POWER-KNOWLEDGE RELATIONS IN THE FIELD OF POLITICAL ECOLOGY[1]

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Critical epistemology of political ecology: the power in knowledge

The environmental crisis irrupted in the modern world in the 1960s and 1970s as a manifestation of a crisis of civilization: a crisis of the hegemonic ways of understanding the world; as a crisis of scientific knowledge and techno-economic reason that became institutionalized in the globalized world, interfering with the natural courses of life and destroying the essential conditions for the sustainability of life. For political ecology, the construction of a sustainable world raises the epistemological challenge of questioning the conceptions and paradigms of science and the power strategies that underlie the sustainable development discourse that, given its "effects of meaning" and enacting of the metabolism of the biosphere, degrade the sustainable conditions for life. Building a sustainable future requires the *deconstruction*[2] of the juridical forms (Foucault, 1998), the economic rationality and market logic (Marx, 1965) and the *logocentrism* of science (Derrida, 1976, 1978, 1982) –the instruments of power in knowledge inherent to the hegemonic rationality of modernity– that have "abgrounded" our unsustainable world. Moreover, it becomes essential to derive theoretical-political strategies capable of bringing about a process of social reorganization in line with the ontological conditions of life.

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1.   This text is a new version of my more synthetic original article published as Leff, E. (2015), "The power-full distribution of knowledge in political ecology: a view from the South", in Perreault, T., Bridge, G. & J. McCarthy, Eds., Routledge Handbook of Political Ecology, London & New York: Routledge, pp. 64-75.

2.   *Deconstruction* designates the critical purpose of post-modern philosophy to dis-cover or unravel the conceptual framework and the social effects of metaphysical thought. One of these cores consists of the whole set of binary oppositions (object-subject; reason-intuition; nature-culture) established by the Cartesian division between *res cotigans* and *res extensa* that affect the way we talk and write and understand sexual, racial and social differences. This controversy is not solved by the demand to establish ontological monism (Bookchin, 1990/1996; for a critique, see Leff, 1998) brought in to dissolve the radical difference between the Real and the Symbolic, from where the human condition emerges in the order of Life. Deconstruction is the task of questioning metaphysics. The deconstructionist perspective in political ecology allows us to analyze the pathways which, through the history of metaphysical thinking, have led to the formation of frames of thought and theoretical paradigms, legitimized by the dominant rules of science, establishing hegemonic ways of understanding the world and determining the approaches for intervening in nature. In this context, theoretical deconstruction in political ecology is called upon to unravel and reveal the strategies of power in knowledge (Foucault, 1980) that are intertwined with the logic and rhetoric of the discursive development of the scientific disciplines from which political ecology wants to distinguish itself to establish its own disciplinary identity and political objectives with a study program on the power relations that permeate the socio-environmental field.

The environmental crisis calls for thinking the state of the world: the thermodynamic- ecological and the symbolic-cultural conditions of organic and human life in our living planet. It requires understanding both the conditioning imposed by the hegemonic techno-economic rationality on life and the conditions imposed by the ontological order of life on the *sustainability of life*. Thus, the environmental crisis prompts us to think about something that has so far been unthought: the disregard for and the unsustainability of life inadvertently produced by humanity.

Political ecology has taken up this call and intends to respond to the challenge of the civilizatory crisis. Anglophone political ecology has opened up a critical space in the American and Anglo-Saxon academy to attempt a *deconstruction* of those theories that seek to understand the relations between culture and nature –geographical and anthropological traditions, political economy and agrarian and peasant studies– and those that have ignored the epistemological causes of the environmental crisis: the economic theories that drive economic decisions and the theory of evolution that naturalizes "adaptive" human behavior. Thus, it seeks to understand the social processes that affect, condition and determine the unsustainability of life by triggering the transformation of ecosystems, global change and the entropic degradation of the planet driven by techno-economic rationality. Thus, the environmental crisis that currently afflicts and challenges humanity unravels the power relations –and the power in knowledge– that determine the ways of accessing, intervening in, appropriating and degrading nature.

Today, Anglophone political ecology is undergoing a process of self-criticism, reflecting on its *positioning* in face of global challenges, both in science and politics. The construction of political ecology as a disciplinary field[ii] of power relations in knowledge (Foucault, 1980) requires thinking critically about the supremacy of the Anglophone school –and more generally about the perspectives from the North– in the field of political ecology: its hegemonic control over knowledge and the way it has shaped and weaved its own knowledge into the structure of this emerging social science –namely, its own frames of intelligibility, research agenda, strategies for social activism and impact on public policies– over and above the interpretations that emerge in other geographical latitudes and in other economic, social and cultural contexts.

There are currently different "regional political ecologies" across the planet. They irrupt from the depths of the environmental crisis and are rooted in an ontology of diversity and difference, counteracting attempts to confine them in a unifying paradigm and to seal them in the hegemonic process of globalization. The call to think about the geography of power in the field of political ecology is an invitation to engage in a conversation that instigates the main forces of discursive strategies to deconstruct the logics that lead the world toward socio-environmental degradation, triggering innovative theoretical capacities, stimulating sociological imagination and en-living social imaginaries to lead the way toward the construction of a sustainable future and a different world (Leff, 2014).

Within the terms of this critical reflection, political ecology assigns itself the task of responding to the call of thinking and conceptualizing "the geographies of knowledge production in political ecology" by mapping the "geographical imaginary of political ecology". But more than being a call to rearrange the puzzle of environmental disciplines in the

sciences, it summons sociological imagination to rethink the world from the perspective of the politics of knowledge in which political ecology is inscribed and, in this way, it is able to facilitate the dialogue between different fundamental types of knowledge-*savoir*, providing consistency to the sort of thinking that can steer the construction of a sustainable world, based on its theoretical, geographical and cultural diversity.

In this text, I will limit myself to problematize and radicalize some of the concepts and fundamental lines of inquiry that make up the field of political ecology. I intend to initiate a dialogue to contextualize some of the fundamental principles, ideas and proposals of political ecology practiced in Latin America and contrast them with the contributions of Anglophone political ecology. In doing so, as well as establishing a political socio-geo-graphy of environmental conflicts, I propose to question the epistemic core of this discipline and stimulate a more cosmopolitan and critical reflection to strengthen its theoretical consistency and strategic effectiveness and, thus, enable this social science to confront the hegemonic powers that are leading the world toward socio-environmental degradation.

Origins and foundations of political ecology

Political ecology emerged as a new discipline within the social sciences between the 1960s and 1970s, driven by the irruption of the environmental crisis. It launched an enquiry on the socio-environmental conflicts generated by the capitalist appropriation of nature, strongly influenced by Marxism, in vogue during these times of theoretical and cultural revolutions, and by the work of pioneering authors such as Murray Bookchin (1962), Eric Wolf (1972), Hans Magnus Enzensberger (1974) and André Gorz (1975).

The field of political ecology evolved from critiques of the paradigms in geography and anthropology and spread to new disciplines such as cultural ecology and ethno-ecological and ethno-geographic studies, influencing political economy, and merging with post-development studies, eco-Marxism, social ecology and eco-feminism. It dialogued with other theories of complexity which have given rise to new ontological and epistemological lines of inquiry on nature. Political ecology is thus forged from the melting pot of post-structural, deconstructionist, post-constructivist, post-colonial and anti-essentialist studies (Escobar, 2009). I do not intend to synthesize nor produce a comprehensive map of the discipline's genealogy, sources, inter-disciplinary odysseys and mainstays of its relations with other disciplines, nor will I address its application to different socio-environmental issues and case studies. My aim is to think the main forces and the power strategies that lie under, weld and draw the boundaries of regional political ecology thought and action across the world.

In an analysis of the development of the Anglophone field of political ecology, Peet and Watts (1993) identified its origins in the politicization of the earth sciences and agricultural culture and practices. Political ecology was forged from the ecological critique of the economic rationality (Gorz, 1989) and the unravelling of the second contradiction of capital (O'Connor, 1998), in the critical margins of ecological-economics (Martínez-Alier, 1995). It came into being together with other strands of thought and socio-environmental activism such as social ecology, eco-feminism and eco-Marxism. Another fertile strand

opened with the demarcation of fields more closely associated with disciplines whose objects of study are more clearly defined in direct relationship between social practices and nature. Thus, it detaches itself from an ecologist-evolutionist-adaptive view of human geography, cultural ecology, ethnobiology, sociobiology and human ecology to consider the power relations that have resulted in theoretical, technical and discursive devices that steer and define the means of human intervention in nature.

