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Socioenvironmentalism: filling some gaps in the Earth System Governance framework.

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¹ PLEASE DO NOT QUOTE without consulting the authors. Work in progress.
² Please also see:  http://www.earthsystemgovernance.org/background/concept/
⁴ Pádua’s research on the environmental thought in Brazil from 1786-1888 found 150 texts that were written by about 50 authors. In this period of 102 years, these authors discussed the destruction of
Socioenvironmentalism: filling some gaps in the Earth System Governance framework.

We are living under a global environmental and social crisis caused by the exponential growth of human activities on the Earth System. The increasing pressure on ecosystems, soil and water, climate and the atmosphere has the potential to trigger sudden or irreparable environmental changes that can harm human and other living and non-living forms on Earth (Rockström et al. 2009). As we enter the Anthropocene (Rockström et al, 2009) almost all environmental problems become global commons. As a consequence, there is a growing need for cooperative action among societies, in order to avoid classic problems such as free-riding and the tragedy of the commons (Harding, 1968). Moreover, the poor populations in emerging and developing countries are likely to be the most affected.

However, what we observe is a governance gap, a growing distance between the magnitude of the crisis and the path of concrete changes needed in the political-economy systems across the globe. This happens in all levels of governance, from global to local. Both individuals and the social structures they have built behave within short-term and egoistic considerations, while the construction of a safe operating space for humanity (Röckstrom et al. 2009) demands cooperative action, reorientation and restructuring of governance institutions (Biermann et al 2012). As Viola et al stated, the international system is also dominated by this conservative tendencies (Viola, Franchini, Ribeiro, 2013).

Therefore, one of the main challenges for social sciences in the 21st century is how we approach governance in the Anthropocene. How do we deal with this growing demand for collective actions in times of egoistic short-termed impulses and behavior in most societies?

Earth System Governance (ESG) as a framework of analysis has contributed to bring answers (as well as questions) to this challenge. The conceptual foundations of ESG encompass multiple actors, levels of analysis, environment parameters, social practices and processes. The framework has covered the full range of social science disciplines across the scales, and has dialogued with other sciences. However, less attention has been paid to other knowledge systems, worldviews, values, concepts, and practices from different localities (local level worldwide), as well as, to how we
can find ways to go beyond the nature-society divide, something that several non-western traditions do. Thus, there are still conceptual and epistemological gaps to be filled in order to have a framework that enable us to consider the diversity of worldviews, values, concepts and practices that can be relevant to governance in the Anthropocene. Much can be learned from experiences at the local level around the world, and concepts can be de-constructed and re-framed.

Socioenvironmentalism is a concept and a practice. It emerged in the Brazilian Amazon in the late 1980s. As a concept, it portrays the convergence of values related to ecological sustainability, social justice and cultural diversity, and a demand for participation in decision making not only in the local, but also in the national and global levels. As a practice, socio-environmental programs and projects have involved multiple actors and can be considered multilevel or de-territorialized governance arrangements, involving cross scale interactions from global to local levels. These socio-environmental experiences have been established to promote environmental sustainability, the improvement of life conditions and the participation of locals. They have resulted in institutional innovations, like the creation of extractive and sustainable development reserves in the Amazon and other regions in Brazil, and have influenced the environmental legislation in the country.

As a consequence of local actor’s involvement, the socio-environmental debates have brought to light issues related to worldviews, cultures and the relation between traditional and scientific knowledge. One example is the idea of socio-biodiversity. This idea has implied the construction of participatory approaches that seek for local definitions for environmental problems and solutions, and the promotion of the role of traditional knowledge and of resource management for local needs.

In this paper, we analyze the emergence of socio-environmentalism in the Brazilian Amazon, and discuss how it can be related to the ESG analytical framework. We focus on the cross-cutting issue of knowledge. Our study is based on bibliographical research; field visits in the Amazon, and documental research about socio-environmental practices. We argue that socio-environmentalism links traditional and contemporary knowledge systems and can contribute to the debate on how other forms of knowledge, worldviews, belief systems enhance earth system
governance as a framework of analysis. In our view, this is increasingly more relevant to meet the challenges of the Anthropocene.

In order to do that, we divide the paper in three parts. In the first, we discuss the concept of governance and earth system governance, as a large framework of analysis and divide it into two dimensions, one analytical and other epistemological. In the second part, we discuss socio-environmentalism in the Brazilian Amazon, trying to link it to the analytical dimension of Earth system governance. In the third part, we focus on the epistemological dimension of socio-environmentalism and Earth system governance.

1. Global environmental governance and Earth system governance: the conceptual framework

First of all, we consider global environmental governance (and Earth system governance) as an analytical concept, though we recognize that all concepts are normatively loaded, we understand that emphasizing its conceptual dimension is different than claiming for a specific governance project. Biermann and Pattbert (2012a:3) identify that there are two broad usages for global environmental governance: the concept is used analytically to describe and analyze current sociopolitical transformations; and it is also used normatively to describe a political program that copes with challenges of globalization. For the authors (Biermann and Pattberg 2012a:3), the analytical usage of global governance highlights distinct qualities of current world politics, such as nonhierarchical steering modes, and the inclusion of non-state actors.

