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Biopolitics of Climate Change: Carbon Commodities, Environmental Profanations, and the Lost Innocence of Use-Value

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Graduate Program in Theory and Criticism
A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of
Philosophy
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BIOPOLITICS OF CLIMATE CHANGE: CARBON COMMODITIES,
ENVIRONMENTAL PROFANATIONS, AND THE LOST INNOCENCE OF USE-
VALUE

(BIOPOLITICS OF CLIMATE CHANGE)

Monograph

by

Emanuele Leonardi

Graduate Program in Theory and Criticism

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
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THE UNIVERSITY OF WESTERN ONTARIO
SCHOOL OF GRADUATE AND POSTDOCTORAL STUDIES

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Biopolitics of Climate Change: Carbon Commodities, Environmental Profanations, and the Lost Innocence of Use-Value

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Abstract

The analytical core of this study is the historical development of the relationship between nature and the capitalist mode of production. In particular, we aim at shedding light on the process through which the “grammar” of ecological crisis (and consequently of its possible solutions) turned into an exclusively economic one. In addressing this issue we discuss the successive problematisations of the environment that took place since the emergence of biopolitical governmentality (late Eighteenth century). Following Foucault's intuition, and supplementing it with aspects of Marxist analysis, we argue for a profound transformation – based on a crucial leap of abstraction – of the notion of nature: from enacting limit to the economic process to fundamental element of market valorisation. Especially, we show how this modification discloses a new way to approach contemporary commodification, organised around the crucial notion of general intellect. Carbon commodities, for instance, should be conceived of as second order abstractions: in them, the differentiation between natural distinctness of use-value and economic equivalence of exchange value tends to blur since a decisive element of their exchange-value resides in the *ex ante* creation of capital-based use-values. Hence, use-value loses its innocence.

The neoliberalisation of nature is analysed – with specific regard to the climate crisis – both from the perspective of its supporters (carbon traders), and from the standpoint of its critics (climate justice activists). Carbon trading – and the dogma upon which it rests – is understood as a material-discursive device through which climate change is seen as a market failure whose only possible solution lies, paradoxically, in further implementing market-based policies. By contrast, climate resistance is the multifarious disarticulation of this dogma. Such a transnational movement is approached through the concept of carbon profanations, which simultaneously possesses a deconstructive component – whose aim is to disarticulate the supports of carbon trading dogma – and a creative element – whose goal is to establish concrete-prefigurative organisational configurations, irreducible to a regime of truth centred around the marketisation of global warming.

Finally, an empirical analysis of Durban's COP17 is proposed as a background against which to interpret the transformative potential of climate struggles, with particular focus on the notion of planetary climate as a global common/s.

Keywords

Biopolitics; Foucault, Michel; Marx, Karl; Carbon markets; Climate justice; Environmental Crisis; General Intellect; Liberalism; Neoliberalism; Durban's COP17; Carbon profanations; Carbon trading dogma; Antagonistic tendency; Marketisation of nature; Commons.

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General Introduction: Towards a Biopolitical Reading of the Environmental Crisis

Today, at the dawn of the 21st century, are we witnessing an environmental crisis? Surprisingly enough, this apparently naive question is not simply rhetorical. In fact, despite the talk about global warming, nuclear energy, toxic pollution, ozone layer depletion and peak oil, for example, the current ecological crisis has less to do with the preservation or destruction of the so-called “natural world” than with a crisis of interpretation of this “natural world”, that is to say with its putatively indisputable objective determination. In other words, what is in crisis is not the environment *tout court*, but rather the *human* environment: not only because the ultimate reason why ecosystems have lost their balance is to be found in an unprecedented and unsustainable anthropic impact, but also because the way we, as a species, look at nature is a cause – amongst many others, to be sure – of the crisis we are living in. As Alan Weisman (2007) has brilliantly shown, a hypothetical “world without us” could easily and thoughtlessly carry on for billions of years. Speculatively, it may be useful to go even further than Weisman's hypothesis and wonder whether the very distinction between a homogeneous *us* and an unquestioned *rest* is part of the solution, as it has often been suggested,¹ or whether it is a distinctive feature of the problem itself. We contend that the latter scenario is more persuasive than the former. If this is so, the provisional answer to the question

¹ Two examples, from opposite political standpoints but very similar in maintaining this rigid distinction are to be found in Brown (2006; 2008), and in Lovelock (1988; 2006).

that began this Introduction should be a counter-intuitive “yes but no”: on the one hand, *yes*, the homeostatic equilibrium that used to characterise human and non-human environments is deteriorating at a worrisome pace; on the other hand, *no*, because the range of the current crisis extends beyond the simple dichotomy between Man and Nature and implicates facts and values, objects and subjects, living beings and non-living beings that exceed the traditionally conceived scientific borders of Nature. To sum up: the entire categorial apparatus of the Western tradition seems to be called into question by this particular seismic shock we name *ecological crisis*. This is the reason why we can easily find, with respect to these issues, odd and seemingly contradictory configurations: for example, governments that have restored (UK), or planned to restore (Italy) nuclear power plants in order to match the CO₂ emissions reduction objectives set up in 1997 by the Kyoto Protocol, the most important anti-global warming agreement.

