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## **SOCIO-ECOLOGICAL AGENCY**

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# Socio-ecological agency

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## **Introduction**

With the advent of global environmental change sociology is urged to not only acknowledge the environment, but also re-examine its own conceptual constructs with regards to socio-ecological dynamics. In this chapter, we reformulate the concept of agency in the light of the overwhelming influence that human beings are currently exerting over Earth's dynamics. We introduce the notion of socio-ecological agency as a new understanding of what it means to be a human in this “global change era”. Socio-ecological agency does not shift the locus of agency away from human beings. It is still, so to speak, enacted within individual persons. However, it emphasizes the fact that agency rarely takes place as an isolated process, as well as the necessity to consider not only people's ongoing interaction with social structures, but also with life support structures. This is consistent with Latour's recognition that “we are never alone in carrying a course of action” (Latour, 2005). Yet, it departs from the flat ontology implied in actor-network theory, through which the embodied human consciousness levels with the whole universe of acting and interacting entities (Mutch, 2002). That is, socio-ecological agency characterizes humans as ecological actors, social actors, and individuals at the same time.

One of the main tasks of environmental sociology is to re-evaluate the dualisms of nature-society and realism-constructivism that have been prevalent in sociological research. Catton and Dunlap (1978:45) were amongst the first to warn us about the dangers of the so-called “human exceptionalism paradigm” and its pervasiveness within sociology. These authors advocated a new ecological paradigm for sociology that would recognize human-ecosystem interdependence. Unfortunately, regardless of numerous attempts at formulating concepts, formalism, and approaches addressing the complex interactive character of social and environmental processes, the emergence of a robust ecological paradigm for sociology is still in the making. The most promising attempts so far are the concepts of “conjoint constitution” (Freudenburg et al., 1995), and co-evolution (Woodgate and Redclift, 1998). These are clearly useful formalisms for understanding environmental problems as both real and knowable physical phenomena brought about by particular practices, which in turn generate material and social consequences for societies themselves. They disclose the limitations of one of the main traits of the modernist project, namely the inclination to slice up reality into ever smaller pieces. However, they have so far fallen short of scrutinizing other pillars of the modernist agenda such as assumptions about progress, nature, or human agency. These assumptions dwell at the heart of modern society and are part of the roots of global environmental change. In particular the notion of analytically autonomous modern agents is crucial for populating the institutional sectors of modern social life: the administrative-bureaucratic state, the capitalist economy, and civil society (Emirbayer and Mische, 1998).

We argue that reformulating the assumptions regarding human agency in the light of global environmental change has deep implications for both sociology, and society at large. The “human exceptionalism paradigm” is not only the product of sociologists’ biases and myths. It responds to the predominance of a worldview through which the biophysical aspects of human existence tend to be perceived as threats and manageable inconveniences, or idealized through pristine notions of nature (Manuel-Navarrete et al., 2006). It is part of well-established cultural paradigms of nature as benign, ephemeral, capricious, or perverse/tolerant (Thompson et al., 1990). These worldviews and paradigms have shaped conventional understandings of human agency, in which ecosystems are caricaturized as inhospitable and dangerous places, or commoditized as spaces for controlled recreational activities that take us away from our every day realities of intense socialization. Autonomous human agents perceive modernity as freeing them from exposure to “capricious” environmental contingencies, while setting out of sight gruesome realities such as, for

instance, the slaughtering of other animals for meat production. Humans have always been, and will ever be, organically embodied, and socio-ecologically embedded. However, during the last centuries a significant part of the world's population has focused its full attention on socialization. We have downplayed the importance of the, unavoidable, material dimensions of reality and handed them over to science and technology. The paradox is that this disregard has been accompanied by unprecedented levels of consumption of commoditized material goods. As suggested by Woodgate and Redclift (1998:12):

“[A]s economy, society and social constructions of nature become more complex, we lose sight of, and our affinity with, the external world. This suggests that culture might have as much to do with isolation from external change agents as it has with adaptation to local conditions”

In the extreme, one may argue that we are even deemphasizing the material reality of our own death; for instance, downplaying the fact of its inevitability through medical improvements, anti-age products, and all sorts of social and cultural distractions from its inevitability. In such socio-cultural context, it is not surprising that sociology too was tempted to deemphasize materiality.

