# Absent, outside, inside: integrating the "environment" into Regulation Theory

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Abstract. This text aims to explain a paradox: the modest contribution of Regulation Theory to the debates on the Capitalocene. After explaining the changing role of the "environment" in regulationist analyses for nearly 50 years, we argue that they mostly adopt an apolitical definition / perspective of the environment and lack a critical and reflexive approach. In brief, the regulationist framework needs a truly political ecology.

Keywords: Capitalocene; epistemology; environment; political ecology.

## Introduction

This text aims to explain a paradox:[1] the modest contribution of Regulation Theory (RT), one of the most important macroeconomic theories that takes capitalism as its main object, to the debates on the Capitalocene (Hornborg, 2013; Bonneuil & Fressoz, 2016; Malm, 2016). The method of inquiry borrows from epistemology and the sociology of science, and is based on a review of regulationist literature dedicated to environmental issues. We have selected as our corpus all the articles, in English and French, by authors from all disciplines (mainly economists and geographers) referring in their work to RT and to "the environment", taken in a broad sense. We argue that the weakness of regulationist analysis of environmental crises lies in the (changing) place of the environment in its theoretical framework. We distinguish three periods. The first, from the beginning in the late 70s until the 1990s, when environmental damages were already present, is characterized by the (almost complete) absence of the environment. A second period runs from the mid-1990s to the mid-2010s and acknowledges multiple attempts at its integration. These works are very heterogeneous, but what they have in common is to not question the very definition of their object, implicitly adopting the dominant postpolitical framework, that of the major institutions (national and international) responsible for public policies. Finally, we highlight our proposal, shared with others, to break the deadlock. This work ultimately shows that RT lacks a coherent political ecology.[2]

## Complete absence (1976-1995)

From Michel Aglietta's first book (1976), generally considered to be the first regulationist work, to the first "*État des Savoirs*" (Boyer & Saillard, 1995), the environment, no matter how one understands it, is totally excluded from the scope of RT. Alain Lipietz (1995) explains this fact by two arguments: first, there are only "institutionalized compromises between humans" - therefore, he emphasizes, no "institutionalized compromises with Nature"; second, because RT has focused on Fordism, whose crisis is "independent of the society-nature relationship", which has thus been set aside. His first point is undeniable and will be discussed below. The second deserves to be examined immediately.

Among the remarkable properties of the regulationist approach, the endogenous dynamics of accumulation regimes, the so-called "endometabolism" (Lordon, 1994), is at the top of the list. To

[1]This text only problematizes a research question that will be fully answered in a future article.

[2]This critical review of the RT literature should not obscure the fact that many theoretical frameworks in economics (post-Keynesian, neo-institutional, Marxist, etc.) and in the social sciences face the same aporias.

put it simply, the general structure of a regime evolves tirelessly, through small transformations (endogenous, therefore), until it reaches a crisis. Thus, a key result of RT is that the crisis of Fordism (whether US or French) originates in the very mechanisms that made it stable. This thesis is based on the observation that productivity gains, which were the driving force behind the Fordist wage compromise, and hence of the whole system, were exhausted before the energy crisis of the 1970s. It is explicitly opposed to the common-sense hypothesis that gave an inordinate role to the "oil shock" (exogenous, therefore) as the main element responsible for the crisis. The consequence is unfortunate, since the sidelining of oil contributed to the exclusion of all energy and material flows from the framework, and prevented RT from entering the academic debates, already numerous in the 1970s,[3] on environmental crises. As an illustration, even important analyses on agriculture (Allaire, 1988) ignore all kinds of inputs (synthetic fertilizers, energy) which largely contribute to the sector's productivity gains. Throughout this period, RT had literally no material ground.