Governance and global governance have been defined in several ways (Rosenau 1992; United Nations Commission on Global Governance 1995; Held et al. 1999; Young 2000; Paterson 2003; Haas & Speth 2006). While no single definition has yet emerged, all contain a sense of governing and collective direction. Similarly, Bulkeley (2005) acknowledges the networked nature of social relations and also takes a broad interpretation of the term governance, which implies a focus on systems of governing in which state actors are not necessarily the only or most significant participants. She does not see government and governance as opposites but as a continuum of systems of governing, in which state and non-state actors play variety of
roles. Accordingly, Bulkeley emphasizes governance configurations that are hybrid, involving a mix of state and non-state actors, or multi-scalar, including actors drawn from different levels of governance simultaneously (Bulkeley, 2005 p. 881).

Biermann and Pattberg (2012a: 1) identify three core elements in the concept of global governance: first, the emergence of new actors beyond the central governments that create a new political context with new actor constellation and power relations. Second, the establishment of new mechanisms of transnational rule setting and rule implementation that go beyond the realm of inter-governamental cooperation, including transnational regimes, public-private partnerships, and Market-based arrangements. Third, new types of horizontal and vertical fragmentation and interlinkages have emerged in world politics and require a new understanding. Biermann and Pattberg (idem) argue that these three elements underscore the usefulness of the global governance concept as opposed to traditional interstate perspectives on world politics.

Inoue (2013) takes a similar approach and attempts to propose a framework to analyze global climate governance as process that goes beyond international regimes. This framework includes power relations, scales, actors, agents, and the agent-structure relations, kinds of architecture and governance arrangements. In her perspective, such framework is useful to analyze the role of local governments and multilevel governance arrangements that include the municipal level.

Recognizing the different views on global governance and emphasizing its analytical usage help us to go beyond the notion of crisis of global environmental governance and the idea of “death of Rio environmentalism” (Park et. al 2008). Park et al (2008: 1) point out the inadequacies of responses to global environmental challenges and how environmentalists have begun to rethink their international strategies. For them, it is clear that the number of multilateral agreements has risen and several international institutions have taken more account of environmental consideration. However, the scope and pace of change have been disappointing (Park et al 2008:1).

Park et al (2008: 5) argue that the inadequacy of current approaches to global environmental governance can be explained to a great extent and unsurprisingly by the opposition from powerful interests. But the problem has been worsened by an inadequate grasp of the linked challenges of sustainability, globalization and governance. In their view, it is crucial to draw a clearer picture of this triangular
relationship and its implications. The authors ask what institutional mechanisms and governing arrangements are consistent with a serious approach to sustainability in globalizing world political economy? They also raise related questions of what are the core functions of environmental governance? Who are the agents? At what level of social aggregation, ranging from local to global, are these functions most effectively performed? (Park et al 2008:5). All these questions point towards the analytical usage of the governance concept, and can be related to the analytical problems and cross-cutting issues raised in the earth system governance framework.

In this sense, perhaps, we can state that the global environmental governance project based mainly on state-centric multilateralism has failed to meet the expectations of finding solutions, or it is only a partial response to the challenges of the Anthropocene. However, the concept of global (earth system) governance continues to be adequate in its analytical usage. In our view, the concept is still very useful to describe and to understand how actors interact and establish different arrangements within and beyond the inter-state political system in order to respond to global environmental challenges. Moreover, as an analytical framework, it contributes to finding answers to questions like the ones raised by Parker et al (2008) as well as to raising new questions.

In our view, there are two main innovations of the Earth system governance as a conceptual framework. One is analytical-empirical, we call it the analytical dimension. The other is the methodological-epistemological and we call it the epistemological dimension.

The analytical dimension refers to the systematization of the five analytical problems and four cross-cutting issues to organize research of global (Earth system) environmental governance. The analytical problems and cross-cutting themes conform a comprehensive analytical framework within which empirical research can be conducted. Such framework provides useful broad lines of inquiry in order to organize categories and guide empirical research.

ESG epistemological dimension refers to the project proposal to promote dialogues between social, natural and physical sciences as well how the project recognizes the socially constructed character of knowledge. That opens the way to epistemological, theoretical and methodological expansion.

Below, we will discuss the ESG conceptual framework. We will briefly describe how it provides a comprehensive analytical framework for empirical
research. We will focus one how it opens the way for epistemological, theoretical and methodological expansion. While researchers within the network have extensively explored the first dimension, we argue that the epistemological dimension could still be explored and expanded.

1.1- Earth System Governance – the analytical dimension

Biermann (2006) argues that earth system governance (ESG) unites those social sciences that analyze organized human responses to earth system transformation, in particular the institutions and agents that cause global environmental change and the institutions at all levels that are created to steer human development in a way that secures a “safe” co-evolution with natural processes.

This proposal converges with the idea of Anthropocene, that is, with the notion of humans are the main agents of global environmental change and, thus, the ones who must respond to the challenges. Biermann et al (2012b: 1306) emphasize that human activities are moving several of Earth’s systems outside the range of natural variability typical for the previous 500,000 thousand years. Because of that, fundamental reorientation and restructuring of governance institutions are needed.

Biermann et al (2009a) point that the term governance refers to modern forms of steering that are often decentralized, open to self-organization and less hierarchical than traditional governmental policy-making. The authors remind that governance implies the action of states and of non-state actors, which can be business organizations, non-governmental lobbying groups, scientists, indigenous communities, and so on, as well as city governments and international organizations. Therefore, as a phenomenon earth system governance can be understood as the interrelated and increasingly integrated system of formal and informal rules, rule-making systems, and actor-networks at all levels of human society (from local to global) that are set up to steer societies towards preventing, mitigating, and adapting to global and local environmental change and, in particular, earth system transformation, within the normative context of sustainable development (Biermann et al. 2009a).