As the current global environmental crisis is reminding us, ignoring materiality has limits as well as unexpected consequences. Hence, environmental sociologist's warnings and concerns are utterly valid. My argument, however, is that they will fall dramatically short, and may not significantly influence society at large, unless they radically reformulate the assumptions underlying Western science and society regarding agency, and its role in human-nature relations. Arguably, failing to undergo this radical turn may stall the efforts of environmental sociology and confine them to an immaterial disciplinary corner; while society at large will continue pretending to dwell on a dualistic and dematerialized social world. In contrast, this radical turn may enable sociology to articulate attractive existential narratives that emphasize new meaningful forms of connecting with socio-ecological realities. Such existential narratives should be capable of informing and enticing new forms of living and socializing. They should bring the connections between consciousness and materiality back into culture. To put it more allegorically, they may raise the awareness of our wholeness, and that we humans already are this wholeness: that we are born into it but have been socialized through modernity out of our awareness of it.

The next section reviews two of the most successful concepts offered so far by environmental sociology to transcend the human-nature dichotomy: “conjoint constitution”, and “co-evolution”. We build on these frameworks to develop the notion of socio-ecological agency.

### **Conjoint constitution**

The notion of conjoint constitution was proposed by Freudenburg, Frickel, and Gramling (1995) to highlight that what is often taken as the separable social and physical aspects of a situation are in fact at each stage conjointly constituted and connected with one another. These authors identified four approaches through which society-environment relationships have been addressed within environmental sociology: (1) analytic separation; (2) analytic primacy; (3) dualistic balance; and (4) conjoint constitution. The first three maintain a neat distinction between the physical and the social dimensions of reality. Only in the fourth approach is this dualism challenged through the view that physical facts are significantly shaped by social construction, while at the same time social phenomena are shaped by stimuli and constraints from the biophysical world. Thus, attempting to allocate parts of reality into "social" and "physical" categories may have the potential to contribute as much to confusion as to understanding. Reality is perhaps best understood not in terms of these distinctions, but in terms of their fundamental interconnectedness:

“The relevant challenge is thus not to explore the extent to which one set of factors or the other can be ignored or forgotten, but instead to understand the extent to which each can become a taken-for-granted part of the other-and to realize that it is the taken-for-grantedness itself [...] that can lead to ill-advised assumptions about what appear to be ‘natural’ physical conditions or ‘strictly social’ factors” (Freudenburg et al. 1995:372)

Conjoint constitution has an indisputable value for advancing environmental sociology in epistemological terms. Its recognition that the social is inherent in what is usually seen as the physical, just as the physical is often integral to what is perceived as the social is a positive step in the direction of overcoming the “human exceptionalism” mirage. The recognition of “mutual contingency” raises sociologists’ attention to the risk of ignoring or overlooking important aspects of a situation, and thus developing “unrealistically constrained analyses of socially significant questions and problems” (Freudenburg et al. 1995:388). However, conjoint constitution does not address the implications for society at large of challenging the

human-nature dualism. It promotes reflexivity and the betterment of the “academic mind” (Freudenburg et al., 1996), but misses the opportunity of challenging some of the most deeply entrenched assumptions of modern societies which quite unnoticeably situate individual experience into dichotomous space. Through conjoint constitution sociology might be better epistemologically equipped for carrying out its modernist task of grasping reality, but will fall short of challenging the modernist assumptions that are at the origin of the present global environmental crisis.