The peculiar complexity of the environmental crisis resides in its in-betweenness, in its tendency to escape established borders, at every level: political borders between nation-states, social borders between classes and ethnic groups, traditional borders between genders. Last but not least, the ecological crisis cannot be constrained in our usual epistemological frontiers, the most insurmountable one being the conceived border between the natural sciences and the social sciences: the cold incontrovertibility of matters of fact on one side, and on the other, the passive acceptance of the volatile and the contestable. Contrary to this tight division of labour, environmental issues tend to be interconnected and multi-dimensional. When they collide with the political field, whose defining feature is *decision*, they present a twofold complexity: on the one hand, it is widely recognised that our knowledge of ecosystems is limited, that scientists

increasingly confront a sort of *constitutive uncertainty*;² on the other, human social systems are very complex too, traversed as they are by a multitude of uneven interconnections. As John Dryzek puts it: “Environmental problems by definition are found at the intersection of ecosystems and human social systems, so one should expect them to be doubly complex” (Dryzek 1997: 9).

To give an example of such double complexity, it might be useful to consider the most recent environment-related international event, namely Rio+20, also known as Earth Summit 2012. This United Nations gathering was the third international conference on sustainable development aimed at reconciling the economic and environmental goals of the global community. The first meeting was the United Nations Conference on Environment and Development (UNCED) – Earth Summit 1992, also held in Rio de Janeiro – while the second was the World Summit on Sustainable Development – Earth Summit 2002, held in Johannesburg. However important the agreements and resolutions produced by those conferences,³ their crucial aspect resides in the *process of institutionalisation of the environmental crisis* they set in motion. After the United Nations Conference on the Human Environment – held in Stockholm in 1972 – ecological issues begun to be widely recognised as legitimate and, after the first Earth Summit, they have slowly but constantly become significant elements in business as well as governmental agendas.

² For a detailed overview of this topic, see Waltner-Toews, Kay, and Lister (2008). We shall address this issue in more detail in Chapter 3.

³ Climate Change Convention, Agenda 21 and Convention on Biological Diversity in 1992; Johannesburg Declaration and Millennium Development Goals in 2002; “The Future We Want” non-binding document in 2012.

Now, after forty years of political recognition and twenty years of international policy implementation, one would expect the situation to have improved or, at the very least, not to have further deteriorated. Unfortunately, this is not the case. The more climate science sounds its loud alarm about rising temperatures, melting ice caps and increasing ocean acidification, the more international meetings seem to be unable to radically change direction. Paradoxically, the emergence of a broad – if fragile – consensus about the findings of climate science (denialism has rapidly declined in recent years) has apparently caused deep confusion with regard to the political management of the ecological crisis. This is surely a sign of the double complexity of this particular issue, but it seems to us that a more profound hypothesis should be advanced here: *a modification in the relationship between the environment (and its crisis) and the capitalist mode of production (and its crises)*. This hypothesis shall be carefully analysed throughout the present work, but to introduce its main characters a review of the reactions to the Rio+20 outcome, namely the non-binding 49-page working paper titled *The Future We Want*, might be of use.

According to journalist Ina Porras, Rio+20 has been a success and has indicated feasible policies – such as the one implemented in Costa Rica – to harmonise the imperative of economic growth and the necessity of environmental preservation:

Controversy stalks the green economy concept, even as it topped the agenda of world leaders at the Rio+20 summit. Its detractors say it spells a commodification of nature that will transfer money, power and land to elites and corporations while supporters counter that our collective failure to value nature is why forests and other ecosystems are in such trouble. As the world watches and waits to see how giants like the US and China respond to our environmental, social and economic crises, a small country – Costa Rica – has big lessons to share. The

story emerged last week at the International Institute for Environment and Development's fair ideas conference in Rio, when Costa Rican politicians, community leaders and researchers related their experiences of putting the green economy model into practice as they pioneered Payments for Environmental Services (PES). The idea is simple: landowners are rewarded financially for actions that maintain environmental services that benefit other people, who then pay for that gain. Lowland water users would, for example, pay highland communities that plant or protect forests and so maintain the flow of water downstream (Porras 2012).