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2 Please also see: http://www.earthsystemgovernance.org/background/concept/
The five analytical problems around which inquiry on earth system governance is organized are: architecture, agent, adaptability, accountability and allocation and access. These analytical problems relate to and depend on each other (Biermann et al. 2009a). The first analytical problem—the architecture of earth system governance—comprehends questions related to the emergence, design and effectiveness of governance systems as well as the overall integration of global, regional, national and local governance. The second one focuses on the agents that drive earth system governance and that need to be involved, special attention is given to the influence, roles, and responsibilities of actors apart from national governments (e.g. business and non-profit organizations). Adaptability is the third analytical problem and is related to the question of how to respond to uncertainties in human and natural systems in a way that combines stability to ensure long-term governance solutions with flexibility to react quickly to new findings and developments. The fourth analytical problem is accountability and is related to the need to understand the democratic quality of earth system governance. The fifth one is access and allocation. It involves the recognition of the political character of earth system governance and refers to questions of distribution of material and immaterial values, of conflicts about the access to goods and about their allocation. It is related to justice, fairness, and equity (Biermann et al 2009a: 5-6).

Besides, the science plan identifies four cross-cutting themes that are crucial to the study of each analytical problem and for the integrated understanding of earth system governance: the role of power; the role of knowledge; the role of norms; the role of scale.

The ESG framework’s analytical dimension is very encompassing and provides a useful way to conduct empirical research on several kinds of governance arrangements involving multiple actors, agents, level of analysis, scales and sectors (across-sectors).

1.2 - ESG, inter-disciplinarity, dialogue among sciences and the role of knowledge: the epistemological dimension

The second innovation, which we have identified in the ESG conceptual framework refers to the dialogue between social, natural and physical sciences and the recognition of knowledge as a social construction. According to Biermann et al
(2009b: 18) the concept of earth system governance responds to a new governance challenge: earth system transformation, a situation in which almost all biogeochemical systems of the planet are influenced in one way or the other by human activities.

The Earth System Governance Science Report 1 states that “Earth System Governance” as an academic inquiry avenue is in the interface of two broad strands of inquiry: earth system analysis and governance theory. In this sense, earth system governance is as much about environmental parameters as about social practices and processes. Thus, it is more than a problem of the regulation through global agreements and conventions, but about people who take decisions in their daily lives or in their various professional positions. Moreover, earth system governance goes beyond the traditional study of environmental policy and bridges levels of analysis and disciplinary foci (Biermann et al 2009b: p.19-20).

According to Biermann (2009: 60-61) in order to confront dynamic social and ecological processes occurring at multiple spatial, political and temporal scales, researchers will have to deal with quite complex causal arrows and interactions between variables. They will have to confront nonlinearities and the possibility of thresholds and abrupt change. Thus, besides being firmly grounded in methods and theories of social sciences and employing qualitative social science methodological knowledge, researchers will need to expand the more traditional social science approaches in two directions.

First, intrinsic developments within the social sciences and the increasing integration of social sciences in the Earth System Science Partnership require a renewed focus on the possibilities and problems of integrating social and natural science research into computer-based modelling or scenario-building projects (...). In addition, the study of earth system governance would benefit from improved tools for analysing complex causalities, capturing the dynamics of complex systems, and accounting for thresholds and abrupt change (Biermann et al 2009b: 61)

In this direction, researchers should look for interdisciplinary methods at the interface of social and natural sciences, considering human and ecological systems. Even though disciplinary research remains important, it is pointed that more attention must be paid to interdisciplinary research and to the collaboration between social and natural sciences (Biermann et al 2009b: 65)
The second direction to which the ESG Project is designed to expand is towards reemphasizing the ‘social’ aspect of global change research

*that is the social construction of knowledge, the cultural and temporal embedding of the researcher, and the reflexivity of social knowledge. This is especially important regarding the normative uncertainty prevailing in Earth system governance* (Biermann et al. 2009b: 61)

Thus, Biermann et al (2009b) expand the traditional social sciences approaches towards the dialogues among sciences and also between science and other knowledge systems. This expansion is ontological and methodological. The Earth System Governance Science Plan states that knowledge is one of the cross-cutting themes that is related to each one of the five analytical problems. Ontologically, knowledge is viewed as having a political and social dimension, that is, its social construct character is recognized. Methodologically, it means usage of multiples methods of inquiry, including participatory approaches, and recognition of the reflexive character of knowledge.

1.2.1- Earth System Governance framework and scientific knowledge

Knowledge is considered a cross-cutting theme that is crucial to understand each of the analytical problems as well as for an integrated understanding of earth system governance. According to Biermann et al. (2009b: 55), the first form in which knowledge is relevant is scientific information, because it plays a major role in the processes of earth system governance. In this sense, on one hand, research on the role of science in these processes is inevitable. On the other, research must be reflexive, in allowing for improved understanding on the underlying theories, methods, and assumptions of earth system governance, as well as in recognizing that science is not free from politics nor politics from science (Biermann et al. 2009b: 55). Competing knowledge claims, the boundaries between research-based knowledge and decision-making, the role of scientific assessments are all issues related to the research on knowledge and earth system governance (Biermann et. al. 2009b: 55).

An interesting study on science networks was conducted by Gutpa et. al (2012), a combination of the analytical problem of agent and the cross-cutting theme of knowledge. Gupta et al. (2012:69) recognize that voices from science are often heard and referred to, however, to what extent this translates into increased influence
in governance is a matter of scrutiny. The authors also point out to the greater institutionalization of scientific input into global policy fora, through globally organized assessments or scientific advisory bodies.