### **Coevolutionary frameworks**

The present popularity of coevolutionary concepts for describing the reciprocal influence between humans and their environment is fairly owed to Norgaard’s (1981, 1994) work, which was possibly inspired by Boulding’s (1978) notions of ecodynamics, integrative systems, and the evolutionary interpretation of history. Presently, there is a rapidly growing literature within ecological economics, and other fields, about the coevolutionary character of the relationships between values, knowledge, organization, technology and the environment (Norgaard, 1997). Within this emerging literature coevolution is often presented as a set of framing concepts (e.g., variation, selection, adaptation) that can explain change across interacting systems (Kallis, 2007). Some authors, however, are starting to draw on evolutionary theory in order to develop an overarching framework, or coevolutionary theory, for understanding both natural and social evolution (Winder et al., 2005; Gual and Norgaard, 2008; Hodgson, 2008). The main challenge for this endeavour is finding to what extent the “logical structure of evolution” is equivalent between social and biological phenomena (Farrell, 2007). It is beyond the scope of this chapter to review this body of work. However, from the point of view of environmental sociology, it is worth noting that they are marked by a deep structuralist bias that assumes a rigid causal determinism in social life. The contribution of sociology to this coevolutionary debate has been so far surprisingly meagre. It seems reasonable to think that environmental sociologists have a unique opportunity to transcend the structuralist bias of coevolution. To do so, they should bring to the fore of the debate the universe of meanings, creativity, and bewilderment that characterize cognitive systems and human agency. Sociology has been relatively active in resisting unproblematic uses of structure (for instance Giddens (1979)). As expressed by Sewell (1992:2):

“What tends to get lost in the language of structure is the efficacy of human action - or ‘agency’ [...]. A social science trapped in an unexamined metaphor of structure tends to reduce actors to cleverly programmed automatons. A second and closely related problem with the notion of structure is that it makes dealing with change awkward. The metaphor of structure implies stability. For this reason, structural language lends itself readily to explanations of how social life is shaped into consistent patterns, but not to explanations of how these patterns change over time”

In the following sections we discuss the potential of introducing the notion of socio-ecological agency to build narratives describing the patterns of coevolution in the context of global environmental change. One of the most significant attempts at outlining a structuralist/constructionist coevolutionary framework can be found in Woodgate and Redclift’s (1998), although unfortunately it has not produced much in the way of academic progeny. These authors draw on metaphors from systems ecology, and evolutionary ecology to explore ecosystems’ transformations by human agency, and viceversa. They propose the incorporation of an actor-oriented analysis within the coevolutionary framework. Their goal is to compare the meanings and values that are attached to social and environmental phenomena by different individuals. This understanding of structure reflects Giddens’ (1979) concept of “duality of structure”, indicating that structure arises out of agency as well as providing its context (Woodgate and Redclift, 1998). The link between agency and socio-ecological structures is established by acknowledging that the links between individuals and institutions condition the natural, economic, and policy structures, which in turn provide the backdrop to social action, and influence both the development of social choices and the environmental possibilities and constraints. Human agency is conceptualized within this framework as the ways in which different social actors manage and interpret their surrounding environment (in a broad sense). Accordingly, individuals’ interpretations and socially generated symbols do not need to be analyzed in separation from the material conditions in which they are constructed:

“The social spaces or life-worlds created and experienced by each of these different actors are characterized by specific sets of material and symbolic social relations, which define their structures, and can be located in terms of time-space boundaries” (Woodgate and Redclift, 1998:15)

Interestingly, after including self-reflexive human agents within the structuralist equation, these authors reach the conclusion that modernity is leading humanity towards a “co-evolutionary *cul-de-sac*” due to the increasing dissociation of dominant values from material realities and the fact that the evolution of these values are increasingly dependent on “internal [social] games”.

### **Modernist, structuralist, and mutually constitutive notions of agency**

Modernism replaced worldviews dominated by literal interpretations of mythologies, as well as the religious ideologization of spirituality, with the agreement on a common material (“natural”) reality as a unifying cultural factor (Manuel-Navarrete et al., 2004). Unfortunately, this remarkable achievement came at the cost of cornering human agency (and sociology) into the boundaries of individualism and rational self-interest (Emirbayer and Mische, 1998). Arguably, the need to free individuals from the straight jacket of pre-modern worldviews and traditions led to overemphasizing separateness, and independence. As a result, a view emerged of autonomous individuals, who were completely deprived of meanings arising from their interplay with ecological and biological processes, their spiritual dimension, or even their deep commitments with the community.