According to environmentalist George Monbiot, things went a little differently in Rio de Janeiro and the balance sheet of twenty years of engagement in multilateral negotiations is disastrous: in fact, those years are dubbed as “decades of anger and frustration”. As he continues:

It is, perhaps, the greatest failure of collective leadership since the first World War. The Earth's living systems are collapsing, and the leaders of some of the most powerful nations – the United States, the UK, Germany, Russia – could not even be bothered to turn up and discuss it. Those who did attend the Earth summit in Rio last week solemnly agreed to keep stoking the destructive fires: sixteen times in their text they pledged to pursue 'sustained growth', the primary cause of the biosphere's losses. The efforts of governments are concentrated not on defending the living Earth from destruction, but on defending the machine that is destroying it. Whenever consumer capitalism becomes snarled up by its own contradictions, governments scramble to mend the machine, to ensure – though it consumes the conditions that sustain our lives – that it runs faster than ever before (Monbiot 2012).

This profound distance in evaluating the outcome of Rio+20 can be more clearly understood by accounting for the profound shift undergone by ecological policies from

the 1990s onwards. Whereas in the late 1960s – when the environmental crisis appeared as a fully political issue – its management used to be seen as a costly but unproductive necessity, in more recent years the corporate community has elaborated and eventually imposed a new mindset according to which ecological criticality is to be approached as a profitable business opportunity rather than an unavoidable nuisance. The trajectory that connects the notion of *sustainable development* (which emerged in the late 1980s) and its contemporary, more radical form – namely the *green economy* (popularised in the course of the 2000s) – is nothing else than a chapter in the history of neoliberalism as a progressively hegemonic governmental rationality.

Originally perceived as a *crisis of capitalism* (the industry-caused crossing of the immutable threshold represented by the physical limits of the planet), ecological deterioration ended up being considered as a *crisis for capitalism*, as yet another tile in the astonishing mosaic of creative destruction. This apparently perfect translation of the environment into the homogeneous grammar of money is the main characteristic of the green economy. Moreover, its total acceptance on the part of the UN explains the sidereal distance that separates supporters and critics of the *financialisation of nature*. To realise how profound is the adherence of the UN to the green economy dogma (“the market will solve the problem it has itself created in the first place”) we can report on two articles from *The Future We Want*:

58. We affirm that green economy policies in the context of sustainable development and poverty eradication should: [...] (d) Promote sustained and inclusive economic growth [...] (h) Not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade, avoid unilateral actions to deal with environmental challenges outside the jurisdiction of

the importing country [...] 61. We recognise that urgent action on unsustainable patterns of production and consumption where they occur remains fundamental in addressing environmental sustainability and promoting conservation and sustainable use of biodiversity and ecosystems, regeneration of natural resources and the promotion of sustained, inclusive and equitable global growth (UN 2012: 10-12).

There are three points we need to highlight from this passage: a) the imperative of economic growth is never contested – actually, not even questioned; b) the green economy is represented as the new frontier of free trade agreements and, as such, is not going to establish tense relationships with them; c) the urgency and gravity of the environmental crisis is assessed only in so far as the solution to it is configured as market-based and growth-ensuring. As we see, the notion of green economy entails a new relation between the capitalist mode of production (more specifically: its mechanisms of valorisation/exploitation) and nature (more specifically: its peculiar role within the process of value production).

In very general terms, our dissertation aims at shedding new light on this unprecedented relation between capital and nature. In particular, we would like to avoid the double trap of an excessive emphasis on physical limits to growth (essential *incompatibility* between capital and the environment) and an unproblematic trust in the green economy (essential *affinity* between capital and the environment). In fact, despite their diametrical political opposition, these two positions hypostatise the terms of the relationship instead of investigating their mutual and reciprocal constitution. Our goal, instead, is to focus on the historicity – and, hence, intrinsic transformability – of the configurations of such relation.

In other words, we are interested in investigating the different modalities through which the two terms have been interacting and have created at least two different *socio-natural links*, which we shall call “liberal” and “neoliberal”.

To carry out this kind of analysis, the present work is structured in four chapters. Chapter 1 delineates the general methodological framework – *biopolitics as method* – through which the object of study is going to be investigated. The main interlocutors in our methodological exploration are Karl Marx and, more comprehensively, Michel Foucault. By means of an original connection of their respective theoretical parables – and especially a non-determinist account of *historical materialism* and a technical and specific approach to the notion of *biopolitics* – we shall attempt to elaborate a simultaneously political and epistemological grid of intelligibility which is potentially able to fruitfully articulate the productive frictions between the *formal status* of theory and its *historical consistency*. On the one hand, we need to understand and explain the relatively stable logical connections that allow the monetary system to subsume the ecological crisis under its highly speculative, formalistic *modus operandi*. On the other hand, we need to take into account the history of social struggle and capitalist development that allow us to understand and explain the different configurations in which capital's formal logic expresses itself in highly context-specific spatio-temporal constellations.