One of the founding principles of political ecology is the critique of the theoretical effect that led to the emergence of the *ecological episteme* and *post-structuralist thought* in the social sciences. This colonizing effect of the life sciences reifies social relations and is expressed both in functionalist sociology and in complex thought when cybernetic models and generalized ecological frameworks are adopted as methods for the interdisciplinary integration of the sciences (Morin, 1980). Similarly, the sciences of complexity seek to operate as a transdisciplinary framework, spreading into and over the social sciences (Prigogine, 1955, 1981; Prigogine & Nicolis, 1977; Prigogine & Stengers, 1984; Urry, 2003, 2005). By contrast, economics applies its own instrumental devices to commodify nature and regulate the environment, disregarding the ontology of nature and culture.

From its inception, the Anglophone school of political ecology emerged from a critique of adaptive theories that originated in cultural ecology, upheld by authors such as Julien Steward (1972), Roy Rappaport (1968, 1971) and Peter Vayda (1969, 1983), in conjunction with other ecological paradigms –i.e. Bateson's ecology of mind (1972), Holling's ecological systems (1973) and Wilson's biosociology (1975)–, thus developing a biological, ecological and organic framework for understanding society. The functionalist paradigms of sociology and anthropology were adopted to the scheme above, assigning an adaptive meaning to the social order, whose effects were expressed in several environmental problems, demanding a social response and lending the discipline its political nature.

However, the problems of colonization of knowledge are not confined to masking the symbolic organization of cultures or power relations, obscured by the naturalization effects of biological theories in ecological anthropology, ecology and cultural geography. They also permeate all interventions –from anthropology to the social sciences– in the lifeworlds of traditional societies and in their attempts to understand their cultural organization through scientific concepts. This situation requires political ecology to adopt a strategy encompassing knowledge deconstruction, epistemological vigilance and the ethics of otherness to understand, dialogue with and intervene in the cultural contexts of the socio-environmental processes in which it is involved for academic and political purposes.

The regionalization of knowledge in political ecology: *pater familias*

By applying the principles of critical deconstruction of scientific paradigms to itself to reflect on the regionalization of political ecology's theories and practices, ¿how are theoretical difference, the demarcation of the discipline's boundaries and the main core of its discursive formation conceived? If one of political ecology's study objects is the different modes of deterritorialization produced by capital, then this must be founded on the political geography of knowledge, that is, on the reasons why ideas, concepts and theories

flow, acquire meaning, interconnect and become territorialized as power devices. Political ecology(ies) become(s) regionalized from different theoretical perspectives, social meanings and ecological conditions: from the frameworks of the disciplines that converge in this field, to the diverse ways in which the environmental crisis and socio-environmental conflicts are expressed and the social responses in different regions of the planet. They diverge in the manner they are perceived by the different social imaginaries that steer the actions of social agents, be they local populations or academics. Sensibilities, reasons and practices that guide the theoretical interests of the *homo academicus* (Bourdieu, 1984) lead to the formation of epistemic communities that promote the thinking-acting alliances made by the intellectual actors of political ecology.

This epistemological reflection on the field of political ecology opens up an entire program for the sociology of knowledge. Here I will only be able to delineate a few main points.[iii] Political ecology emerged from the flow of reasons and motivations that influenced the founding authors of this field. It is the result of trajectories and theoretical interests associated to their own academic development in disciplines such as anthropology, geography, Marxism and political economy. The discipline's academic lines, affinities and alliances formed the basis for constructing a theoretical framework on conceptual principles that allowed for the definition of a new disciplinary field. Before attempting to assign the approaches inherent to political ecology to specific *epistemes*, paradigms or theoretical frameworks, it is important to note its emergence from the "disciplinary schools" and "academic niches" that developed research programs based on particular theoretical legacies, patriarchies and knowledge lineages. Marxism and its different strands shaped the lines of argument adopted in eco-Marxism, eco-anarchism, social ecology and radical ecology that molded a political ecology in the margins of economics and political economy (Zimmerman, 1994). The Anglo-American authors acknowledge that the origins of political ecology lie in Carl Sauer's geography school and Julien Steward's cultural ecology school (Watts, 2015).

Along with a constellation of factors derived from the institutional geography of knowledge, it is possible to identify certain subjective conditions that have influenced the development of political ecology and its inscription within the Anglophone academy. One question often evaded by sociology of science, but of particular importance, relates to the personal academic interests and subjective sensibilities that, while leading some authors to be echoed by others and become theoretical references, ignore other academics despite their intellectual affinities and convergence of objectives. Indeed, at play here is the recognition or not of academic peers, the attractiveness of some theories and disciplinary engagements that lead researchers to explore and accept some sources of inspiration and reject and disregard others when establishing their academic identity.

This may explain the lack of dialogue between political ecology and neighboring fields emerging at the same time, driven by similar interests such as environmental sociology[iv] and its distant vicinity relations with eco-Marxism and ecological-economics; as well as a lack of dialogue and a more consistent theoretical interaction with the sources of philosophical inspiration, from which political ecology adopts its conceptual references. The distance of Anglophone political ecology from authors such as Murray

Bookchin, Barry Commoner and Michael Zimmerman is symptomatic, despite close associations between this discipline and Bookchin's eco-anarchism, social ecology, and communitarianism (1982/1991; 1990/1996), as well as with Commoner's critical analysis of "the poverty of power", the essential conversation with radical ecology[v], Heidegger's existential ontology (1927, 1957, 1971) and Post-modern thinking (Zimmerman, 1994). This absence of communication is indicative of the way theoretical preferences guide our searches, define our views and leave their mark on the theoretical frameworks, discursive styles, conceptual approaches and lines of thought that inform the objects of study and action strategies of the emerging political ecologies.

Anglophone political ecology has developed inside an academic cloister, insufficiently open to intercultural dialogue between regions and different types of knowledge or to the protagonists of political ecology. Though one of the core themes of political ecology is the unequal access of different populations to resources, asymmetry in the access to the means of disseminating ideas is also evident in this academic field. The result is that the discipline is heavily weighted toward Anglo-Saxon authors who control and have privileged access to publications and the dissemination of theories at a global level. Undoubtedly, language barriers play a role in restricting the flow of communication and a more fruitful exchange of ideas between the different regional cultures of political ecology. It may be the case that Latin American thought and academy has been more affected, especially Latin American political ecology, where authors are less inclined to publish in English than their Asian, African and Australasian counterparts who are more likely to be educated in English-speaking universities and be affiliated to that intellectual culture.

However, the resonance of ideas and the control of the means of dissemination are not only influenced by language barriers. Personal disposition, intellectual cultures and theoretical affinities also determine empathy and alignment which can either stimulate or hinder academic exchange and dialogue of knowledges that foster the recognition - or otherwise - of different types of knowledge produced in the social environments where thinking is promoted, ideas are debated and concepts are applied to environmental social actions. These circumstances can either lead to a paradigmatic closure or open the intercultural dialogue between diverse epistemic communities and social actors.

The politicization of ecology and the epistemic regionalism of political ecology

Before starting an interregional dialogue, it is important to question the founding principles of political ecology: ¿In which way is ecology political? (Walker, 2005), ¿What is the "regional" character of political ecology? We must acknowledge that ecology is in no way political if understood as a web of relations between non-human populations and their environment, such as the complex flows in matter, energy and information that occur in the metabolism and organization of the biosphere –in depredation relations, trophic chains and the ecosystemic dynamics– not induced by human action. It becomes political through the effects of human intervention on ecological transformations, when they cease to be driven exclusively by natural laws. Of course, ecology understood as

the web of life transformed by human action, is a field in which different, heterogeneous and complex orders of nature and ontological regimes come together. This is where the effects of human intervention are manifested, based on different existential ontologies and social rationalities that mobilize the metabolism of the biosphere, leading to environmental changes through different ecological flows and thermodynamic pathways of matter and energy.