The study by Gupta et al (2012) explored two theoretical propositions: the first states that the influence of science depends at least partly on whether it has been produced through participatory and inclusive process. Science that is more inclusive tends to be more legitimate and hence more influential (Gupta et al 2012: 70). The second refers to the extent to which science is removed from, or embedded in, political processes. The proposition is that an objective, value-free (consensual) science separated from politics is more likely to exercise influence (Gupta et al 2012: 70). The authors assessed these two claims by analyzing the role of science in three highly contested arenas: climate change, whaling, and trade in GMOs.

Gupta et al 2012 present an alternative perspective that have long contested the dominant portrayal of policy-relevant science as a universally valid, value-neutral, and objective language through which to mediate normative conflict that is a science that can be set apart from political considerations (Gupta et al 2012: 72). Instead, the authors claim that the boundary between science and politics is a social construction, a political legitimization strategy.

The question then becomes where these boundaries are sought to be drawn and why, and what the impact of doing so is on the cognitive authority of science (Gupta et al. 2012: 73). In this direction, the authors contest a view of scientific influence that sees an objective and value-neutral science removed from politics as most likely to be influential. Instead, they argue that negotiated and deliberately ambiguous science that requires context-based re-interpretation is likely to be influential in contested global governance areas.

Global governance of contested environmental challenges is paradoxical because while scientific input is most ardently sought, these areas are characterized by the most severe scientific and institutional uncertainty and lack of trust, where consensual science is hardest to achieve (Gupta et al 2012: 87-88). Scientific consensus is more likely to follow after, rather than facilitate resolution of political conflicts (Gupta et al 2012: 88).

Gupta et al (2012: 88) suggest that objective scientific input that is separable from political considerations is neither attainable nor essential for the influence of policy-relevant science. The authors emphasize that science is only one ingredient in
effective, legitimate and democratic global governance. The politics of global governance of contested environmental challenges should be seen as a wide range of moral, social, political, and economic conflicts and priorities. In this sense, the influence of science will depend on the evolution of global institutions and processes that can confer legitimacy on the generation and content of policy-relevant science for decision making, that is, processes that are considered representative, accountable, and democratic.

How to harness such good politics remains a frontier research question, linking analysis of scientific influence to broader question of appropriate normative and institutional foundations for a more democratic and accountable global environmental governance (Gupta et al. 2012: 88)

Thus, recognizing the social aspect of science is crucial to understand if and how it influences the political processes. Moreover, it opens the possibility to understand knowledge in a broader way.

1.2.2- Earth System Governance framework and other forms of knowledge

The Earth System Governance (ESG) framework has covered the full range of social science disciplines across the scales, and has dialogued with other sciences. The project recognizes that assessments, that are driven by science can become trapped by their framing of issues and also that tacit, practice-based and research based knowledge may be complementary and hybridized (Bierman et al. 2009b: 55). It also raises the question of how different forms of knowledge can be pitted against each other and against other system of belief (Bierman et al 2009b: 56).

The importance of knowledge can be related to all the analytical problems covered by the ESG framework. The first report mentions the issue of different kinds of knowledge. It states that different governance architectures produce different kinds of knowledge (technical, scientific, political). About agency and knowledge, it raises the questions of the importance of access to information for the exercise of agency, the question about the differences between scientific and indigenous knowledge in this context, and whether agents process information or develop or access knowledge differently (Biermann et al 2009b: 56).
Much research within the ESG framework has been done relating scientific knowledge and earth system and environmental governance. Though the issue of indigenous and other knowledge systems has been recognized, less attention has been given to it. Below, we will discuss socio-environmentalism in the Brazilian Amazon and how the socio-environmental practices and debates have brought to light the issue of indigenous and other knowledge systems. Thus, socio-environmentalism as a concept encompasses the dialogue with other knowledge systems.

2- Socio-environmentalism, Earth System Governance framework: the analytical dimension

A broad understanding of socio-environmentalism encompasses three ideas or concepts, upon which it has been built and defined. First, Socio-environmentalism evolved upon the concept that a new development paradigm should promote the sustainability of species, ecosystems and ecological processes (ecological sustainability). Second, it should include social sustainability, that is, it should contribute to poverty and social inequality reduction, thus, the ideas of justice and fairness are intrinsic to the social-environmentalist values. Lastly, cultural diversity should be promoted and valued, as well as, the consolidation of the democratic process, understood as the broad social participation in the management of the environment (Santilli 2005).

2.1- Socio-environmentalism: origins and evolvements.

Hochstetler and Keck (2007) highlight three explanations for the emergence of socio-environmentalism in Brazil: the democratic transition and the end of military dictatorship; the murder of Chico Mendes in Acre in 1988 that generated widespread discussion of links between the livelihood struggles of traditional forest peoples and the protection of the Amazon; and the preparatory process for the United Nations Conference on Environment and Development in 1992 that brought together environmental organizations, women’s organizations, urban and rural trade unions, and other social movements.

Democratization allowed civil society to have more space for mobilization and articulation and to forge strategic political coalitions between social and environmental movements (Santilli 2005). In the Brazilian Amazon, the interactions
between indigenous peoples and traditional populations resulted in the creation of the
Alliance of Forest Peoples, in February 1989, in Rio Branco, Acre. It was created to
support collaborations between indigenous people and rubber gatherers in conflict
with land grabbers and timber-dealers in Acre, and also to enable coordination of the
organizations at national level in the claim for their rights and defense of their
alternative proposals. According to Santilli (2005), the Alliance of Forest Peoples
fought for the Amazon traditional populations’ livelihood – both physical and cultural
-that depended on the conservation of the forest, and was threatened by deforestation
and the depletion of natural resources. The drivers of this predatory mode of nature
exploitation were the construction of big highways, forest slash-and-burn for cattle
raising and farming, and the migration of thousand of settlers and farmers to the
Amazon region.