In other words, the research question is the following: *how can a simultaneously biopolitical and historico-materialistic framework help us in defining the specific*

features of the ecological crisis? To properly answer, we shall put forward a methodological understanding of the notion of “biopolitics” based on some revisions to the concept proposed by Giorgio Agamben and Michael Hardt and Antonio Negri. Through a critical discussion of some of their philosophical formulations, we shall elaborate a Marxian-Foucauldian methodology grounded on three fundamental assumptions: a) the simultaneously ontological and historical character of the concept of *freedom* in the late Foucault; b) the politico-epistemological explanatory power provided by the notion of *antagonistic tendency* as elaborated by the Italian *workerist* tradition, and lately popularised by Hardt and Negri; c) the philosophical articulation of the relation between ontology and politics such as the one proposed by Agamben, in which the two elements are thought as *distinct but inseparable*: they are not the same thing, but outside of their relation they lose their meaning as theoretical categories.

Chapter 2 constitutes a first abstract application of such a methodological framework. The main point is to show the historical change undergone by the notion of nature in its three main steps: pre-capitalist; early-capitalist (or *liberal*); late-capitalist (or *neoliberal*). To exemplify this trajectory, the chapter's title sets as its goal an in-depth exploration of the difference between the ancient almond described by Jared Diamond in his notorious *Guns, Germs, and Steel* (1997) and the Genetically Modified RoundUp Ready soybean produced by the infamous corporation Monsanto.

In a nutshell, the argument we are going to sustain suggests that, whereas in pre-capitalism the relation between economy and environment is constituted as *extrinsic*, with

the advent of capitalism a shift can be witnessed towards the becoming *intrinsic* of such relationship. Furthermore, within a biopolitical and capitalist horizon, such *internality* modifies itself through time: whereas in liberal capitalism nature plays the role of an enacting limit to productive activity, in neoliberalism it is turned into a crucial element of valorisation. Such transformation is analysed with specific regard to both the new importance gained by social knowledge – or, to use Marx's terminology, the *general intellect* – in the context of contemporary productive process, and the unprecedented political function currently performed by financial systems as main subjects of global governance. The general point we argue for is that, in the course of the last four decades, an unprecedented *leap of abstraction* has taken place. Such a second order abstraction is necessary – albeit in no way sufficient – for the understanding of the contemporary tendency of capitalist development and, as a consequence, also of the current ecological crisis.

The conclusion of the chapter elaborates on the difference between Diamond's almond and Monsanto's GM soybean as follows: in the biopolitical arena, power and knowledge are entangled in multifarious *dispositifs* whose very existence rest upon irreducible historical contingency and spatial situatedness. Thus, grasped through biopolitical lenses, the two entities have nothing to do with each other, simply because such products belong to different forms of the socio-natural link.

Chapter 3 puts to work the previously established methodological framework at a slightly lower level of abstraction, namely the crucial issue of climate change and the

global policies implemented to challenge it. First and foremost, it is suggested that carbon trading, which is to say the mainstream solution to global warming, should be understood as a contemporary form of enclosure within the context of a planetary unfolding of a new wave of primitive accumulation. Furthermore, the case of climate change is chosen as paradigmatic of the new relationship between capital and nature in that it shows a *constitutive tension between abstraction and concreteness* that makes such an issue the most suitable in order to analyse continuities and ruptures within the movements of old and new enclosures.

Another aspect that renders global warming particularly interesting for our purposes is its profound *hybridity*, its being at the same time materially concrete *and* informationally intangible. No one, according to historian Paul Edwards (2010), lives a planetary atmospheric experience without the support of climate science. To link a weather-related event – no matter how extreme it presents itself – to climate change, a massive mobilisation of the general intellect is invariably required. Obviously, this dependence on knowledge does not make climate change any less concrete or material, both in the individuation of its multiple causes and in the destructiveness of its heterogeneous effects. Rather, those causes and effects disclose an entirely new way of enacting the tensive interaction between the abstract and the concrete. None of these two dimensions is, *per se*, sufficient to theoretically grasp and politically act upon climate change; to the contrary, both are necessary.