Ecology becomes political as a result of the *will to power* to which nature is subjected, that is, the processes of appropriation steered by different, and often conflicting, interests and values. Indeed, it becomes political due to the way that human intervention, inscribed in a range of meanings and rationalities leave an ecological imprint on the environmental conditions of society through the pressure they exert in the transformation of nature. Thus, strategies for appropriating nature in the different ecological contexts, whether cultural or capitalist, create politicized ecological processes that are the result of power strategies. Politics is the means by which the ontology of the Real is realized as the living conditions of the people, and by which is it possible to move from a global world, governed by the unifying power of the market, to constructing a diverse world –different modes of being-in-the-world and of inhabiting the planet–, steered by an ontology of diversity, difference and otherness. This shift in the trends of the global world towards the sustainability of life requires the deconstruction of the rationality based on the metaphysical principles of unity, universality, totality and generality. This path toward politicization of life is rooted on an ontology of diversity and difference: by the deployment of the Real, steered by existential meanings and mobilized by the rights of cultural beings to construct different, sustainable, lifeworlds.

Robbins (2012) sees Kropotkin and Marsh as precursors of political ecology, given their interest in the impacts of human action on soil degradation. But, ¿what is the source of this politicization? If it were the mere result of an universal law of matter degradation and life, there would be nothing political about it, except for the effect of humanity accelerating the trends of a natural order. Following this line of argument, Claude Lévi-Strauss believed that no cultural regime could fight against the ultimate principle of the law of entropy and that anthropology would eventually become an *entropology* (Lévi-Strauss, 1955). Thus, we must look elsewhere for the political roots of ecology: in its origins outside nature. Ecology becomes political due to the effects of the history of metaphysics, that is, the effects of the ontological obsession on Being on the oblivion of life –the original intuition of Heraclitus' *physis* as the emergent potential of all entities and of life itself–; because of the abstract principles of unity and universality in philosophical and scientific thought that have led to the techno-economic unification of the globalized world. It has become political because of the lack of knowledge about the ontology of life's diversity and difference, because of the will to power (Nietzsche, 1968) that acts as a compulsion to dominate nature, and violence forged in metaphysical thinking (Derrida, 1978). Finally, because of the supremacy of identity as the sameness of being, and the disregard for otherness (Levinas, 1977).

The political de-naturalizes ecology, given it originated outside nature where the will to power that drives the process of social appropriation of nature was forged in the

original *logos* of metaphysical thinking and developed through the objective measure of all things by *ratio*, into the representation of the objectified world by the Cartesian *cogito*, into the economic, technological and juridical power devices of the rationality of modernity. In the deployment of metaphysical thinking, *physis*, as the emergent potency that orders matter and life, derives in an objectified and measurable nature, which with modern rationality is converted into a "scientific object" and "natural resources", disposed to economic appropriation and planning. The unconscious roots –the "*lack in being*" (Lacan)– that mobilize the will to power engendered the *logocentrism* of science, the theoretical paradigms of political economy, as well as those of the life and human sciences that form the basis of the hegemonic interpretation and appropriation of the world. Political ecology emerged by dissociating itself from two dominant theoretical paradigms of modernity: 1. economic theory as the means of appropriating and transforming nature that triggers entropic (ecological and environmental) degradation; 2. biological theory –in particular evolutionary Darwinism– which when applied to the social fields –cultural ecology, socio-biology or structural-functionalism– becomes the naturalizing standard of socio-environmental dynamics. Political ecology was forged by deconstructing the "normality" of the paradigm of political economy; it is situated on its margins and focuses on the ecological distribution conflicts that cannot be absorbed, adjudicated or resolved by ecological economics (Martínez Alier, 1995). In contrast to evolutionist theories, political ecology emerges by deconstructing the naturalizing effects of social Darwinism and the ecologization of the ethnological order and anthropological practices (Watts, 1983).

Within these limits, political ecology has sought to characterize and establish its identity vis-à-vis other neighboring scientific disciplines. This endeavor transcends the definition of a new discipline whose aim is to unravel and circumscribe the political character of ecology and study the political processes that leave their marks on nature. Political ecology places ecology within the perspective of a political epistemology by deconstructing the theories that have disregarded the environment, by unraveling the power-knowledge strategies behind the human actions that contribute to environmental changes, which can neither be attributed to nature nor inscribed within the "naturalness" of the actual social order.

There is no doubt that the impacts of rural modernization –soil degradation, deforestation, the exclusion and poverty of peasant populations– have had a political effect on the resistance of indigenous and peasant peoples, their struggles for land and the defense of their traditional practices. However, the exacerbation of these processes, reflected in the destruction of nature, has also driven the emergence of other political epistemological and ontological factors, denaturalizing the scientific paradigms which have concealed the social effects and power relations that determine and condition socio-environmental degradation. These factors have also promoted processes of epistemic, political and environmental reconstruction that, through social resistance, are engendering new ways of conceiving the process of production and the habitability of the world more in line with living conditions of the biosphere.

One of the key reasons for deconstructing the dominant theories of the environmental field –and of political ecology– is the interpretation of the concept of *environ-*

ment. While in economic and development theories the environment is conceived as an externality and a cost, or as that which surrounds an organism or a cultural organization in biological and ethnological theories, in *environmental epistemology* the environment is conceived as an exteriority in relation to the normal paradigms of science. However, more than simply being a space where externalities are reflected, the environment is the "other" of the *logocentrism* of sciences: the unknown Real, the subjugated knowledge, and the "no knowledge", that accompanies social construction. Moreover, the concept of *environment* appears as a *productive potential* that opens up possibilities for the construction of other possible sustainable worlds (Leff, 2001). Thus, more than producing policies for internalizing ecological costs, it is possible to conceive *other sources and means of production* and *other lifeworlds* based on the ecological productivity and cultural creativity of the peoples of the earth (Leff, 1986, 1995, 2004, 2018).

This conceptual demarcation of the *environment* allows us to understand the "regional" character of political ecology. Blaikie and Brookfield define their research perspective as a "regional political ecology" whose aim is to analyze "different geographical and hierarchical scales of socioeconomic organization [...] environmental variabilities, spatial variations in resilience and sensitivity of the earth, where different demands for land take place at different times" (Blaikie and Brookfield, 1987:17). In this way, regional factors influence different geographical scales and ecosystemic resilience that determine the levels of degradation according to "demands" for land use. Thus, political ecology emerges from the impacts of the processes of techno-economic appropriation of various regions and from the resistance of social groups affected by them.

The type of political ecology that results from the concept of environment defined by the environmental rationality brings into play its exteriority and potential, namely, the knowledge of the peoples and the ecological potential of their lands to the reconstruction of their life territories. Geography and anthropology, from which Anglophone political ecology is derived, acquire an ontological purpose and become politically more "active" as they move from social resistance to the processes of degradation, toward the reconstruction of sustainable eco-cultural territories. In the environmental rationality conception, political ecology does not only relate to phenomena such as the economic asymmetries of the globalized world and the unequal distribution of economic benefits and environmental costs. Ecological distribution plays a positive role in the regions of the South when the negentropic productive potential (Leff, 2018)[vii] of tropical ecosystems and the cultural creativity of their people are adopted. Thus, political ecology can dramatically alter the reactive nature of the biopower strategies inscribed in economic, ecological and anthropological theories[viii] and move toward other ways of interpreting, appropriating and constructing sustainable lifeworlds.

The potential for thinking and putting into practice this productive ecological rationality is far greater in the tropical ecosystems and ethnic territories of the South which have the largest ecological productivity on earth and where creative cultural diversity is kept alive through the cosmovisions and traditional practices embedded in the ethno-ecological co-evolution of the biocultural heritage of its peoples (Boege, 2008). Deconstructing the capitalist rationality based on the ontological (geographical, ecolo-

gical and cultural) foundations of the environmental rationality, and the epistemological perspectives that consequently emerge, is one of the main criteria for distinguishing Northern from Southern political ecology from a Latin American environmental perspective (Leff, 2012).