In fact, the relationship from “modern agents” towards materiality is mostly viewed as mediated by (objective) rationality and (subjective) wants; whereas agency towards social relations are mediated through management, control, and the reproduction of social roles; or through predictable actions and decisions to fulfil material necessities, utilitarian interests (e.g., seeking power, social prestige, or socially constructed material rewards), and self-imposed moral imperatives. In this context, it is not surprising that sociologists embraced functionalist and structuralist frameworks to determine and reify social relations while relegating agency to rational choices mediated by compromising means-ends and normative moral imperatives (e.g., Parsons, 1968; Hechter and Kanazawa, 1997). The mainstreaming of the concept of stakeholders (individuals, organizations, nation states) across social sciences signals the zenith of this particular interpretation of agency (see Meyer and Jepperson (2000) for a critique of interest-based approaches to action).

In the last decades, however, multiple alternative versions of human agency have been surfacing from diverse sociological grounds. These versions share an emphasis towards the

dual, relational, inter-subjective, empowering, and self-reflexive dimensions of agency. One of the primordial efforts to reformulate agency as the outcome of creative and innovative individuals is Giddens' "theory of structuration". This theory recognizes that structure is better understood as a process with the capacity to not only constrain but also enable action. As a result, "knowledgeable" and "enabled" agents have the power to transform structures if they act together (Giddens, 1984).

Building on Giddens' structuration and Bourdieu's "theory of practice", Sewell (1992) describes structures as sets of mutually sustained (virtual) schemas and (actual) resources that empower and constrain social action. Unlike Giddens, Sewell acknowledges the materiality of resources and their role in reproducing structures. Unlike Bourdieu, he explains change as arising from within the operation of structures internal to a society, rather than from events outside the system. That is, from the agents' decision to transpose new schemas and remobilize the resources that make up the structure. As a result, agency is both constituent of structure and inherent in all humans (1992:20):

"To be an agent means to be capable of exerting some degree of control over the social relations in which one is enmeshed, which in turn implies the ability to transform those social relations to some degree [...] The specific forms that agency will take consequently vary enormously and are culturally and historically determined. But a capacity for agency is as much a given for humans as the capacity for respiration"

Thus, even though agency characterizes all persons, its sources and mode of exercise are laden with structurally reproduced differences of power and implicated in collective struggles and resistances.

Sewell's proposal illuminates agents' capacities to "play around" with schemas (or procedures), and material resources (and the meanings collectively ascribed to them). However, it says little about agents' motivations and actual potentiality (e.g. introspective or reflexive power) to enact transformations or sustain reproductions; other than saying that these are determined culturally and historically (and thus structurally?). A legitimate question is whether this is not just a more sophisticated version of the structuralist or systemic arguments underlying the notions of coevolution and conjoint constitution outlined in the previous section. That is, to what extent is the agent defined as reactive to, or a mere product of, the spatio-temporal and socio-material coevolution of structure. The acknowledgement of the mutual constitution of structure and agency should not lead to the structuration of agency.

There must be a moment or a degree in which the agent is freed of, or transcends, structure in order to make social creativity possible. This is crucial in the context of the present global environmental crisis because this context will demand a radical transformation of the structures of modernity that have led us into the crisis in the first place. A key question is then: How can this structural transformation possibly happen if agency is highly conditioned by the reproduction of these same structures? Are our reactions to the changes that we are inflicting to the planet the only chance to provoke structural transformations? or Does human agency undergo such structural transformations in proactive, rather than merely reactive, terms?

The main argument of this chapter is that the chances of overcoming the global environmental crisis would be much greater if the mutual co-creation of material and social structures were mediated by a self-reflexive, or transcendental, form of agency enacted by individuals in their interaction with not only society and the environment, but also with themselves : with their inner worlds. Therefore, the crucial questions for environmental sociology are: Does this kind of agency actually exist? Can it be created or promoted? Is agency limited to the transposition of existing schemas into new context (as Sewell suggests) or it is conceivable that agents can suddenly start off brand new schemas not conditioned by past structures? We argue that these key questions can be effectively addressed through the notion of socio-ecological agency.