As the, so called, traditional populations of the Amazon joined together, they
also built coalitions with Brazilian and foreigner environmentalists, who were part of
transnational networks (Keck and Sikkink 1999), and who started to support their
political and social struggles. Environmentalists realized that their livelihood and
extractive economic activities were not predatory, but a potential way to make it
economically worth keeping the forest, and an alternative to the environmental impact
of the development projects.

Lima (1999) argues that in the Amazonian context two social movements
converged: i) a grassroots movement that formed to defend natural resources that are
essential to their livelihood, and ii) environmental NGOs. She points out that the
majority of projects that involve ecological partnerships were initiated in the late
1980s and early 1990s. Such was a consequence of the changes in the Amazonian
socio-economic context and new theoretical concepts in fields like conservation
biology (Lima1999). Inoue (2007) brings evidences of the relationship between the
existence of a transnational conservation biology epistemic community, a global
biodiversity regime and local practices in Brazil.

Thus, despite the differences, the tendency of social and environmental
convergence has been identified since the 1990s in Brazil. In a research conducted by
WWF-Brazil and ISER (Brazilian NGO) with the Amazonian population, leaders and
opinion makers, in 2000, socio-environmentalism was seen as a "maturity sign" of the

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environmental movement: *the theoretical framework that guides action is socio-environmental and sustainable development the discourse of the organizations* (WWF 2001:19). The prestige of the organizations was related to the association between the social and environmental issues (WWF 2001).

Furthermore, in several cases, these socio environmental movements have been successful to put political pressure and to obtain governmental support to legalize their proposals. One mechanism that has been used has been the creation of protected areas or the revision of the existing ones, such as Mamirauá Sustainable Reserve, 11 federal and state extractive reserves, Jaú National Park and the Tapajós National Forest (Lima, 1999).

2.2- Socio-environmentalism in practice: when and where the global and local meet.

The socio-environmental movement has put in practice ecological and social sustainability, participation and cultural diversity through many experiences, projects and programs with the support of international development cooperation bilateral and multilateral agencies, and national and international NGOs. Empirically, socio-environmentalism can be seen as a transnational-national movement, which puts in evidence the role of non-state forms of de-territorialized governance by non-state and state actors. The ESG project provides a comprehensive conceptual framework to analyze these governance initiatives, considering multiples agents, new kinds or architectures and institutional arrangements, adaptability, questions of allocation, access, and accountability from global to local. All socio-environmental governance initiatives in the Amazon can also be analyzed taking into consideration the cross-cutting themes of knowledge, norms, scales and power. Below, we will focus on norms and governance arrangements form global to local, involving multiple actors.


According to Hochstetler and Keck (2007), scholars have explained the widespread adoption of environmental protection measures over a comparatively short period of time through theories of international norms diffusion (Finnemore and Sikkink 1998 apud Hochstetler and Keck 2007), which vary in how conflictual this process is portrayed to be. Studies like the one by Frank, Hironaka and Schofer
(2000) relate global environmental protection norms and domestic environmental practices around the world. However, at this very aggregated and consensual level, the spread of environmental protection can be portrayed in ways that flatten most of the real content of environmental politics in a country like Brazil (Hochstetler and Keck 2007). In Brazil, the emergence of socio-environmentalism was reinforced by the global environmental movement of the 1980-1990s, but is considered a specific development from the Brazilian context (Hochstetler and Keck 2007, Santilli 2008, Padua 2012).

Hochstetler and Keck (2007) argue that more nuanced discussions of global struggle over norms help us to identify processes at work that stimulate and shape national debates over those norms, which in turn influence the country’s global role. In Brazil, social justice is a strong dimension of the social movements’ struggles, including the environmental movement. Hence, socio-environmentalism holds the underlying normative assumption that one cannot separate ecological from social sustainability that also concerns the ESG analytical problem of access and allocation.

According to Santilli (2005), socio-environmentalism defined concepts, values and paradigms that have had effects on the legal order in Brazil. The author argues that before the emergence of socio-environmentalism the Brazilian environmental laws concerned the protection of ecosystems and species without incorporating a social dimension (Santilli 2005). Accordingly, we can state that the practice of socio-environmentalism resulted in innovative projects and programs as well as institutional innovations that can be viewed as new forms of governance.

b. Socio-environmentalism and transnational-national social movements in the Amazon: global-local governance arrangements?

Socio-environmental programs, projects and initiatives in the Amazon have promoted many objectives. Most of them have been guided by the “socio-environmental” paradigm (WWF 2001), but have been framed, as well, by global principles and objectives like biodiversity conservation and sustainable use, sustainable development, REDD+, and so on. Thus, these projects have been conceived in terms of local and global values: for instance, protecting biological diversity whilst promoting local sustainable development. More importantly, they can be considered the results of international, transnational and transgovernmental
relations among different actors like international and national NGOs, bilateral and multilateral cooperation agencies, governmental organs, researchers/scientists, grassroots organizations and local populations.