In Latin American thought, political ecology is not only a field of research and social practices associated to socio-environmental conflicts and the unequal distribution of costs and benefits within the context of global change. Socio-environmental struggles lead to new ways of constructing diverse culturally and ecologically sustainable societies. The deconstruction of the ecological principles that have colonized the social sciences as a new *post-structuralist episteme* –the critique of the paradigms that ecologized the cultural order and agro-productive practices, based on the principle of biological adaptionism (Watts, 1983)– is one of the main lines that distinguish the development of Anglophone political ecology. By contrast, environmental rationality goes further and introduces new theoretical and social action strategies associated to the culture-nature relationship based on the ontology of life and the existential ontologies of the people (Leff, 2003, 2014).

The environmental crisis has led us to question the "exceptionalism" of the social sciences (Catton and Dunlap 1979, 1994) in isolation from nature's determinations and conditions on social actions. Thus, a new environmental sociology is born, inscribed within the emergent paradigms of the complex sciences that have driven the anti-essentialist and post-structural movement, hermeneutics and the deconstruction of the epistemological crisis of representation, opening the way to constructivism and post-modern thinking.

Today, the emancipation of the original and indigenous peoples, peasants and Afro-descents have resulted in the demand for rights to their ancestral territories and biocultural heritage. In face of the rational choice principles whose consequences are the so-called "tragedy of the commons" (Hardin, 1971), the privatization of territories rich in biodiversity and the commodification of nature (including environmental goods and services), issues such as the "customs in common" of "moral economies" (Thompson, 1971, 1991), "common property rights" (Orstrom, 1990) and "collective rights to the common goods of humanity" (Leff, 2014a) are now being recognized. The environmental rationality questions the legitimacy of the paradigms that underpin dominant economic and juridical rationalities. It recognizes "other" knowledges and wisdoms of various forms, as well as the effectiveness and significance of the traditional practices of peoples, the right to reinvent their cultural identities, build productive practices and form new ways of living in confrontation, resistance, hybridization and rexistence with/against modernity.

The epistemological emancipation of the peoples of the Earth

Indigenous peoples claim that their struggles are political and epistemic. They argue that environmental problems were epistemologically caused because of the hegemonic ways of understanding the world and, above all, the imposition of specific modes of production of knowledge and economic rationality objectified the world and colonized, marginalized and exterminated the knowledge and practices of other peoples. The result is the suppression of alternative ways of conceiving life and the closure of pathways for

constructing other forms of inhabiting the world. They also argue that emancipation is not possible without the deconstruction of the dominant forms of knowledge and the reconstruction, legitimation and establishment of other ways of understanding life and being-in-the-world.

Ecology becomes political through the power relations that alter the ecological dynamics derived from the generativity of *physis,* driving it towards the techno-economic transformation of nature. The political root of this historical process is both ontological and epistemological. It is ontological because it arises from the disjunction between the Real and the Symbolic, of the difference between Being and entities, that geared by metaphysical thinking, resulted in the separation between Nature and Culture in modern rationality, triggering a techno-economic power that exacerbates the entropic degradation of nature. It is epistemological because power is also inherent in the forms of global dominant knowledge based on the "normal" paradigms of science. It is forged in the Cartesian *cogito* and the *a priori* of reason that steer the production of knowledge that intervenes in the world and transforms nature. The potentialities of the Real are appropriated by techno-logies and rationalities that encounter the immanence of life, degrading the ecological potential and colonizing cultural organizations. Thus, modern epistemology frames the paradigms of knowledge that configure ontological regimes, which infringe people's lifeworlds and their existential ontologies.

The order of rationality developed in the course of the history of metaphysics is in conflict with the original ontology of life: the ontology of diversity, of difference and of complexity is denied by the rationality of the one, of unity, of identity and metaphysical universality. It is expressed in the oppression, subjugation, discrimination, marginalization and exclusion of other lifeworlds. Thus, processes for resisting the invasion of modernity in traditional lifeworlds are transformed into *rexistence* movements. They are the expression of other existential ontologies manifested in the political arena. The restoration of the ontology of life demands reflexive thinking. This is not simply a theoretical shift. It implies the cultural *en-living and re-appropriation of nature* that occurs in the political arena and in the strategic field of power. Socio-environmental struggles are the expression of the *will to the power of living* that, based on social imaginaries of sustainability, claim the rights of cultural beings to their autonomic modes of existence and their repositioning in the world in accordance to the principles and conditions of life (Leff, 2010, 2014).

Environmental justice is expressed in the right to reconstruct lifeworlds and plan possible futures, over and above the internalization of ecological costs and the distribution of nature's benefits and potentials. In this perspective, an essential ontological and anthropological question reemerges: how to interpret the real conditions for human life in the living planet we inhabit. Radical socio-environmental movements resist the economic-ecological colonization of modernity. They are not content to simply accept better ecological distribution, greater access to resources and a fairer distribution of the benefits of the capitalization of nature. In line with their existential ontologies, they demand not only the right to survive, but to "live well" –as expressed in the *sumak kawsai* and *suma qamaña* of the Quechua and Aymara Andean peoples– within the "meaning" of their cosmogonies, identities and cultural imaginaries (Huanacuni, 2010). These

emancipatory processes question the domination of capital over their lifeworlds and the capacity of the globalized economy to manage the sustainability of the planet. A radical question emerges: how to conceive the reconstruction of the world based on the cultural imaginaries of sustainability (Leff, 2010).

Strands and slopes in the regional geography of political ecology

It is within this perspective, that the conceptions of the South and Latin America in the field of political ecology are situated. Of course, both the Anglophone and the Latin American conception depart from the same understanding of the roots of political ecology, namely, the power relations that structure this field. They also drink from the same theoretical traditions, from Marx and Kropotkin to Thompson, Harvey, Deleuze and Foucault. They coincide on the challenges in deconstructing the webs of power to which the world is subjected that degrades the biosphere, contaminates the environment and endangers ecological sustainability and cultural diversity. In both conceptions, these phenomena lead to deforestation, soil erosion and the destruction of biodiversity in the planet, an increase in dispossession, deterritorialization of Third World peoples, as well as the exacerbation of poverty and social inequality worldwide. In general, political ecology research and case studies take place in the poor countries in the South (Watts, 1983; Blaikie and Brookfield, 1987; Robbins, 2008). Studies by Raymond Bryant (1992), among other authors, have focused on the Third World and political ecology has sought to distinguish between environmental movements from the North and the South (Redclift, 1987; Guha and Martínez Alier, 1997). In contrast to the motivations of the actors from the North, Southern political ecology academics focus on the processes that affect socio-environmental conditions and the movements that resist, defend and reconstruct their livelihoods and lifeworlds.

However, beyond political ecology's interest in the asymmetries between North and South, the socio-environmental impacts caused by the hegemonic power of globalization on the territories of the South, and despite the diversity of environmentalisms, theoretical sources, disciplinary origins and schools of thought that feed and form political ecology's diverse frameworks and programs, a basic question remains: ¿is there a clear regional division in the theoretical field? ¿Is it possible to classify theories, concepts and methods that allows us to establish regional typologies of environmental thought and delimit the theoretical frameworks and practical strategies of political ecology? Since its inception, Anglophone political ecology has been concerned with the effects of environmental changes on political relations.[ix] However, it is just as important –or even more– to analyze the effects of power in knowledge on environmental change.

There is no doubt that in each region discursive strategies are formed according to theoretical choices and the problematics that guide the different schools of analysis and drive social action. The Anglophone slope of political ecology has formed by deconstructing the biological, ecological and adaptionist approaches to the socio-environmental dynamics and their original sources in ecological anthropology, cultural geography and agrarian studies. By contrast, in Latin American political ecology, a particular conception

derives from the emancipation of the coloniality of knowledge, or from a more direct and straight connection with the ways the peoples, subject to the effects of power, interpret and resist domineering knowledge. It emerges from its closer proximity to the processes of ecological degradation and environmental conflicts, from belonging to this same history, culture and landscape; it springs from a disposition to open up a dialogue of knowledge with indigenous savoir and wisdom, to listen to the voices of the peoples that express the "cry of the earth" and the "voice of Pachamama", in order to weave the discursive web of political ecology (Boff, 1996b; Rivera Cusicanqui *et al.*, 2016).