### **Socio-ecological agency in the human planet**

Environmental sociology has mostly focused in overcoming the dichotomy between material and social systems. This dividing line is an intellectual construct that can be analytically convenient under the proper circumstances. However, the profuse reification of this illusory divide by society at large is a threat to the planet's life support systems. Presently, human beings are capable of altering the composition of the atmosphere, modifying the Earth's nutrients cycles and causing major biodiversity extinctions. For the first time we are, not only the agents of social change and ecosystem change at the local level, but also the main agents affecting the dynamics and evolution of the global environment. This unprecedented power suggests a new type of agency that goes far beyond the discussion of how individuals affect social structures. We argue that the task of transcending the human-nature divide set by environmental sociology requires thinking in terms of a novel form of human agency, which

we call socio-ecological agency. The term socio-ecological does not mean that agency is shifted away from human beings. It is still, so to speak, enacted within the individual person. However, it emphasizes the fact that human agency rarely takes place as an isolated process, as well as the need to consider not only our influence on social structures but also on life support structures. Yet, does this twist in meaning validate the coinage of a brand new term? Why is it that the global environmental crisis cannot be properly addressed through the conventional analytic construct of “human agency”? How can this empirical rupture be justified?

To start answering these questions, it is crucial to notice that global environmental change entails a new type of material constrain. , Certainly modernist conceptions of agency did consider material constraints. However, first these constrains were usually related to depletion of resources or degradation of local (i.e. localized) environmental services. Second, local societies confronted with self-inflicted environmental threats were arguably never as aware as we are now of the damage that their actions were about to inflict upon themselves. Third, they could often count on the possibility of migrating elsewhere. On the contrary, present “socio-ecological agents” have the task ahead of dealing with self-imposed material constraints, which surface from a clear awareness about self-inflicted threats and with no place to go for avoiding their impacts. Additionally, it is important to note that such voluntary limits are not only to be adopted by individuals and specific societies, but they must be embraced by humanity as a whole. In other words, it is of little use if only some individual agents or specific collectives manage to self-constrain their consumption of, for example, fossil fuels. At the end, they might be equally, or even more, affected than anyone else by global climate change.

It might be argued that the described scaling up of environmental constraints does not justify the claim for a new type of agency. It is conceivable that through conventional human agency, individuals are eventually capable of transforming social structures at a global scale in order to self-impose the necessary constraints. Yet, we argue that global environmental change forces us to address a more fundamental question, namely how the need to become stewards of the planet is going to transform the nature of individual human identities. We contend that this type of transformation is unlikely to happen as merely the outcome of our perceived self-interest or moral imperatives. Rather, it is likely to emerge from a radical realization about the reciprocity and double directionality that exists between humanity and the planet as a whole, including our increasing ability to influence the genetic makeup of life.

This is precisely the main point that environmental sociology is trying to put forward, namely the mutual co-creation between environment and society. Thus, departing from unidirectional deterministic relations through which genetic, natural or social structures may be seen as determining agency (Sewell, 1992; Redclift, 2001; Judkins et al., 2007). On the other extreme of unidirectional thinking, we may find chimeras of human agency entirely determining these structures through social or genetic engineering. An example is what Finkler (2000:3) calls the “hegemony of the gene that leads to the medicalization of kinship”.

While it is dubious that unidirectional explanations may entirely account for historical nature-human relations, these explanations will nonetheless become increasingly inadequate, and incomplete in the context of global environmental change. The implications of acknowledging the multidirectional relationships between materiality and cognition are paramount for human identity and agency, as well as for our grasping of the origin of life on Earth. For instance, it challenges creationist identities assuming that the planet was formed and then humans were quite unproblematically put on it to socialize according to a written code, as well as evolutionist identities postulating that life and self-awareness mysteriously emerged stochastically, or as the result of highly improbable contingencies. These rather improvised explanations are defied by the palpable verification that humans are planetary species (i.e., cannot exist outside the planet in their material form), while at the same time the planet Earth has become (or always was) a human planet (i.e. dramatically shaped by humans, and inevitably so?). Traditional assumptions about the origins of life and cognition need to be challenged, and environmental sociology is in a good position to do it. In the following we argue how socio-ecological agency may become a means through which a globalized form of identity based on human-planet reciprocity can be enacted.