## The Need for Integration: Programmatic and Empirical Works (1995-2015)

Lipietz's observation on the theoretical vacuum vis-à-vis the environment was constantly renewed and deplored (Rousseau, 2002, p. 14; Rousseau & Zuindeau, 2007, p. 5; Cahen-Fourot & Durand, 2016, p. 2). A few attempts emerged to "integrate" the environment later on. They can be summarized in three non-disjoint groups. In a context of the rising of the Sustainable Development paradigm and strong institutionalization of environmental issues at the international level (e.g., Montreal Protocol in 1987, Rio summit in 1992, Kyoto Protocol in 1997), while some regulationist authors were arguing for normative studies[4], the first group was gathering around a reflection on a post-Fordist regime of accumulation (Boidin & Zuindeau, 2006; Rousseau & Zuindeau, 2007; Lardé & Zuindeau, 2010). For Rousseau & Zuindeau (2007, p. 13-14, our translation), "Sustainable Development is now an essential contribution to thinking about the future of capitalism, or rather capitalisms. We believe that RT will not emerge unscathed from such a contribution and that it will have to renew itself significantly." This theoretical alliance did not occur – this normative proposition is contradictory to the analytical posture of RT.[5]

The second group of research was empirical. The most frequent approach,[6] that of typologies, provided empirical information without any real theoretical reflection. A standard article can even be defined. Whether in Lardé & Zuindeau (2010), Elie et al. (2012) or Cahen-Fourot (2020), each time OECD databases were used to propose a classification of capitalist economies "from an environmental perspective". The idea, which is often explicit, was to examine whether the typology of the variety of capitalisms produced by Bruno Amable (2005) could be found, or not, when the "environment" variable is added.[7] Rather than deconstructing this category, or establishing its historical genesis, these articles mobilize the OECD's "environmental" variables, supplemented by others available online, to discriminate between countries (moreover with no consideration, , of their

[3]In the early 1970s, the Meadows report and the works of Boulding, Georgescu-Roegen and Daly were widely discussed in the academic field (Vieille Blanchard, 2011).

[4]See Amable & Palombarini (2005).

[5]This proposal is close to the "moral socio-economy of the environment", which tends to imagine the resolution of conflicts through the creation of "ideal institutions" that would facilitate a common vision of the good.

[6]Much more discrete, a few socio-historical case studies could be included in the corpus (Buchs, 2014).

[7]The hypothesis being tested may be particularly poor: "models of capitalism based on different logics provide different institutional responses to the problems of quantitative and qualitative deterioration of natural resources and to conflicts over these resources" (Elie et al., 2012, p. 9, our translation).

construction,[8] their quality or their relevance). Symbolic of this type of approach is the article by Elie et al. (2012), which introduces "environmental institutional arrangements" (EIA). These are supposed to summarize the "economy-environment" linkages and are mainly concerned with environmental management and environmental policies. The regulation of environmental conflicts is explicitly presented (p. 8) as being at the origin of EIAs: "An EIA is a set of institutions dedicated to the regulation of environmental problems. These are quotas, standards, taxes, subsidies, and market instruments whose objective is to regulate conflicts related to access (which includes preservation) to ecosystem goods and services." However, the particularities of those conflicts are never presented (they seem to be reduced to "resources"), neither are their causes nor the logic behind their emergence. They remain abstract or implicit, detached from the logic of capital accumulation. From the "ratio of the price of gasoline to the world average" to the "number of ISO 14001-certified companies per billion dollars of GDP" (sic), one can be skeptical about the intelligibility of environmental conflicts. The way in which these typologies were carried out implicitly leads to the fallacious narrative of the emergence of "environmental states" in the Global North (most of the OECD countries), the very ones that construct and implement public policies designated as "environmental", and make power relations disappear (in particular that of relocating to the Global South all the productions and extractions that are the most degrading to their environment[9]).