Positive results can be seen. Rubber tapers, loggers, fishermen, indigenous people have found economic alternatives that do not destroy the ecosystem on which they depend. Institutional innovations like extractive or sustainable development reserves, fishing agreements and new rules that promote sustainable use of natural resources have been set. Thus, we could argue that these practices can be conceived as multilevel and/or de-territorialized governance arrangements, involving cross scale interactions from global to local levels. In sum, the emergence of socio-environmentalism as a discourse and practice has been intrinsically related to the processes of redefinition of norms and concepts, as well as, of emergence of new forms of governance that bring together state and non-state actors across national jurisdictions from global to local.

2.3- ESG analytical dimension and socio-environmentalism

The global environmental/Earth System governance literatures have explored multiple actors and institutional arrangements in different levels of analysis and scales, becoming a strong analytical framework to assess global environmental politics beyond dualisms such as state and society, global-local, and North-South. This body of literature can be related to the green International Relations theorists, mentioned by Eckersley (2010), who have identified and analyzed new, hybrid and network patterns of authority and have produced a more complex and layered picture of global environmental governance (Eckersley 2010:268).

We argue that socio-environmentalism in the Amazon evidences this more complex and layered picture, linking the global and local and per passing state jurisdictional boundaries. It also reflects the need of a more nuanced discussion on global environmental norms, as pointed by Hochstetler and Keck (2007). Moreover, socio-environmentalism represents an attempt to bridge the social and environmental dimensions of political struggles that gained force with the democratization process in Brazil. Santilli (2005) considers that socio-environmentalism is a Brazilian “invention”, and as such, does not have a parallel in the international environmentalism.
3- Socio-environmentalism in the Brazilian Amazon, the Earth System governance framework and knowledge: the epistemological dimension

Hochstetler and Keck (2007) recalled Pádua’s (2002) work that demonstrated that environmental ideas have a long history in Brazil and that these ideas are part of the same dynamics that explain the emergence of environmental thinking in other parts of the world.

Thus, socio-environmentalism can be seen as part of broader context described by Pádua (2002), in which the environmental thought is neither European nor colonial, but developed and continues to develop as endogenous questions to the universe of modernity.

a. Socio-environmentalism neither exogenous nor endogenous, beyond the North-South gap – critique of modernity

Pádua (2002) shows that the environmental critique in Brazil dates back to the colonial times. In fact, he found that there was an extensive theoretical thought on the environment during the XVIII-XIX centuries in quantitative and qualitative terms. In his view, it is not surprising that the European or North American historiographies do not know it, which only reflects the difficulties of recognizing the contributions of other regions of the planet, specially the former colonial spaces, to the formation of the contemporary thought. The main problem is how this intellectual tradition was forgotten in Brazil, and has contributed to the superficial opinions like the ones that point to the environmental issue as being external or out of place in the Brazilian political debate. Brazilian intellectuals let this memory be forgotten for a while.

According to the author (Pádua 2002), the environmental thought from the XVIII Century can be viewed as moments in the process of consciousness building about the environmental dilemmas in the modernity universe. These moments were able to enunciate a global political problem whose gravity only now has been perceived. In his perspective, the idea of a comparative vision of the natural

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4 Pádua’s research on the environmental thought in Brazil from 1786-1888 found 150 texts that were written by about 50 authors. In this period of 102 years, these authors discussed the destruction of forests (focusing on the Atlantic forest), soil erosion, depletion of mines, climate disequilibrium and their social consequences (Pádua 2002)
environments in planetary scale is behind the intellectual developments that originated the ecological thought. Pádua (2002) points that the constant exchange of information among intellectuals and science academies in Europe and other regions configured a privileged space for these developments.

This exchange was part of the creation dynamics of a science that intended to be universal. In this context, the studies of intellectuals who worked in the colonial and post-colonial periphery acquire a new visibility and a perceptive preeminence. Thus, Pádua (2002:30) argues that what is more important is not if the origins of the environmentalism are colonial or European, because the intellectual exchanges were so regular that make it impossible to establish a frontier between the poles, it is that the evolution of the ecological consciousness should not be considered a exogenous, late and regressive response to the modern world. On the contrary, it should be seen as a result of this same world, something that resulted from modernity’s historical planetary dynamics, a heir of its scientific revolutions.

The interplay of market dynamics, political institutions, conflicting policies and investments and economic, environmental, and their social consequences has resulted in what was characterized as crisis of modernization in the Amazon (D’ Incao and Silveira 1994). In the presentation of the book Amazonia and the Crisis of Modernization5 (idem), Lisboa states that the construction of the Belém-Brasília highway took the Amazon away from the territorial isolation, and through the road more modernization concepts entered the region in the 1960s. Changes that were understood as modernization (progress) were implemented without social participation. In Lisboa’s view, this model has failed, as an exogenous, authoritarian and “developmentalist” project that ignored local societies, did not provide improvement in life quality and brought more environmental depletion, as deforestation, biodiversity loss, water pollution and climate change.

During the democratic transition, these kinds of development projects started to be questioned by the social movements, which demanded more participation. In parallel, the global conservationism also started to change their approaches. Jeanrenaud (2002, pp.15-17 apud Inoue and Prado 2007) argued that the shift of the global conservationist thinking was based on an instrumental approach to human populations, who were still seen as resources to achieve globally-identified

5 Free translation by the authors of the book’s title.
conservation objectives. For that reason, alternative perspectives started emerging in the 1990s. While not ignoring science, these alternatives proposed that science should not try to produce a single, definitive set of objective laws about the environment, nor about how to define environmental problems and solutions. Such is convergent with the ESG conceptual framework. ESG science plan states that the social construction of knowledge should be emphasized because of the normative uncertainty of governance.