In order to make a more convincing argument for the need to rethink human agency in socio-ecological terms, we will discuss three of its main aspects. First, the essential role that reflexivity and meaning making processes play in its conceptualization. Second, the consideration of individual, social, and material forms of agency as interconnected aspects of socio-ecological agency. Third, the implications of socio-ecological agency in terms of the construction of the fundamental myths and stories about the origin of life on Earth and the emergence of human beings, self-awareness, and cognition.

A convenient starting point to explore socio-ecological agency is reflexivity, or the processes through which the individual makes sense of her/his own transient life in the context of a

living planet. Individual agents are constantly reflecting and creating meanings about their own relationship with material and social processes and structures. However, the fact that humans are having an unprecedented influence on the Earth metabolism, of which they are an integral part, leads to a much broader conception of agency far beyond their individuality and immediate socio-cultural context. Therefore, socio-ecological agency requires an understanding of reflexivity that highlights the fact that in any interaction with the “external world”, we are simultaneously disclosing something about ourselves. Socio-ecological reflexivity entails a critical stance which challenges both the traditional scientific ideal of objective inquiry, and the modern ideal of a clear-cut separation between individuals, social structures, and the environment.

Beck, Giddens, and Lash (1994) identify reflexivity as an organizing systemic principle in late modernity. “Reflexive modernization” refers to a recursive turn of modernity upon itself, which we would argue involves the emergence of a collective form of self-reflection about our shared identity as human beings, which was not previously available to us. Linearity and the following of rules, in consonance with a set of pre-established roles, characterized the functioning of pre-reflexive modern individuals and institutions (e.g. family, ethnic group, and the state). These institutions are now in crisis and the functions, which were once taking place at the interface of institution and role, are now taking place much closer to the subject. Unidirectional rules and roles are progressively being denormalized in the light of non-linear reflexivity. Yet the outcome is neither chaos nor irrationality. Instead, the outcome is a re-organization in which the subject relates to institutions by being reflexive rather than by the strict following of rules and roles. Reflexive modernity calls for people’s willingness to learn, to be self-reflexive and question oneself, to seek wisdom, to be accepting of other perspectives and consider what one can learn from them, and to trust others in this process of mutual re-examination. Thus, the seeking for personal meanings takes precedence over the unidirectional performance of function or the reproduction of social structures.

Reflexivity entails an ongoing understanding of the multidirectional interdependence between inner world (e.g. dreams, fantasies, emotional responses) and outer world (e.g. social and biophysical phenomena). Meaning is the “substance” linking the intra-personal (e.g. a particular trajectory unique to a person) with other beings and with some kind of “organic wholeness” (Bateson, 1987; Young-Eisendrath and Miller, 2000). Persons are neither bounded, unique, cognitively integrated entities nor are they only constructed by social discourses. This alternative position suggests a permeable boundary between inner and outer

which allows (1) the existence of an inner identity that gives rise to powerful internal thoughts, feelings, and tendencies to act a certain way, and (2) a continuous actualisation of such identity through the person's interaction of mutual co-creation with the extra-personal (Varela et al., 1991).

In the context of the current environmental crisis, reflexivity is required to question how individual and social values and worldviews affect our ways of interacting with ecosystems and how this interaction, in turn, affects our own sustainability and well-being. This implies shifting the focus from unidirectional management and decision-making towards making sense of the relational matrix within which individuals, social systems, and ecosystems coevolved. Coercion aside (i.e. when free of differentials in status or power), we influence each other through the stories we tell. Socio-ecological agency requires a commitment to learning to learn, opening oneself to other perspectives and more importantly to the observation of one's personal experience of the world around us (Wenger, 1998). Even though each individual interprets reality in a unique way, the process of interpretation is somehow co-created through interactions with others and the environment. This "opening up" makes people aware of the misplaced trust that they have given to the dominant social structures of their time, structures that, eventually, have instilled into individuals a value system that is entirely out of line with any consideration for human-nature interdependence.