Alongside these two groups (sustainable development, OECD typologies), which focus on explicit public policies, a group of programmatic works stands out (Drummond & Marsden, 1995; Gibbs, 1996; Zuindeau, 2007; Douai & Vivien, 2009; Chester, 2010; Douai & Montalban, 2012; Cahen-Fourot, 2020). A stimulating theoretical proposal consists in the addition of a new institutional form (IF), which would codify (by definition) a new fundamental social relation, autonomous from the other five: the "society-environment relation" or "social relation to the environment" (Becker & Raza, 1999). These authors present the environment as an "ecological constraint" (which, according to them, is similar to the monetary constraint) on capitalist production that must be taken into account, insofar as it can be the object of potentially destabilizing class struggles for the regime of accumulation in place. For them, this social relation regulates, "the access to the physical environment and the modalities of its use for the activities of production and reproduction. It therefore also regulates the spatial and temporal distribution of the ecological costs and benefits of these (re-)productive activities." They do not justify why this IF is indispensable (nor why it cannot be integrated into the other five). On the other hand, Chester (2010, p. 33) argues against this new IF by asserting that "the changing nature of the economic-environment relation can only be understood by reference to the macro mode of regulation. Although she proposed a stimulating analytical method for empirical investigation, she never provided any empirical work. Most of the reflections - with the notable exception of Cahen-Fourot (2020) who, in turn, never explicitly defines "the relation to the environment" - are hypothetical, whether they are in favor of this new IF or not, and remain tied to the role of the environment in the sphere of production. This is very problematic. What about, for example, large-transport systems or energy infrastructures, land use planning policies, mass tourism? Starting from a new definition of capitalism, for example based on three production factors (money, labor, land), Polanyi's famous "fictitious commodities", linked to three social relations, these authors attempt to highlight contradictions or a purely theoretical characterization of the social relation to the

[8]Who constructed these data / nomenclatures / indicators, and how? Are they comparable in countries as diverse as Germany, Mexico or South Africa?

[9]Following this line of reasoning, free trade constitutes a formidable policy, to be maintained and deepened in rich countries, to transform the state into an "environmental state".

environment. Those analyses are confused. Becker and Raza define the 6th IF as a social relation to nature, thus adopting implicitly the society/nature dualism, while claiming that nature is a social construction. To support their demonstration, they introduce a new factor (N for nature) into the Marxist M-C-M' (M = Money, C = Commodity) cycle, which becomes M-C/N-C/N'-M', before emphasizing the reification of "social relations to nature" in capitalism without making the connection between these two arguments. Some (theoretical) examples of evidence are often recalled (the capitalist system is based on a "commodification of nature" and subjects the "human environment" to the process of valorization) without contributing to the concrete understanding of an accumulation regime.[10] While they claim to link "the environment" to the process of capitalist valorization and to structural contradictions (always situated in the process of commodity production[11]), they never lead to empirical studies and remain indifferent to historical works.

In general, the definition of the environment (and environmental conflict) adopted by these three groups is extremely vague, tautological, or left aside – as if it were self-evident.[12] However, it is clear that in the vast majority of cases it overlaps with the definition of neoclassical theory: the environment, a sphere separated from society and the economy, is reduced to inputs and outputs, natural resources (raw materials and energy) and waste, and associated conflicts are never distinctly defined or studied. While the authors denounce neoclassical analyses when introducing their research,[13] they regularly use its lexicon (externalities, environmental benefits and costs, etc.). Instead of making a radical break with standard theory, as in the case of labor[14] or money, RT has taken the same direction as the latter – the work of Bertrand Zuindeau (2001, 2007), for example, on the "management of externalities according to the accumulation regime", is the most striking example. The fact that Boidin & Zuindeau (2006) and Lardé & Zuindeau (2010) refer to the absence of a "regulationist theory of the environment", competing with "environmental (neoclassical) economics", suggesting that the "environment" is a separate object / commodity, separated from the social world, symbolizes the blind reduction to "natural resources". RT has thus taken for granted, without questioning them, the dominant environmentalist discourses (which are reflected in the very institutionalization of this "object" by the OECD and the creation of "Ministries of Nature and Environment Protection" in the Global North in the 1970s).

## Social metabolism and production of space of accumulation regimes

The fundamental fact, or blind spot, ignored by this corpus deserves to be stated: all social relations have a material dimension and all biophysical flows that concern a society are imbricated in social relations (and are therefore not "natural"). To put it another way: every economic fact is a social and, therefore, material fact. For the past five years, rather than confronting the question of "the

[10] That capitalists have a structural interest in transforming their private costs into social costs has already been demonstrated by Kapp (1950) - a rarely cited author.

[11] The two main "proofs" follow the dialectic of use value and exchange value and the addition of a new factor in the M-C-M' valorization process (James O'Connor's second contradiction thesis).

[12] In Lardé & Zuindeau (2010), the environment is simply defined as "the elements of nature (air, water, energy, landscape amenities, ecosystem functions of nature) serving as economic resources and consumer goods, but also has to do with issues of waste and pollution, as well as the space in which individuals and activities are located"; in Rousseau (2002), the environment is the "result of the natural elements in themselves and of the society-nature relationship (...) composed of natural objects and objects transformed (by man)".