While Anglophone political ecology considers the socio-environmental transformations of the Third World as critical topics and privileged objects of study, the political ecology of the South is inserted within these processes of emancipation. If the former manifests a discursive purpose of deconstructing the dominant rationality and conducting case studies on the expressions and manifestations of power in the socio-environmental processes of the South, Third World political ecology is a discursive amalgam between academic and political actors, between theoretical thought, participatory research and the imaginaries of the peoples in alliance with resistance movements and their emancipatory strategies (Guha, 1989; Guha & Gagdil, 1992; Arnold & Guha, 1995; Shiva, 1989; Escobar, Grueso & Rosero, 1998; Esteva and Prakash, 1998; Acosta, 2010; Quintero, 2014). Third World political ecology goes beyond the study and analysis of socio-environmental processes and conflicts or the sociology of resistance movements. It is historically, theoretically and politically committed to a sustainable future and other possible worlds.

Thus, political ecology acquires a *strategic and prospective purpose*. It ceases to be just a new discipline or a new interdisciplinary epistemic field. The transition towards sustainability comprises a process that deconstructs the rationality of modernity and constructs an environmental rationality that integrates cultural diversity with the evolving diversity of life and the environmental complexity of the world. Political ecology fosters the dialogue between different types of knowledge-*savoir* (understood as the encountering of diverse cultural beings formed by their own knowledge-*savoir*), where different ways of being-in-the-world confront each other or make alliances in the reintegration of nature and culture in the immanence of life (Leff, 2000, 2004). Political ecology of the South is built within a discursive web that facilitate the communication among different modes of being- in-the-world –between theoretical frames of understanding, social imaginaries and ways of living– of social actors. It is the coming together of ontologies and rationalities and of ways of reconstructing worlds and appropriating nature. It is the reinvention of identities and the different modes of people's *rexistance* hand-in-hand with nature's *reliving*. In this context, political ecology moves closer to questions put forward by *political ontology* (Blaser, 2009; Escobar, 2013).

Epistemic communities of different identities have developed from different emergent sources, strands and slopes of thinking that converge in the field of political ecology. Beyond the intention of establishing a universal paradigm and a new branch of science, political ecology is a way of understanding the socio-environmental movement, marked by the diversity of geographical and cultural contexts within which they are manifested. This does not mean that differences in intelligibility and approach to socio-

environmental processes have developed only as a reflection of geographical and cultural contexts. Diverse intellectual and academic environments, in different historical, political and cultural contexts, have played a significant role in the formation of perspectives of analysis, theoretical approaches and political strategies in Latin America.

Eric Wolf and Ángel Palerm's research on the ecological potential and agricultural systems of the Mesoamerican peoples (Wolf & Palerm, 1972), John Murra's analysis of the organization of geographical space and the ecological zones of the original peoples of Tawantinsuyu (Murra, 1956), the *Geography of Hunger* by Josué de Castro (1975) and the *indigenato* studies by Darcy Ribeiro (1973) opened new study areas for anthropological, ethnological, geographical, and agricultural analyses associated to the knowledge and practices of traditional cultures in the territories of the South. Dependency theories and internal colonialism theories (González Casanova, 1965; Stavenhagen, 1965), the eco-theology of liberation (Boff, 1996a), decolonialization and the ethics of liberation (Dussel, 1998; Quijano, 2000; Lander 2000; Mignolo, 2000, 2011; Mignolo & Escobar, 2009), as well as other theories and agroecological practices are all the result of a demand for *knowledge from the South* (Santos, 2008) and represent the emergence of *Latin American environmental thought* (Leff, 2012). From the perspective of the ecology of difference and territoriality conflicts they imprint their mark on the political ecology in Latin America (Leff, 2003, 2014).

Thus, the construction of the field of political ecology is open to diverse approaches and experiences of socio-environmental conflicts. It is open to "Southern environmentalism" and to "other knowledges". More than just the construction of an interdisciplinary paradigm, an academic exchange between North and South and an intercultural dialogue of knowledges, political ecology weaves its comprehension frameworks and research practices in a *dialogue between different types and codes of knowledge* bringing in the imaginaries and struggles of the indigenous, peasant and Afro-descendent populations, as well as the discursive practices and the political strategies of the protagonists and actors of political ecology in their struggles for the re-appropriation of their biocultural heritage and the construction of new life territories.

Regional political ecologies are more than just a mosaic or a map of diverse power relations occurring in different socio-ecological contexts. They are more than forms of analysis, negotiation tactics and strategies for resolving environmental conflicts. Political ecology is where rationalities, logics of meaning and political practices meet, where the will to power surfaces, expressing different, and often opposing meanings. It is a space for struggling against and resisting the territorialization of the hegemonic global order and the geopolitics of "sustainable development" (Leff, 2002) that invades and blocks alternative strategies for building sustainable worlds. This hegemonic sustainable development produces poverty, breaking the fragile equilibrium and the resilience of ecosystems as they seek to exterminate the traditional practices for living in harmony with nature, invented for centuries and millennia by the peoples of the earth. The accumulation and expansion of capital leads to processes of deterritorialization, imposing a "green economy" rationale in the form of the production of agrofuels, forest plantations, genetically modified crops, mineral extraction, shale gas and hydrocarbons through fracking. It is within the field of

political ecology that resistance movements to these processes, and movements for the emancipation of the peoples of the Earth unfold, reinventing collective identities and creating alternative strategies for appropriating their biocultural heritage and constructing a sustainable future.

The political ecology of the North and the winds from the South

Blaikie and Brookfield (1987) highlighted the *concept of (soil) degradation* as a fundamental topic for political ecology. However, the question of assessing environmental degradation has become not only relative, depending on different perspectives and interests; it is also becoming more complex in the theoretical understanding of the evermore complex processes and variables involved in the planet's ecological transformations. The criteria for balancing ecological costs and economic benefits has been superseded by the intensification of the processes interfering with nature. It goes beyond the discussion as to whether degradation is a question of subjective values or the effect of social processes, that is, the discussion between realist or constructivist intelligibility schemes of the ecological processes and socio-environmental conflicts. The discussion has shifted toward the ontological condition of nature so as to understand whether entropy is being driven by the cognitive interest of modern rationality and how economic processes and social practices enact the second law of thermodynamics, triggering the entropic degradation of the planet. Although environmental degradation is empirically observable (in air, water and soil pollution; in deforestation and climate change), understanding these processes requires conceptualizing the way in which social agency, inscribed in power relations, triggers processes of environmental degradation and how the effects of social rationality can be reconciled with the laws governing the behavior of nature.

Nicholas Georgescu-Roegen (1971) is here an important reference for political ecology. He demonstrated how economic processes trigger the entropic degradation of the planet. This is because of the effects of the economic appropriation of nature in enacting the second law of thermodynamics. The consequences for political ecology, political epistemology and environmental sociology are complex, as the relationship between economic processes, as a social agent, and the law of entropy is not simple, transparent, nor direct. Understanding how these entropic processes operate in the metabolism of the biosphere is fundamental to environmentalism's critique of the destructive effects of the dominant economic rationality and to open the way to constructing negentropic pathways to sustainability. Entropy used to be conceived as the limiting law of nature. Today, a new theoretical question on the construction of sustainability emerges, understood as a dialectics between the entropic and negentropic processes in the biosphere, within environmental rationality (Leff, 2004, 2014). This construction is both epistemological and political: it requires imagining other ways of understanding life, establishing sustainable means of production, instituting low entropy practices and building a negentropic social order based on the thermodynamic conditions of life (Schrödinger, 1944; Vernadsky, 1998; Prigogine, 1955, 1981; Prigogine & Nicolis, 1977; Prigogine & Stengers, 1984; Schneider & Sagan, 2005).

