012b).

In the medium term, there are two tendencies of sustainable development in Amazonia. The consolidation of first tendency depends on the use of languages, techniques, networks, and technology platforms (mechatronics, robotics, cybernetics, biotechnology, fine chemistry, nanotechnology, photonics, information technology, convergence technologies, and microelectronics) to invent new products and processes, fusing the high technology industrial matrix to exploit Amazonian ecosystems, without depreciation environmental, humanizing its municipalities, and ensuring public policies to its inhabitants. The operational mechanisms of this tendency are dependent strongly on technical education, science, technology, and innovation.

The second tendency proposes to expand the protected areas of nature, with management of NGOs, ensuring social and economic inclusion of its inhabitants by means of social and economic compensatory mechanisms, transforming them into forest guards, soldiers of sustainability, and into collectors of forest committed with sustainable practices without economic and social historicity.

The future of sustainable development in Amazonia depends on its incorporation to the Brazilian national project with three pillars: regional, national, and pan-American integration; the internalization of national institutions in the region; and the economic exploitation of the region in sustainable form. Education, science, and technology are the central axes of this national project. Preserving and integrating Amazonia to Brazil, to humanize man's relationship with nature, improving the quality of life of local populations, solving the complex scientific and technological problems of the humid tropics, and exploiting its economic potential are the assumptions of this policy science in the region.

Amazonia's future, as reference, has the located and situated sustainable development seated in the multiculturalism and techniques. The structures and the contemporary organization methods are based in electronic services, languages, and processes with the primary focus to improve the quality of public politics. The central axis of these actions includes interactions between State and citizen; State and market; private sectors and its diverse representations that compose the local

and worldwide occupational matrix; and between different institutions within a state. Using electronic information flows, this concept tends to consolidate, through networks, relational individualism identified with ethics focused on future ecological conditions and the human condition.

Nanotechnology, robotics, cybernetics and biotechnology reaffirm this revolutionary tendency to introduce new technological organization systems and industrial matrices that induce the emergence of the Wisdom Societies (UNESCO, 2005); enterprise politics are also involved in information superstructures, with Amazonia, Africa, and Asia as emblematic references. A civilizing process with greater hierarchy and a regulatory framework with intercultural actions in political enterprises, that embraces the contradictions between place-worldwide, public-private, diverse national laws and between collective and particular interests.

Ecotourism, eco-certification, eco-energy, eco-recycling, eco-transport, eco-education, eco-communication and eco-economy are social dimensions that permeate the new models of human and economic development and give historical sustenance to responsibility, prevention, and precautionary principles that can overturn the dominant logic that concerns the exploitation of the natural resources and the life processes (Schellnhuber et al., 2011). Today and in the future, the worldwide issues in Amazonia are moved for sustainability.

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