The second vital aspect of socio-ecological agency is the consideration of material, social and individual agencies. The notion of material agency is gaining currency within natural sciences due to the spectacular development of theories concerning self-organizing systems, and, in particular, Prigogine's theory of dissipative structures. These theories show that matter and life are capable, within the limits of deterministic physical laws; of producing new patterns of organization and "doing things" (typical examples include tornadoes and hurricanes). They evolve towards higher complexity, are path-dependent (i.e. have a history), and exhibit characteristics that are usually attributed to society and the human mind. These realizations blur the boundaries between the material, social and cognitive by rendering the possibility of characterizing all of them in terms of self-organizing open systems. By definition a system appears to have an identity and to "do something" either actively or passively. Open systems are characterized by having an environment that provides their context. As described in Kay and Boyle (2008) complex self-organizing systems, unlike mechanical systems, can change their internal structure. As a consequence, "different relationships and processes can develop, and the system can change its repertoire of

behaviour. In short, the system can change its organization through internal agency” (Kay and Boyle, 2008:53). This is not to say that the agency of material and biological systems is equivalent to volitional human agency. However, socio-ecological agency involves understanding, and a more active consideration of, physical and natural agents, including their unfoldment and evolution.

The point is not to prescribe a moral code to regulating conflicts between different types of agencies. Every individual and every society has to work this out for itself, as well as collectively. However, socio-ecological agency suggests the promotion of curiosity, creativity, and non-exploitative and non-instrumental interaction in order to let a socio-ecological consciousness unfold (Goodwin, 1998; Castro-Laszlo, 2001). The overwhelming power that humanity has achieved over the planet has to be matched with a higher sense of responsibility and major attention towards one’s own life:

“To survive in this world, and to live fully and well, one must be attentive. To impose agendas on the world — ethical, political, economic, scientific- is, to some extent, to cease to pay attention, it is to organize one’s perception of the world according to the dictates of the mode of control” (Hester et al., 2000:281)

As a corollary, acknowledging and understanding the essence and functioning of material and social agency provide both a source of meaning for the consciousness of the socio-ecological agent, and inspirational guidance for his/her external interaction with the collective and material. This draws a stark contrast with the narrower understanding of human agency as independent actions involving volition and the decision to act or refrain from acting.

The third fundamental dimension of socio-ecological agency addressed its implications for the kind of existential stories about the origin of life on Earth and about the emergence of human beings, self-awareness, and cognition. As a warning, this point does not easily fit the confines of most sociological theoretical discussions, but it is a crucial point to understand the role of environmental sociology in the exceptional present situation marked by global environmental change. We argue that we need to construct new, negotiated stories that transcend both anthropocentric forms of creationism (as in Christianity), and naturalistic evolutionism (based in the faith of a single natural world). The alternative is to encourage every single socio-ecological agent to engage in the task of constructing his/her own existential story from their unique position in the world (i.e. their unique awareness about our ability to act upon, and being in turn acted upon, socio-ecological structures). The quality of

these emerging individual stories is to be evaluated in the context of the evolutionary crossroads which humanity faces, rather than in terms of their (prophetic or natural) Truth. The role of science in general would be to facilitate communication, translation and coherence amongst these continuously forming narratives without imposing its own perspective, but assuring that the dialogue does not become a cacophony of “voices” all claiming to have got it right (Thompson et al., 2006). Social sciences would evaluate the consequences of the narratives in terms of equity, solidarity, and power relations, while environmental sociology would assess their implications for the making of nature-society interrelations.

The daunting task of negotiating a pluriverse of existential stories constructed by single “socio-ecological agents” may seem insurmountable and rather unfeasible at the present time. For the task to start, we would need first to have in place some kind of socio-ecological identity; a reasonable pre-condition for enacting socio-ecological agencies. One may speculate that the challenges posed by global environmental change may already be pushing towards this direction. However, what we appear to have now is rather a mosaic of traditional religious and cultural existential narratives barricaded against the overwhelming progress of a Western-branded naturalism that can be caricaturized as follows (Latour, 2004:458):