One of the impacts of these new perspectives has been to “deconstruct” (or de-globalize) old concepts about nature and about environmental problems and solutions. This means that nature conservation is more than a scientific issue and that, in the midst of uncertainties, the best path is to expand the number of participants in decision-making, thereby making more room in the debate for a wider range of values and interests. This has meant incorporating the promotion of human rights as an objective in its own right. Participatory approaches have thus gained strength, seeking local definitions for environmental problems and solutions, and promoting the role of traditional knowledge and of resource management for local needs (Jeanrenaud 2002 apud Inoue and Prado 2007)

b. Socio-environmentalism and socio-biodiversity—cultural diversity, incorporating other forms of knowledge: beyond modernity?

The socio-environmental debates have brought to light issues related to worldviews, cultures and other forms of knowledge or the relation between traditional and scientific knowledge. Socio-biodiversity is a less known notion but it emerged from the social movements to express the idea that biodiversity emerges from the interaction society-nature.

Pádua (2012) states that Brazilian intellectuals and social movements have been using the concepts of socio-environmentalism and socio-biodiversity to emphasize the links between natural diversity and the diversity of local cultures inside the territory. Socio-biodiversity is an expression that emerged in the early 1990s, as a result of the political mobilization around the elaboration and negotiation of the

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6 More recent debates around the world have focused on the idea of of “biocultural diversity.” Ethnobiologists introduced this concept to inextricably link the variation within ecological systems to cultural and linguistic differences. (Martin et al. 2012)
Convention on Biological Diversity (CBD)\(^7\). Besides being considered rich in biodiversity, Brazil is considered a “mega-sociodiversity” country. This sociodiversity conditions the existence of megabiodiversity (Kaingang 2006).

The socio-environmental movement has constructed this idea to intrinsically relate the diversity of populations and cultures to the existence of biodiversity. Referring to the CBD that speaks of indigenous populations and local communities, Kaingang (2006), asserts that such terms congregate an enormous social diversity into a single concept. Local communities in Brazil encompass rubber tappers, extractivists, riverine peoples, seaside peoples, *andirobeiras*, fishers, coconut collectors (Babaçu coconut) and so on. Indigenous populations in Brazil comprehend a universe of 230 peoples with their own cultures, languages, social organizations and legal systems, in which information passed on from one generation to another. This happens among the same people or among different indigenous peoples.

Participation of indigenous-right NGOs and of local populations has, therefore, resulted in more debates about the role of traditional and other forms of knowledge. This move is similar to the one that is recommended on the ESG Science Plan that is towards reemphasizing the social aspect of global change research.

In the context of the Convention on Biological Diversity, there have been extensive debates about traditional knowledge. Kaingang (2006) argues that to create databases to register that knowledge violates the oral traditions of many indigenous peoples, besides, traditional knowledge is not stagnant, it is dynamic, and it is revitalized everyday. Consequently, traditional knowledge cannot be divided and put into small boxes. While an alternative to protect traditional knowledge has not been developed, it is important to highlight that protecting shamans’ knowledge through patents, the body painting of indigenous peoples as industrial design, the name of the indigenous peoples as marks, the rituals as registration in the book of celebrations, and lands and traditional waters under the form of mankind’s natural heritage can be viewed as a representation of a segmented world view, or a square world (Kaingang 2006: 54-55).

\(^7\)During the Convention negotiation process, tensions and differences were driven mostly by questions of ownership of and intellectual property rights of genetic material and biotechnology. The issue behind such tensions reflects the fact that biodiversity is not evenly distributed on Earth. In the end, despite the efforts of USA in one side and Malaysia in the other, the countries reached a compromise (Inoue 2007).
(…) while our knowledge is much more extensive, it includes many more values that not always fit into a piece paper, a germplasm bank or a database (…) (Kaingang 2006:55)

Ailton Krenak questioned (…) who said that you can access my traditional knowledge? Who said I want you to share the benefits of an access to which I still have not consented? (…) (Krenak apud Kaingang 2006: 55).

Elements of nature can be recombined and appropriated through patents, as a result of research and the alliance between technoscience and capital. Santos (2006: 198) asserts that accessing traditional knowledge is like taking a shortcut. It saves time in research. Traditional knowledge can help to get straight to the point, instead of wasting time in random prospection of genetic resources. Santos (idem) argues that what is offered in exchange, that is “benefit sharing” represents a huge discrepancy between the value attributed to the technoscientific knowledge and the low value attributed to other types of knowledge. In his view, the problem is that contemporary science does not recognize the legacy of the past, and considers itself better, and split away from the past, which is an ignorant attitude even from the scientific point of view (Santos 2006: 198-199).

Santos (2006) mentions the anthropological studies by Narby (1999) with ayahuasca in Peru that found that, through Shaman’s visions, structures appeared which are called molecular structures in the scientific language. Moreover, the structures of DNA, which are produced by computers’ software as visualizations of what is the minimum required component of any living matter, appeared in Shamans’ visions as the image of a serpent which communicated with them. Thus, Narby (1999 apud Santos 2006) concluded that the problem is not the opposition between one type of knowledge and the other but that, maybe, the scientists have not yet understood that there are people who not only did not follow the western way, but also did change and evolved in history. As Santos (Santos 2006:200) states

I find it very pretentious to think that only we in the West, developed, progressed and managed to have this fantastic modern science and that the others who did not choose that way remained in the past. What if they did not really remain in the past? What if they decided to develop in another way, different from ours? And what if we are now
getting to the point where, through our methods, we begin to decipher the language by which, through other methods, the Shaman hear the plants? There is a point of convergence here (...) a possibility of contact and dialogue (...) the narrowness of contemporary scientific thinking therefore resides in destroying the prospects of dialogue with these peoples who might have different ways of accessing information.