To analyse this unprecedented intertwining, after having briefly reviewed the history of climate policy, we shall advance a basic argument that might be summarised as follows: carbon commodities (cap-and-trade units [e.g. European Union Allowances],

offsets [e.g. Certified Emissions Reductions] and tradable carbon units in general) should be approached by taking into account their role in multifariously supporting the *carbon trading dogma*, which is to say an extremely cogent – albeit empirically undemonstrable – political assumption according to which although climate change must be considered a market failure, only markets can provide a viable solution to it. This dogma simultaneously presents governmental aspects, which we shall analyse from a Foucauldian perspective, and exploitative ones, which we shall address starting from a (post)Marxist account of the exploitation of the general intellect. Consistent with the framework of biopolitics as method, we shall conclude that carbon commodities should be conceived of as *second order abstractions* since, in them, the Marxian differentiation between *natural distinctness* of use-value and *economic equivalence* of exchange value tends to blur since a decisive element of their exchange-value resides in the *ex ante* creation of capital-based use-values. This is the process we shall define as the *lost innocence of use-value*.

To further substantiate such an argument, we shall propose a detailed analysis of the three supports that practically enact the ideological structure of carbon trading dogma: a) the *informational* one, whose main example is provided by carbon forestry; b) the *legal* one, whose main focus is on the contested juridical nature of carbon commodities such as European Union Allowances; c) the *calculative/promissory* one, whose main field of application concerns the notion of additionality as prescribed by Clean Development Mechanism, and the paradoxical interplay it activates between past, present and future. To conclude the chapter, we shall inscribe the specificities of carbon sellable units into a broader history of commodification.

Chapter 4 reports and discusses the results of an empirical research we conducted in Durban, South Africa, during the United Nations Framework Convention on Climate Change (UNFCCC)'s Seventeenth Conference of the Parties (COP17). Here the analytical focus shifts from the investigation of the relationship between capital and nature to the multiscale resistances carbon trading has encountered so far. As a first step, we shall propose to approach the climate justice movement from the perspective of the notion of *profanations*, namely a political and context-specific re-assembling of a concept originally proposed by Giorgio Agamben. It is important to stress the twofold nature of conflictual *profanations*: on the one hand, immanent critique of the present state of affairs; on the other, material prefiguration of a new possible social structure. In temporal terms, the reference to a desirable future enacts already existing critical potentials in such a way that an opposition to the *status quo* immediately activates the construction of a new form of social organisation, previously unimaginable.

Thus, we contend that contemporary climate struggles can be read as *disarticulations of the carbon trading dogma* which simultaneously undermine its functioning and prefigure alternative solutions to the challenges of global warming. Hence, we might call *carbon profanations* those conflicts that already affect the carbon trading dogma, and that problematically disclose a series of post-capitalist scenarios. In particular, after having reported both the official outcome of Durban's COP17 and the numerous protests by civil society it was surrounded by, we shall analyse three specific campaigns situated at three different scales.

a) At the transnational level, we choose to focus on the issue of *climate debt* and on the most important campaign from this perspective, namely the Yasuní proposal to leave the oil underground in Ecuador. In particular, we shall attempt to show how the demand of an *unconditional basic income* – as pushed forward by Western social movements in open opposition to austerity measures – can be politically connected with a *climate basic income* – as embryonically experimented in Namibia.

b) At the national, South African level, we decided to concentrate our attention on the *One Million Climate Jobs* campaign, whose main merit is the profound link it constructs between the transition to a low-carbon economy and the erasure of unemployment, a historical and particularly dramatic plague of the South African workforce. According to *OMCJ* activists, by shifting crucial productive activities from a fossil fuel-based model to a low-carbon scheme it is possible to create at least one million new jobs. Our analysis shall focus on the role played by bottom-up research and on the problematic function *OMCJ* campaigners assign to the state apparatus.

c) At the local level concerning the city of Durban, our research has assumed the controversial issue of the Bissasar Road landfill as its main object. The reason for this choice is twofold: on the one hand, such an issue links together apartheid-era environmental racism and contemporary carbon trading's devastating effects (it is part of the Clean Development Mechanism); on the other hand, its complex unfolding – which affected both supporters of the landfill and resisting communities – presents itself as particularly useful to problematise our hypothesis of *carbon profanations*. In fact, both of its aspects (critical and prefigurative) have been at times overwhelmed by tactical concerns and/or by tacit co-optation. In other words, profaning acts can never be taken

for granted; rather, they need constant participation, persevering organising and favourable contingent conditions to be effective and fulfil their emancipatory promises.