Political ecology emerges closely associated to peasant societies, the agrarian question and rural studies. It is in the rural space that environmental issues become radicalized as territorial conflicts, where the dispute for the means and rights of appropriating nature takes place. Though currently, these processes also encompass the oceans, the atmosphere and cities, conflicts are more acute in rural areas, where there is a potential for constructing new negentropic means of production and lifelihoods, based on ecological productivity and cultural creativity. If rural areas were the stage for the agrarian revolutions of the 20th century struggles for land, today, they are the arena for processes for re-appropriating and reconstructing life territories. In addition to the struggles for land, the management of agrarian systems, land distribution policies for developing agrarian subsistence economies and traditional ways of life, it is in the realm of political ecology that struggles take place between capitalist deterritorialization and cultural re--territorialization and reappropriation of nature that could result in the construction of sustainable alternatives and negentropic life territories.

Political ecology thus, revolutionizes the traditional disciplines that study the agrarian question (Chayanov, Kautsky), reconceiving the reconstruction of rural areas on new ontological bases. The agro-ecological struggles for cultural autonomy and territorial rights are high on the Latin American political ecology agenda. The implementation of these practices could lead to new possibilities for constructing local sustainable economies, based on ecological productivity and the cultural creativity of its peoples and result in a global sustainable economy founded on the negentropic potentials of an ecological organization of the biosphere (Leff, 1995).

Robbins (2012) argues that *ecological distribution* is an important concept for contesting all geographical naturality and incorporating ecological factors into the economic rules of wealth distribution. Political ecology emerges from the interaction and integration of concepts with ecological economics. Thus, the notion of "ecological distribution" expresses

> the unequal distribution of ecological costs and their effects in a variety of ecological movements, including movements that resist neoliberal politics [and movements] for compensating ecological damages and environmental justice [... expresses] the asymmetries or social, spatial and temporal inequalities in human use, whether commercial or not, of environmental resources and services, and in the decline in natural resources (including a loss in biodiversity) and [increased] contamination loads (Martínez-Alier, 1995).

Ecological distribution addresses issues relating to the unequal sharing of the environmental costs and ecological benefits - the so-called "economic externalities" - that cannot be measured in market values and appear as new entities to be internalized by economic instruments and ecological norms. Ecological distribution also leads to the emergence of social movements against ecological damage and to struggles for the social appropriation of nature. Thus, it refers to the conflicts of power that interfere in social strategies for survival. It relates to sustainable production alternatives and the struggles for the social

appropriation of nature. It addresses the distribution of costs and damages of the different forms of ecological destruction and environmental contamination. Ecological distribution encompasses criteria and values that are beyond economic rationality, question the aim of reducing values to financial costs and market prices, mobilizing social actors to defend their own material and symbolic interests --identity, autonomy, territory, quality of life and livelihoods-- that transcend the economic demands for land, means of production, employment, income distribution and development.

Ecological distribution leads to consider the way in which economic rationality and a colonial desire for control have deterritorialized cultures and are altering the ecological distribution of the planet. These are the outcomes of the capitalization/commodification and appropriation of nature, serving the growing demands of capital and the geopolitics of sustainable development: changing the climate, causing deforestation of the biosphere, eroding territories of biodiversity, overexploiting water sources and aquifers and exhausting the resources of the subsoil. Moreover, unequal exchange promotes the transfer of resources from the poor (though rich in nature) countries of the South to the countries of the North, transforming the dynamics and reducing the ecological potential of Southern territories on an unprecedented scale.

Emblematic examples of the barbarism of capital in the era of "ecological" destruction are health risks, biodiversity erosion and socio-environmental impacts caused by phenomena such as extractivist mining, genetically modified crops, forest plantations and agrofuels (Houtart, 2010). The South's answer to the ecological distribution induced by the geopolitics of sustainable development is a politics of difference, the construction of means of production and lifeworlds based on the conditions of life: on ecological potentials and cultural creativity.

In this way, political ecology confronts alternative strategies for constructing sustainability. Within the framework of post-structuralist theory, Peet and Watts (1993) analyzed the makeup of the field of political ecology in terms of a "dialectical collusion" and the subjugation of otherness in universal and totalitarian Eurocentric discourses, opening a discussion on the discursive power relations between hegemonic and dominated regions. This criticism not only leads to the regionalization of political ecology, but to the radicalization of a politics of difference and otherness, where different rationalities converge, resulting in a critique of the hegemonic power of discourses in the field of political ecology itself, highlighting that:

> The connections between rationality, truth, discourse and the global system of power relations led post-structural discourse theory in interesting directions [...] One, is the idea that regional discursive traditions are capable of capturing even oppositional modes of thought, so that the dialectic, perhaps the main logic of critical thinking, may be exposed as Eurocentric [...] the argument is that Hegelian-Marxist dialectics [...] expresses a self-searching for power over that which is the "other" [...] Marxism's universalizing narrative of the unfolding of a rational system of world history is seen as a negative form of the history of European imperialism and hence a conceptual system that

> remains collusively Eurocentric. Thus, poststructuralist-postmodern thinkers distrust "totalizing" systems of knowledge. They emphasize the singular and the contingent and seek a knowledge that respects the other without absorbing it [...] A second theme of particularly geographic interest involves the expansion of the social production of regional discourse, through reflection on the other to a critique of discursive relations between hegemonic and dominated regions (Peet & Watts, 1993: 229).

Thus, Peet and Watts present a crucial problem for political ecology: the deconstruction of the universal theoretical discourses from the perspective of an irreducible otherness and the task of putting into practice a politics of difference in which conflicts are not resolved within the framework of the hegemonic economic rationality. This perspective introduces the possibility of understanding the root of the problems and conflicts that emerge due to a lack of understanding of the principle of otherness in the dispute between theoretical-axiological meanings in the construction of sustainability, such as the imposition of the economic rationality (market logic and environmental management economic mechanisms) in environmental and sustainable development policies, and economic compensation for ecological damages. At the same time, within this point of view, political ecology is associated to the construction of a sustainable world based on a political ethics of otherness.

Thus, political ecology becomes the arena where social construction can occur by bringing together various modes of understanding the world that confront each other and are intertwined through discursive strategies. Here, the subaltern populations of the Third World develop "semiotic resistance" strategies so they can continue to "have control over the meaning of their lives". This leads to a new turn in poststructuralist political ecology: "to relate structural theories of global transformation to the 'subjective mapping of experience'" (Escobar, 1992). "Instead of talking on behalf of subaltern populations, help them to unravel resistance discourses [...] and allow discourses to speak for themselves" (Peet & Watts: 1993: 247).

The democratization of the environmental question marked a shift in the political ecology discourse toward theory and praxis of *political ontology*. This new scheme radicalizes political ecology, which ceases to be a discourse *about* the other, to become a dialog between different beings and their constitutional knowledge, between techno-economic and environmental rationality, between postmodern theory and the emancipatory struggles of the peoples of the earth. The environmental question ceases to be a critique by political ecology of the adaptionist theories in geography and cultural ecology and of environmental distribution conflicts and the unequal access to resources. Political ecology becomes radicalized and ceases to be just the analysis of discursive strategies of resistance. It positions itself in the field of sociology of emancipation: of the *rexistance* of subaltern populations and of strategies for re-identification and the social re-appropriation of nature. It is not restricted to conflicts solved within the discursive means and by economic and legal instruments of power. It does not only open a wider range of "development styles", or introduces a policy of structural adjustments of traditional practices to a framework of

a new ecologized economy and green economy strategies. Political ecology goes beyond the resistance strategies employed by the original peoples in the last 500 years to foil attempts to take over their territories and conserve the identity of their ways of being and traditional practices (i.e. their "milpas" and subsistence family orchards in face of the appropriation by large colonial estates and capitalist commercial crops and, today, genetically modified plantations).

The shift of political ecology toward political ontology is a field of forces crossed by high voltage lines made up of different and opposing ways of constructing the world. It is cut by distinct processes of territorialization of the ways of being-in-the-world, of producing and existing within nature, in face of the geographical, thermodynamic and ecological potentialities and limits of the planet, resisted and built upon human, environmental and cultural rights. Political ontology cannot be reduced to a politics of cultural difference. It introduces the existential ontologies of the peoples intertwined in the environmental conditions of their territories. That is, the cultural meanings associated with the ecological potential and geographical conditions to reconstruct their sustainable ways of living.