“[W]e all live under the same biological and physical laws and have the same fundamental biological, social, and psychological makeup. This, you have not understood because you are prisoners of your superficial worldviews, which are but representations of the reality to which we, through science, have privileged access. But science is not our property; it belongs to mankind universally! Here, partake—and with us you will be one”

Independently of whether this naturalistic argument is right or wrong, we have to ask what it offers in terms of finding ways of co-creating the planet sustainably. Does its uniform power preclude the kind of radical structural changes that the present global situation seems to be demanding? Is not the present situation precisely an outcome of the modernist “fundamental biological, social, and psychological makeup”? What room does it leave for alternative existential narratives that are not based on fundamentalist divisions between humans and nature?

The alternative of engaging in the negotiation of existential stories constructed by single “socio-ecological agents” might be dismissed as the opposite extreme of naturalism, or as pure relativism. We admit that it is extremely radical in that it demands a blank slate and

implies a highly problematic process of negotiation (e.g. having to deal with current power relations). However, it is not pure relativism. Instead, we would argue that it brings about a new form of constrained relativism (Thompson et al., 2006). It adds to the “structural voices” proposed by Thompson et al. the meaning-making dynamics of human (socio-ecological) agency. That is, the constraint originates in the need to construct internally meaningful journeys in interaction with the socio-ecological realities of one’s own time. The notion of the personal journey of discovery played an important role in pre-modern cultures and religions. Before globalization, these journeys often consisted of meaningful interactions of the individual with the local socio-ecological reality of his/her group or country. Eventually the journey started to increasingly venture outside local realities in actuality (through travelling), or figuratively (through narratives about the journeys of heroes and explorers). This has precisely been one of the key mechanisms by which traditional (and modern) cultures, myths, and religions have been constructed. Thus, the novelty we are proposing is that the present circumstances demand that we expand this process and scale it upwards to the level of a global planet in peril.

## **Conclusions**

Social science has tended to conceptualize human agents as either individualist/calculative, or abiding by categorical moral rules. Accordingly, the social world is seen as produced out of conflicting actions and decisions emanating from autonomous agents pursuing their goals and preferences. Within this dominant perspective, institutions are often taken as a given, brought to the background, and reduced to sources of incentives or constraints for action. Following efforts to reconcile the utilitarian versus normative dichotomy, a more relational understanding emphasizing the co-creation between agency and socio-cultural structures is emerging. The basic tenet of this relational approach is that social structures condition agencies while individual agents may choose to either reproduce, or transform these structures.

In this chapter we argue that sociology will require a far broader paradigm of human agency if it aspires to contribute with relevant insights to the challenges of the global environmental change era. The new socio-ecological agent departs from modernist agency as much as the latter departed from medieval conceptions. It entails a new creation story about where we come from, who we are as humans, and what our future possibilities will be. Rethinking “where we come from” in this era leads to conceiving of individuals, society and the whole

planet system as co-created. Humans are the product of, and are constrained by, the planet's identity. The "miracle" of cognition is nothing other than an inevitable emergent property resulting from coevolutionary dynamics within the Earth. "Who we are" is reformulated by the fact that through cognition we are now capable of dramatically altering and shaping these coevolutionary dynamics. Therefore, global environmental change is forcing us to redefine our agency in terms of global stewardship. The transition from modern agency to socio-ecological agency is just starting as humans' identities rise beyond the constraints of specific social structures. It is beyond the scope of this chapter to speculate about the future possibilities that this new form of agency will bring. Yet, it is reasonable to expect forthcoming social structures based on co-responsibility rather than on ideological confrontations, and the pursuit of individual privileges. The imminent collapse of the neoliberal global project suggested by the current financial crisis, argues for the construction of alternative global narratives and social patterns that allow humanity to build new forms of coexistence, while facing up the challenges of the global environmental crisis. This chapter suggests that sticking to the modernist conceptions of agency can only generate narratives and patterns that, although can buy some time, will eventually dig us deeper into the environmental crisis. Our only chance may be to emphasise narratives and patterns based on increasing the bondage between human beings and the planet as a whole. The origin and possibility of these narratives and patterns entails embracing a socio-ecological sort of agency.

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