The Conclusion of our dissertation aims at proposing a few possible further lines of research regarding the material previously investigated. Basically, it contends that all three empirical case studies would benefit by a sort of contamination with a perspective centred around the notion of the *common/s*. Such a notion is then analysed from three different – but closely interrelated – standpoints. First, it is suggested that the *common/s* diagonally cuts the state vs. market dichotomy and opens up the possibility of new configurations of shared ownership. Second, it is argued that the *common/s* diagonally cuts the material vs. immaterial dichotomy and, as a consequence, should not be understood as a natural given but, rather, as the political outcome of an ever-contested process of production. Third, it is posited that the *common/s*' dynamic unfolds by incrementally reinforcing its revolutionary potential and, as such, can be formulated in fruitful connection with the notion of *profanations*.

Biopolitics as Method

In a thought-provoking article, Michele Cammelli complains that the notion of biopolitics has been used during the last decades in such different fashions and conceptual extensions that it is almost impossible to precisely situate its theoretical borders (Cammelli 2003).⁴ We agree with this statement but, whereas for Cammelli this is considered to be a regrettable limit, for us it is a proof of the analytical potentials contained in the concept. Nonetheless (or, better: precisely because of this), our goal is not to restore the putative “purity” of biopolitics. On the contrary, through a critical overview of some of its different articulations, we will attempt to isolate some useful aspects of biopolitics in order to answer the following question: how can the biopolitical framework help us in defining the specific features of the ecological crisis? Clearly, this is an entirely methodological question. It configures the problem of the relation between the *formal status* of theory and its *historical consistency*. This tension will guide our exploration of three different formulations of biopolitics.

⁴ More radically, Roberto Esposito has recognized the source of such confusion within Foucault's own works: “It is to be noted that not even Foucault is able to escape completely from such a deadlock, and this despite working in a profoundly new framework with respect to the preceding formulations. Foucault too ends up reproducing the stalemate in the form of a further 'indecisiveness' – no longer relative to the already acquired impact of power on life, but relative to its effects, measured upon a moving line that has at one hand the production of new subjectivity and at the other its radical destruction. That these contrastive possibilities cohabit within the same analytic axis, the logical extremes of which they constitute, does not detract from the fact that their different accentuations determine an oscillation in the entire discourse in opposite directions both from the interpretative and the stylistic point of view. Such a dyscrasia is recognizable in a series of logical gaps and small lexical incongruences or of sudden changes in tonality [...] When taken together they mark a difficulty that is never overcome” (Esposito 2008: 32-33).

1- FOUCAULT: THE BIOPOLITICAL HYPOTHESIS

Although Foucault did not coin the term (Cutro 2005), his fundamental contribution to the field of studies related to biopolitics cannot be overestimated. Moreover, the fragmented nature of his reflection about this issue might be considered responsible for the profound richness (but also, to a certain extent, for possible confusions) of biopolitics as a specific theoretical tool. In fact, Foucault undertook this research project in the mid-1970s and carried it until 1980 in a variety of different forms: official publications (*The History of Sexuality, vol. I*, 1976), academic conferences (“*La naissance de la médecine sociale*”, 1974; “*Les mailles du pouvoir*”, 1976), and four series of lectures at the Collège de France (“*Society Must Be Defended*”, 1975-1976; *Security, Territory, Population*, 1977-1978; *Birth of Biopolitics*, 1978-1979; *On the Government of Living Beings*, 1979-1980), whose definitive publication was not complete until very recently.⁵ If we bear in mind the trajectory of Foucault's general philosophical development,⁶ we can easily realise that biopolitics as an object of

⁵ At the time of writing, the fourth series of lectures is still unpublished. Apparently, its French edition will be released on October 25th, 2012.

⁶ From a purely heuristic perspective, it is possible to subdivide Foucault's theoretical production into three distinct phases (which nonetheless do not configure radical *caesurae*). In the first period (*History of Madness*, 1961; *The Order of Things*, 1966; *The Archeology of Knowledge*, 1969), the focus is on how a given discourse manages to create and investigate its own objects. In the second period (*The Order of Discourse*, 1971; *Discipline and Punish*, 1975; *The History of Sexuality. Vol. I*, 1976) the emphasis is on how, historically, power and knowledge relate to each other and, in so doing, allow a specific hierarchical system to emerge and work. It is in this context that the well known critiques addressed by Fraser (1981) and Habermas (1987) should be framed. To put it shortly, the problem they raise is the following: if there is no way to escape power, if every original production of norms will be necessarily captured and normalised, then there is no ground for political action and social transformation. The third phase of Foucault's work (*The Use of Pleasure*, 1985; *The Care of the Self*, 1986; Late lectures at Collège de France; late interviews) might be interpreted as an indirect response to such criticism. In fact, Foucault attempts to articulate more explicitly his ontological and normative presuppositions. Moreover, he seems to propose a theoretical distinction between *creation of norms* (resistance and technologies of the self) and *normalisation* (technologies of power). The focus of his