The right to appropriate and transform territories bring into play power strategies imbedded in the development and environmental justice discourses that do not dissolve under any knowledge, methods, logics or ethics in common for resolving human, cultural and environmental conflicts. Political ontology introduces an issue that cannot be resolved within the framework of representative democracy, nor even deliberative democracy. It is not only a question of allowing all voices to be heard. It is essential to practice environmental democracy, the right to inhabit the world through different cultural rationalities and territorial conditions. It summons the construction of a world where many other worlds can fit in, in the saying of the Zapatista movement. It is a world-to-be, constructed in the peaceful interaction and cohabitation between different lifeworlds, in a planet subjected to natural laws that establish limits, but opened to the negentropoic potential of the biosphere and the creativity of cultural diversity.

In this way, political ecology not only questions the economic and ecological paradigms that monopolize the understanding of socio-environmental processes and conflicts, but conducts an epistemological vigilance and imposes the ethical principle of cohabitation in otherness (Levinas, 1977/1997, 1999) on power relations of knowledge (Foucault, 1980) across the socio-environmental field. It not only summons us to overcome the Hegelian-Marxist dialectic framework and the idea of developing a new (ecological) dialectics of nature (Bookchin, 1990) as the basis for the practice and actions of political ecology (Leff, 1998). Political ontology challenges us to construct a juridical and legal rationality capable of resolving conflicts between different "logics of meaning" (Deleuze, 1969), superseding the logic of communicative action (Habermas, 1984, 1987) that aims to reach consensus through rational argument, recognizing the legitimacy of distinct social cognitions and values, but seeking to settle differences within a "basic framework" through the ability to reason over and above existing interests and different existential ontologies.

A few examples are enough to reveal the challenges faced by a politics of difference when dealing with the territorial conflicts and cultural rights put forward by the environmental question and the incapacity of communicative rationality to settle these

conflicts: the dialog between the Zapatista National Liberation Army and the Mexican government were not resolved through legal procedures imposed by the State. The conflict between the rights of ownership and reconstruction of indigenous territories and the re-appropriation of their biocultural heritage vis-à-vis the rights of companies and the State cannot be resolved by economic distribution. Finally, ecological damage cannot be solved through financial compensations. The principle of environmental justice is not only challenged by the impossibility of equating the desire for ownership of different social groups into a common logic, but also by the forced cohabitation, within a single planet, of different logics of meaning and sustainability strategies. Political ecology is the arena for the meeting of distinct rationalities and the dialog between different knowledges-*savoirs*, of ways of comprehension of the world and of being-in-the-world under the conditions of life. It should be understood as the exercise of living in an ontology of diversity, a politics of difference and an ethics of otherness that transcends a dialectics of opposites and calls for the deconstruction and the reconstruction of the economic and juridical rationality order of modernity (Leff, 2001, 2004, 2006, 2012).

Raymond Bryant (1992) has emphasized the focus of political ecology in the conflict for access to resources. However, territorial conflicts are not just conflicts for the rights and conditions of access to resources. They also involve struggles associated to the impacts caused by the imposition of ecologically inappropriate and culturally alien models to local peoples. They are conflicts between the different modes of appropriating and transforming nature. Conflicts of access become conflicts of the modes of territorialization and construction of sustainability, involving accumulation by dispossession, capitalization of nature, impacts on ecosystems, displacement and marginalization of populations, environmental costs, damages and risks. Thus, the field of political ecology is defined in terms of power struggles, that occur not only in present socio-political conflicts –including movements of resistance and negotiation–, but of power strategies that will gear a transition toward a sustainable future, bringing together different visions-interests-rationalities.

Capitalist accumulation has spread across the planet conquering and colonizing territories, marginalizing and excluding communities, de-territorializing people from ecosystems and de-traditionalizing their cultures. It has also generated processes of resistance and survival in which political ecology has left its mark in environmental history. Today, accumulation by dispossession (Harvey, 2003) has swept through the geopolitics of "sustainable development" (Leff, 2002), transforming and degrading territories for the expansion of mining, the implementation of genetically modified crops and the production of agrofuels. Mega infrastructure projects implemented to allow the free flow of commodities have also caused ecological and cultural impacts, fostering a number of resistance movements in defense of ancestral and biodiversity territories.[x] These phenomena are not only instigated by corporate, national and transnational capital with the agreement of liberal or progressive governments, but directly by the policies of the neoliberal State.[xi] These movements are no longer simply resistance, but *resistance* movements, a term coined by Carlos Walter Porto Gonçalves (2002). They are processes in which the peoples of the earth reinvent their identities and their conservationist modes of production in line with the sustainable productivity of ecosystems, their own cultural values, their meaning of

and purpose for life. The rubber tapper movement in the Brazilian Amazon is emblematic in terms of the invention of their extractive reserves (Porto Gonçalves, 2001). Another example is the Black Community Process in the Colombian Pacific (Escobar, 2008).

Capitalist dispossession and de-traditionalization is being resisted by processes of re-territorialization, re-identification and re-appropriation of peoples' biocultural heritage. If in the first stage of accumulation capital expanded by colonizing the minds of the original peoples through the actions of missionaires who subjected these peoples' consciences to the design of their God; if they were dehumanized, deprived of their knowledge to be converted into labor force to produce economic value, in an era that lasted to post-industrial times, today these peoples and their lands are de-territorialized so they can operate within the logic and interest of the geopolitics of "sustainable development". In response, these populations exercise their rights of being, repositioning themselves in the world in face of the global changes engendered by the market logic and the rationality of modernity. They do so through another social rationality, based on their cultural identity and in a conflicting and solidary reinvention of their knowledge, practices, imaginaries and rationalities, re-opening the fate of humanity to a sustainable future, leading to the political repositioning of the peoples of the Earth in the reconstruction of their life territories.

From this perspective, Latin American political ecology emerges as distinct from European and Anglo-American sociology. Latin American environmental thought feeds on selected sources of sociological and philosophical theories to bring critical thinking to their life territories that reemerge from their diverse cultural roots to hybridize "universal" thought with the imaginaries that sprout from other geographies –from the ecological and cultural conditions of Latin America–, with its political theories and its traditional knowledges. Through this process of deconstruction, hybridization and reterritorialization of knowledge, theories and practices, political ecology opens new perspectives for the reconstruction of a sustainable world.

By recognizing in the original *physis* the sources and conditions of life, an ontology of diversity opens the way to the politics of difference and the ethics of otherness that sustain an environmental rationality. In a world order where the hegemonic power of the rationality of modernity dominates and exterminates difference, political ontology territorializes the principles of post-modern thinking dialoguing with the imaginaries of traditional cultures; socio-environmental movements erupt from the Heraclitean fire of life and the bosom of Mother Earth, opening new pathways to build a sustainable world. Political ecology transcends theoretical regionalisms not only to become hybridized with other disciplines and generate a holistic vision of the complexity of the globalized and ecologized social world. It aims to redefine-reterritorialize the knowledge that derives from other sources of thinking, social conditions and environmental contexts, as well as other political interests to weave a new epistemic web of political ecology in its different ecological-cultural contexts.

Thus, the indigenous struggles for identity and land not only demand the right of existence of different cultures. The claim for autonomy and the demand for territories to maintain alive the existence of cultural beings transcends the proposals for a cosmopolitanism that tolerates racial and cultural differences while imposing its own hegemonic

power in the construction a world driven by the unity of the market and the supremacy of techno-economic rationality. In the field of political ecology, different rationalities confront each other. The rationality that drives the modernization of the world as a process involving de-traditionalization and progress toward the entropization of the planet is faced with the emancipation of life: of the construction of a negentropic world order founded on cultural diversity in the encounter of tradition and modernity. Political ecology is the process of social reconstruction in which the ontology of life diversification becomes territorialized in different lifeworlds through a politics of difference and an ethics of otherness. This vision embraces a creative dialog between the regional political ecologies of the world, encountered by their power strategies in knowledge.