In conclusion, Santos argues that there can be a common ground of understanding between traditional and contemporary knowledge because both establish a dialogue with nature. The shamans search for answers for the community, a solution for a problem. Technology can also be viewed as a dialogue between humans and nature in order to solve a problem. For Santos (Santos 2006), it is the same relation in different dimensions, in different ways. So the question is why only one kind of knowledge has a value? The problem lies in the incapacity of recognizing the value of a type of knowledge that is not scientific but which could still have interesting interaction with S&T, representing an advancement factor for both. Thus, the recognition of traditional knowledge can deliver benefits for everyone (Santos 2006).

In this sense, socio-environmentalism through the idea of socio-biodiversity brings to light the need to consider and value other knowledge systems, especially, indigenous and traditional knowledge. The ESG Science Plan mentions indigenous knowledge and other belief systems and it recognizes the social aspect of knowledge or its social construction. The importance of this aspect is emphasized because of the normative uncertainty of governance (Biermann et al 2009).

c. Socio-environmentalism, governance and knowledge systems dialogues – beyond modernity

Santo’s argument is consistent with Leis proposal regarding the relation between modernity, social processes and the governance of environmental issues. Leis (1999:47) argues that there should be a redefinition of civilization, a project, which he calls realist-utopian. That project is based on the ample spectrum of environmental theories and practices and he called it realist-utopian, because it can
only happen by bridging and nearing opposite phenomena, or the harmonization of spiritual and material experiences, reconciliation of the transcendent and immanent plans. Making Dalai Lama, Madonna, Ilya Prigogine and Bill Gates to meet to talk about the state of the planet. For Leis, environmentalism should be realist-utopian because it should be an open project, and in this sense, non-modern, outside of a linear view of history, which considers the forces that move history through a one-dimensional perspective.

Socio-environmentalism can be seen as a step in this direction. The concept implies the recognition of cultural diversity and epistemological pluralism. In this sense, it is also an open project, outside a linear view of history and a call to go beyond modernity.

Human beings and human societies cannot be considered apart from nature. As Leis asserts the relation society-nature cannot be transformed into something passive to be controlled by science, forgetting its wild, unpredictable, and non-rational side, and, as such, uncontrollable (Leis 1999:141). Today, the notions of planetary boundaries and the demands of sustainability evidence that the idea of conquest of nature is obsolete and that, instead, the relations society-nature should be reconstructed. To govern the Earth system means re-organizing the way we produce, consume, and relate to each other as groups and individuals. In the epistemological and theoretical levels, it means looking for other ways of conceiving knowledge, or broadening our notion of knowledge.

**Final considerations**

Learning from the Brazilian experience in the Amazon known as socio-environmentalism, we identify two movements that can help building a new equilibrium to the earth system. The first is analytical and practical and refers to the need to rearticulate different level of analysis and scales: from local to global and to go beyond dichotomies such as public and private. Such is very much in accordance with the categories that make the ESG analytical framework. The second move suggests the necessity to construct dialogues and synergies between different epistemologies and worldviews. The underlying assumption is that we need to move beyond the cognitive and epistemological dichotomies, especially the ones around nature-society, global-local, and even North-South, to research and construct Earth
system governance, and in order to do that we need to go beyond modernity.

The Earth system governance (ESG) frameworks provide a valuable tool to explore socio-environmental experiences in the Amazon. Besides the notion of multilevel governance, this piece of literature is convergent with the concept of socio-environmentalism in three ways. First, socio-environmentalism and ESG recognize the need to consider both natural and social factors. In the same line as Leis (1999) argument, ESG is “as much about environment parameters as about social practices and processes” (Biermann 2009a: 22). Second, socio-environmentalism is originated from the mobilization of multiple actors (state and non-state) in different levels and ESG recognizes the need to transcend the traditional focus on the state and regimes, since the problem is wider than “the regulation of global commons though global agreements and conventions” (Biermann 2009a: 23). And finally, socio-environmentalism concerns ecological and social sustainability what converges with ESG proposal of inter-disciplinarity. “The analysis of earth system governance thus covers the full range of social science disciplines across the scales, from anthropology to international law” (Biermann 2009a: 23).

While ESG recognizes that knowledge is socially constructed, the emphasis has been on scientific knowledge and its role on governance. More research should be done in the direction of other knowledge systems, particularly indigenous and traditional knowledge. As mentioned, socio-environmentalism does not ignore science, but it implies that science should not try to produce a single, definitive set of objective laws about the environment, nor about how to define environmental problems and solutions. Debates on complexity, trans-disciplinarity, and holistic knowledge paradigms have claimed for the need to overcome the borders that separate sciences, philosophy, art and spiritual traditions (Weil et. al 1993, Morin 1998, Leis 1999), or to integrate reason, sensation, emotion, intuition, that is, the different ways through which we perceive and know reality in order to deeply understand reality (Leis 1999, Adorno & Horkheimer 1997, Marcuse 1975). Moreover, local populations, particularly, but not only, indigenous peoples evidence that there are knowledge(s) of and practices about nature that can contribute to go beyond the dichotomies, rationalism and the anthropocentrism of modernity (Ramos 2013, Panel 3/Santos 2006, Narby 1999).

We do not have a proposal of how to restructure governance institutions, however, we do believe that a plural and epistemologically encompassing framework
of analysis is fundamental in order to meet the governance challenges of the
Anthropocene.

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