scientific interest started to attract him at the apex of the “genealogical” period, whose methodological foundations were exposed in 1971 in “Nietzsche, Genealogy, History”, and whose main achievements are represented by *Discipline and Punish* (1975) and the already mentioned first volume of *The History of Sexuality*. Nonetheless, it is also quite clear that it is in the course of the biopolitical investigation that Foucault begins to feel compelled to expose more explicitly the ontological and normative presuppositions of his critique of governmentality and, subsequently, decides to turn his analytical gaze towards the Greek and Roman antiquity. It is important, we argue, to recall the vortical motion in which Foucault's thought was kept during the second half of the 1970s in order to better understand the fragmented nature of the first “proper” biopolitical hypothesis.

In the context of the present work, our aim is to briefly present Foucault's argument in order to highlight two historical points, a novel theoretical articulation and a methodological assumption which will set our discussion towards a biopolitical reading of the environmental crisis. Needless to say, all these elements are closely interconnected and distinguishing between them serves merely the purposes of analytic clarity.

analysis is now on the different modalities through which, in the West, individuals and collectives have constructed themselves in relation to multifarious power/knowledge *dispositifs*. I suggest that this may be the reason why Foucault partially dismisses the empirical results of the first volume of the *History of Sexuality* to turn his attention towards a generative genealogy of the desiring subject, starting from classical antiquity and the first centuries of Christianity. On this periodisation, see Marzocca (2007) and Sorrentino (2008).

As a starting point, from an empirical, micro-physical perspective, it is possible to situate the emergence of biopolitics in the progressive implementation of governmental technologies of power whose specific goal is the simultaneous empowerment of individual and collective bodies. With the term *governmentality*, Foucault articulates three aspects: a) the *ensemble* of institutions, tactics and analyses that allow a specific kind of power to be exercised over the population (through a knowledge apparatus defined by political economy and a set of technical *dispositifs* oriented towards security); b) the historical tendency of this new kind of power to become prominent over older forms of power; c) the process through which, from the Middle Ages onwards, the state shifts progressively from being juridically-based to being thought of in terms of administrative procedures and, finally, to being entirely governmentalised (Foucault 2007). This set of practices, initially proposed in the second half of the Eighteenth century, was organised around four main fields of intervention: *natality*, *morbidity*, *ability*, and, most importantly from our standpoint, *environment* (Foucault 2003). As a consequence of this, biopolitics is deployed through four different types of social control. Firstly, this form of power is exercised over phenomena such as fecundity and longevity by means of demographic regulation and statistical analysis. Secondly, it refers to health variables such as endemic and epidemic diseases through a conception of death as a decreasing factor of individual and collective performances, whose inevitable outcomes involve an increase regarding the administrative costs of treatments and, more generally, a reduction of efficiency in the medical regulation of society. Thirdly, biopower intervenes on aleatory events which imply a more or less severe reduction of social abilities (such as accidents, infirmities, anomalies, and old age) by means of the

development of a pervasive system of governmental insurance. Finally, as we shall see in more detail later in this section, biopolitics implies the political creation of an intermediate space between natural environment and artificial urbanisation, investing in particular the process of shaping natural systems (both at the climatic and hydrographical level) according to governmental expansive necessities.

The second historical point, already introduced by mentioning the issue of urbanisation, concerns the relationship between the emergence of biopolitics and the process of industrialisation or, by extension, by the rise of capitalism as a dominant mode of production. In Foucault, it seems to us, the link between these two dimensions is inextricable. In his works, we can find both direct and indirect proofs of this crucial contiguity. In “The Birth of Social Medicine,” a lecture delivered in Brazil in October 1974, Foucault writes:

I advance the hypothesis that with capitalism we did not shift from a collective medicine to a private one. On the contrary, it is the opposite that actually occurred. Capitalism, which developed at the end of the Eighteenth century and at the beginning of the Nineteenth, had initially socialised a first object, the body, as a function of productive forces, of labour power. The social control on individuals did not only take place through consciousness or ideology, but also within [*dans*] and with [*avec*] the body. For a capitalist society it is above all biopolitics the fundamental issue: the biological, the somatic, the corporeal. The body is a biopolitical reality, medicine is a biopolitical strategy (Foucault 1994a: 209-210. Our translation).

Similarly, in a pivotal passage of the first volume of *The History of Sexuality* we can read the following statement:

This biopower was without question an indispensable element in the development of capitalism; the latter would not have been possible without the controlled insertion of bodies into the machinery of production and the adjustment of the phenomena of population to economic processes [...] The adjustment of the accumulation of men to that of capital, the joining of the growth of human groups to the expansion of productive forces and the differential allocation of profit, were made possible in part by the exercise of biopower in its many forms and modes of application. The investment of the living body, its valorisation, and the distributive management of its forces were at the time indispensable (Foucault 1978: 140-141).