Notes

i   Deconstruction designates the critical purpose of post-modern philosophy to dis-cover or unravel the conceptual framework and the social effects of metaphysical thought. One of these cores consists of the whole set of binary oppositions (object-subject; reason-intuition; nature-culture) established by the Cartesian division between *res cotigans* and *res extensa* that affect the way we talk and write and understand sexual, racial and social differences. This controversy is not solved by the demand to establish ontological monism (Bookchin, 1990/1996; for a critique, see Leff, 1998) brought in to dissolve the radical difference between the Real and the Symbolic, from where the human condition emerges in the order of Life. Deconstruction is the task of questioning metaphysics. The deconstructionist perspective in political ecology allows us to analyze the pathways which, through the history of metaphysical thinking, have led to the formation of frames of thought and theoretical paradigms, legitimized by the dominant rules of science, establishing hegemonic ways of understanding the world and determining the approaches for intervening in nature. In this context, theoretical deconstruction in political ecology is called upon to unravel and reveal the strategies of power in knowledge (Foucault, 1980) that are intertwined with the logic and rhetoric of the discursive development of the scientific disciplines from which political ecology wants to distinguish itself to establish its own disciplinary identity and political objectives with a study program on the power relations that permeate the socio-environmental field.

ii   In this text, I adopt the concept of *field*, both in the epistemic field of political ecology and in the more general field of socio-environmental struggles and conflicts, as well as in relation to the behaviors and practices of social actors as expressed by Pierre Bourdieu (Bourdieu & Wacquant, 1992).

iii   This is the object of my book *La apuesta por la vida* (Leff, 2014).

iv   The dialogue between political ecology and sociology of knowledge is essential for establishing differences, convergences and affinities in the approach to the objects of study, between causal or comprehensive, realist and constructivist frames, within the different schemes of intelligibility of the social processes that drive the dynamics, transformations and degradation of nature. An example is the study of these processes as social rationalities, as in Max Weber's (1922) comprehensive sociology that "reveals the development of a given phenomenon based on a conflictive behavioral game between actors driven by different rationalities [...] - from the global to the individual level and from causal laws to the logic of action" (Berthelot: 1998: 33). The political ecology approach emerges precisely from this framework founded on an environmental rationality (Leff 2004). The constructivist debate in the field of political ecology cannot be resolved as an epistemological attempt to discover how far and by which means nature is socially constructed. Constructivism becomes political by the fact that construction/deconstruction of nature is the result of the conflicts between social imaginaries, interests, beliefs and practices invested in nature, the environment and sustainability; by discursive strategies and the confrontation between capitalist and environmental rationalities in the appropriation of nature (Leff, 2014).

v   The distinction between political ecology, deep ecology and radical ecology is not only rooted in their different epistemological perspectives of the analysis of social conflicts and power strategies that occur in the fields of ecological distribution, social inequality and sustainability, but also in political ecology's ontological and ethical commitment to resolve these conflicts. While social ecology and eco-feminism seek emancipation by suppressing the dualities that generate and underpin oppression and by freeing up the potential subdued by the dualisms of modern patriarchal and social power structures, political ecology is deeply rooted in the ontology of the difference between the Real and the Symbolic and in the sexual difference revealed in the hierarchical dualisms and socio-environmental conflicts. Political ecology sees emancipation not as the elimination of ontological difference, but as the construction of an environmental rationality that

embraces these differences. Emancipation is not transcendence via ontological dialectics, subjective intentionality, nor the reflexive restoration of modernity. It is the re-identification, the repositioning of a being-in-the world. The construction of a sustainable world does not transcend sexual division, nor does it dissolve ontological differences, that is, the difference between the Real and the Symbolic. It requires a re-identification within the environmental complexity of the actual state of the world, deconstructing the dominant rationality and constructing a new environmental rationality (Leff, 2000, 2014).

vi   Kropotkin (1902/2005) is considered by some authors as a precursor of political ecology because he argued, against social Darwinism, that rather than competence or skills, cooperation and mutual aid are essential for evolution and are the basis of survival.

vii   I adopt Schrödinger's (1944) concept of negative entropy as the principle of the origin of life that transforms solar energy into biochemical energy via photosynthesis. Political ecology faces the challenge of extending this thermodynamic process to an interpretation of the social order based on the immanence of life: The ecosystemic productivity of the biosphere and cultural interactions with nature (Descola, 1996, 2005). Thus, political ecology can encompass the power strategies adopted in its historical dialectics, the social rationalities that direct the flows of matter and energy either to increase the entropic degradation of the planet or to creatively build negentropic societies.

viii   Michael Watts argues that Foucault's theory of biopower questions hegemonic concepts such as adaptation, security, risk management and resilience that organize life in accordance with the dominant neoliberal governance regime (Watts, 2015).

ix   "By encompassing both the historical and the contemporary dynamics of conflict, this area of investigation illustrates how those 'with no' power fight to protect the environmental foundations of their ways of life. The latter part of this investigation considers the political ramifications of environmental change. Addressing questions related to the impact of socioeconomic and political processes, this element of the reference framework focuses on an area of human interaction with the environment that is often forgotten: the significant effects of environmental change in socioeconomic and political relations" (Bryant, 1992:14).

x   The recent TIPNIS (Indigenous Territory of the Isiboro Securé National Park) case, in Bolivia, is an emblematic case. The conflict was caused by the State's interest in building a road across indigenous territory to promote the economic development of the region against the right of the indigenous people to their territory of biodiversity. This is an example of the confrontation between expansionist developmentism and the emergence of new regimes of ecological conservation and cultural re-appropriation of nature (Porto Gonçalves & Betancourt, 2013).

xi   Secondary legislation established by the recent energy reform in Mexico adopted, in Article 91 of the Hydrocarbons Law, the legal status of "expropriation by the Mexican State for social interest and public order purposes", in which the exploitation and exploration of hydrocarbons is a priority.

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POWER-KNOWLEDGE RELATIONS IN THE FIELD OF POLITICAL ECOLOGY

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Abstract: The current environmental crisis calls for thinking about the state of the world: the thermodynamic-ecological and symbolic-cultural conditions of organic and human life on the planet. In this regard, it stresses the need to realize the unawareness and life's unsustainability that humanity has created.

In this text I discuss and take a stand about some of the concepts and founding and constitutive research lines of political ecology. In this way I pretend to open dialogue by placing in context some of the principles, ideas, and founding viewpoints of political ecology in Latin America and contrasting them with those from the English-speaking school of thought. I intend not only to establish a political socio-geography, but to question the epistemic core of political ecology, and to stimulate a more cosmopolitan critical thinking in order to be able to face the hegemonic powers that lead the world into social and environmental decay

Resumen: La crisis ambiental llama a pensar el estado del mundo: las condiciones termodinámico- ecológicas y simbólico-culturales de la vida orgánica y humana en el planeta. En este sentido, coloca la necesidad de pensar sobre el desconocimiento y la insustentabilidad de la vida que inadvertidamente ha producido la humanidad.

En este texto problematizo y radicalizo sobre algunos de los conceptos y líneas de indagación fundantes y constitutivas del campo de la ecología política. Pretendo así abrir un diálogo contextualizado sobre algunos de los principios, ideas y propuestas fundamentales de la ecología política desde territorios latinoamericanos contrastándolas con los aportes de la ecología política anglófona. Busco no solo establecer una socio-geo-grafía política de los conflictos ambientales, a cuestionar el núcleo epistémico de la ecología política y a estimular una reflexión más cosmopolita y crítica para enfrentar los poderes hegemónicos que conducen al mundo hacia la degradación socio-ambiental del planeta.

Resumo: A crise ambiental demanda refletir sobre o estado do mundo: as condições termodinámico- ecológicas e simbólico-culturais da vida orgánica e humana no planeta. E isto coloca a necessidade de pensar sobre o desconhecimento e a insustentabilidade a vida que inadvertidamente produziu a humanidade.

En este texto problematizo e radicalizo em torno de alguns conceitos e questionamentos em torno de aspectos fundantes e constitutivos da ecologia politica desde territorios latino-americanos, contrastando-as com as contribuicões da ecología política anglófona. Procuro nao apenas establecer una socio-geo-grafía política dos conflitos ambientais, e questionar o núcleo epistémico da ecologia política e estimular uma reflexao mais cosmopolita e crítica para enfrentar os poderes hegemônicos que tem conduzido o mundo a degradação socioambiental do planeta.