[13] Gendron (2008) reminds us that RT has the theoretical weapons to deconstruct neoclassical conceptions in environmental economics (market neutrality, the principle of optimization, the hypothesis of reversibility, technological determinism, rationality of atomized economic agents).

[14] RT has as much interest, in order to maintain its coherence as a political economy, in avoiding the (technocratic) terminology of "natural resources" as that of "human resources".

environment" with yet another scholastic reflection or empirical work that reduces it to environmental policies, we have chosen to integrate biophysical flows into RT. As a starting point, we recognize that accumulation regimes are maintained not only by institutional forms but also by the reproduction of energy and material flows (Cahen-Fourot & Magalhães, 2023). Rather than studying the links between capitalism (or "the economy") and the environment, conceived as separate entities, our approach, inspired by environmental history, seeks to understand capitalism through the material inscription of its main social relations, with an inductive and historical approach (this method partially overlaps with Chester's proposal). Beyond observing correlations between monetary and biophysical statistical series, listing environmentalist laws or simply describing the inputs and outputs of an accumulation regime, our objective is to reflect on (the evolution of) the material basis of all social relations (*a fortiori* the most fundamental ones). In our perspective, there is no social relation to the environment, but fully material social relations (and always anchored in concrete soils). More than a simple resource, energy, for example, constitutes a dimension of the social class relations, the form of the state and the wage relation. The dominant historical variants it takes (coal, oil, nuclear) are not neutral in their effects on these social relations (Mitchell, 2011; Huber, 2013). The environment is no longer an "outside" of society, an a-social "resource" or an allegedly "wild" space, and is no longer merely worthy of interest as a factor of production, but it is an "inside", present in all institutionalized social compromises. Capital accumulation generates material flows that go far beyond simple inputs/outputs. Beyond a "social metabolism", each accumulation regime is characterized by a production of space, which necessarily affects very diverse (socio-ecological) territories that can provoke territorial conflicts (Magalhães, 2022). Lipietz's fear is dismissed: it is forbidden to analyze these flows in an ahistorical and asocial way, as neoclassical economists may do, isolating "resources" from the economic system. Just as Marxist scholars, whether within the conception of capitalism as a world-system (Moore, 2015) or as unequal exchange (Hornborg, 2013), have seized upon biophysical flows to account for the Capitalocene while avoiding physical reductionism, RT has much to gain from detecting this dimension in all fundamental social relations (Magalhães et al., 2019; Magalhães, 2023). It should be noted that we preserve RT's originality since the crisis of Fordism remains endogenous: we have shown how oil imports consolidate the regime, as was the case especially in the 1960s, before destabilizing it (Cahen-Fourot & Magalhães, 2023). It was not oil that caused the crisis, but the sharp rise in its price helped, along with other factors (e.g., internationalization), to destabilize the most structuring mechanisms (in particular the wage relation and the form of the state).

The purpose of this proposal is not to add a new "variable", but to reveal the materiality that is always present in social facts. These works demonstrate that it is possible to conduct a regulationist research by avoiding scholastic reflection on the role of the "environment" in an accumulation regime. There is no need for the notion of a "relationship to the environment" to produce regulationist analyses that integrate biophysical flows and their spatiality: Huber (2013) has shown, for example, that the role of oil in US Fordism can be studied with RT institutionalism. In this respect, a careful reading of Michel Aglietta's famous study of US Fordism shows that the territorial dimension was already present, in suspense – he designates the car and the individual house as the key goods of the (social) norm of mass consumption (Aglietta, 1976). The new field of research consists in rereading the entire regulationist literature and finding the material base and its territoriality (which includes many socio-ecological spaces that can be defined as environments), that have been made invisible.

## Their ecology – and ours?

Since its origin, RT has had a troubled relation with the environment. This comes from a blind adoption of the common-sense definition. Conceived as asocial, the materiality, including all biophysical flows, was first (coherently) excluded from the framework. After 1995, the few relatively rigorous theoretical attempts at "integration" are often based on some hypothetical-deductive reasoning that is indifferent to history and social sciences.

Environmental history and political ecology have long demonstrated the modern invention of the environment (the term only entered administrative language in the 1970s[15]). On the other hand, what is presented today as environmental reflexivity as well as environmental conflicts have existed since at least the origins of capitalism.[16] RT must acknowledge that the environment, starting with its very definition, is a battle field (Keucheyan, 2018) over which antagonistic political ecologies struggle (not to be confused with "ecological" / "green" political parties). The dominant social blocs, and the associated academic (and media) relays, support post-political (Kenis & Lievens, 2014) and elitist ecologies: conservationism (or technocratic), preservationism (or moral), postmodern (or constructivist).[17] The first is largely hegemonic, and in particular is adopted by the neo-classical current (and its derivatives[18]) as well as most of the major (inter)national institutions (e.g., OECD, European Commission). It is also known as eco-modernism or managerialism (Christoff, 1996). Compatible with liberal ideology (which reduces all problems to individual responsibilities), it supports the narrative of "green" growth and ecological modernization (illustrated by "green technologies", "green production", etc.). Green refers only to optimization gains (on the input or output side) - concrete environments are made abstract. The second, often described as neo-Malthusian, brings together currents of deep ecology, wilderness, thinkers of an intrinsic value in nature, etc. The preservation of the environment here amounts to emptying spaces of human presence and protecting them from anthropic actions.[19] The third is mainly academic (around thinkers such as Latour, Stengers, Haraway) and presents the "ecological crisis" as a profound mutation of our relationship to the world, linked to the end of the (modern) concept of "nature" and which requires new ontologies or a new conception of politics.[20] Let us note that these approaches are not rigorously incompatible (some actors support both the optimization of resources and wild spaces and places in which assemblies of hybrids would redefine democracy). Above all, they have in common that they remove political conflict from their framework (in this sense they could all be called post-political). As inputs and outputs (including CO2) are detached from social relations (e.g., production or consumption social relations), it is (ultimately) not necessary to question them in order to proceed with optimization: new technologies, new ethics/morals and new compositions of the world will

[15]While it has been mostly careful not to mention "nature" - which is an even more problematic term - it has neglected discussions of alternatives (Feuerhahn, 2009).

[16]Far from quantitative databases, one must look to health, aesthetic, habitat, consumption and other issues to grasp what some economists reduce to externalities (Fressoz et al., 2014).

[17]Other classifications are possible. Bourg & Whiteside (2017) distinguish the following streams of political ecology: (Neo-)Malthusian (mainly preservationists), Arcadian (Illich, Gorz, etc.), authoritarian, institutionalist (in their terminology this is close to the moral approach), catastrophist (which includes collapsologist movements), grassroots (close to preservationists), constructivist (postmodern in our terminology), and anarchist.

[18]The alliance is based on the representation of a problem in terms of "means" and "ends" (Robbins).

[19]By taking into account the number of Greenpeace members and member organizations of the International Union for Conservation of Nature in each country, Cahen-Fourot (2020) mixes both environmentalisms to capture the "political demand for the environment".

[20]Bruno Latour affirms the need for the politicization of ecology, but with a very particular definition of the word "political" which integrates within its perimeter all the non-human actants (endowed with agency according to him), while evacuating the usual power social relations.

suffice. The attraction of these depoliticized approaches is undoubtedly due to the absence of an environmental or natural "subject" (as Lipietz rightly states). Unlike other relations of domination (class, gender, race, etc.), there is no "subject" oppressed by another in a specific social relation. While the "subject" of social struggles is present from the definition of the (wage) production relation, the "subject" of environmental conflicts is not defined in a dialectical relation. This partly explains why the (technocratic, ethical or postmodern) narratives of the Anthropocene support, at least implicitly, the (post-political) Humanity-Nature duel (Bonneuil & Fressoz, 2016). Strictly speaking, because of the epistemological role it entrusts to politics (and social conflict) in its analyses, RT cannot adhere to these ecologies.

In brief: dominant ecologies are perfectly clear; what about ours?[21]

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[21] "Their ecology and ours" (*Leur écologie et la nôtre*) is a famous article by André Gorz published in April 1974 in the ecologist journal *Le Sauvage.* Our answer will come in a future article.

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