Along with these explicit references, however, we can also find in Foucault's corpus of the late 1970s indirect proofs of the link between biopolitics and capitalism. From this perspective, the best example is perhaps “The Meshes of Power,” a lecture delivered in Brazil in 1976. We refer to it as an “indirect” proof since Foucault does not specifically address the nature of the bond between capitalism and biopolitics, but rather recognises in Marx the main precursor of a new, anti-representative modality to approach power in its “real functioning” (Foucault 1994: 186). In other words, what interests us here is to show how the critique of political economy proposed by Marx constitutes a fundamental condition of possibility (certainly amongst many others) for the issue of biopolitics to be addressed. In “The Meshes of Power” Foucault complains about the fact that power has been analysed, at least within the context of Western society (Kant, Durkheim and Lévi-Strauss are listed), in a restrictive way mainly based around the ideas of *prohibition* and *detachment*. Anticipating a well-known argument⁷ that will be

⁷ According to Foucault, the new socio-historical scenario disclosed by the emergence of biopolitics made the sovereign theory of power, based on the notion of *law*, obsolete. As he famously stated: “In

developed shortly after, Foucault criticises this juridical notion of power and declares his intention to study power in its positive, productive dimension. As a consequence of this, he asks: “How can we attempt to analyse power in its positive mechanisms?” Reading Marx, especially the second volume of *Capital* (Marx 1971),⁸ seems to be a proper answer to this question. Foucault finds in the Marx of fixed and circulating capital four elements that allows the positive technologies of a new form of power to be seen, analysed and, possibly, critiqued. First, Marx clearly recognises that power is by nature heterogeneous, plural and excessive: “There is not just *one* form of power, but several ones [...] Society is an archipelago of different powers”. Second, Marx convincingly shows that force relations are local, regional, specific, and that their legal unification is the result of a secondary process. Third, the specific goal of these regional powers does not consist in restraining from acting, but is rather configured as a permanent incitement to produce “an efficiency, an attitude”. Finally, power is inherently technological and the historical traces of its mechanisms are to be found in practical implementations rather than in *a posteriori* ideological justifications. At this point, implicitly announcing the analysis he was going to publish, Foucault concludes:

political thought and analysis, we still have not cut off the head of the king” (Foucault 1978: 88-89). The theoretical innovation he proposes consists in analysing power starting from its twofold nature of *individualising* and (at the same time) *totalising* entity. In another much quoted passage, he proposes to focus on the articulation of “an *anatomo-politics of the human body*”, centred on the notion of discipline, and “a *bio-politics of the population*”, organised around technologies of security (*Ibid.*: 139).

⁸ Although Foucault explicitly states to be referring to volume II of *Capital*, he is actually thinking of the middle part of volume I. Rudy Leonelli has exposed and rectified this mistake by consulting Foucault's personal library and by noting that the edition of *Capital* he was using divided volume I in several tomes, the second of which corresponds to the contents he is analysing. See Leonelli (1999; 2010).

Well, what I would like to do – reworking what has been found in the second volume of *Capital*, and refusing what has been subsequently added on the privileges of the state apparatus, the reproductive function of power, the features of the juridical superstructure – what I would like to do is an attempt to see how is it possible to elaborate a history of powers in the West, and essentially of powers as they are invested in sexuality (Foucault 1994b: 189).

To sum up this first part of our discussion, we might say the following: when Foucault insists that Western society, in the course of the second half of the Eighteenth century, has crossed a “threshold of biological modernity” and has consequently “wagered the life of the species on its own political strategies” (Foucault 1978: 143), he intends to establish a line not of *homology*, but rather of *convergence* amongst the theoretical triad of biopolitics, governmentality and capitalism. Those concepts, in other words, do not by any means identify the same set of phenomena. On the contrary, their specificity should be jealously preserved (the risk here is that of a linearisation of the historical process, potentially at the service of yet another grand narrative). Simply, they converge not primarily in their chronological simultaneity (which is, after all, far from perfectly congruent) but, more importantly, in the unprecedented political intelligibility that their integration provides. A whole set of contemporary problematic issues, in fact, emerge at the intersection of these three practico-theoretical elements and are, we contend, more easily understood and acted upon from this complex but profoundly fruitful perspective.

Although the biopolitical hypothesis is initially based on a new micro-physical understanding of the second half of the Eighteenth century, it cannot be reduced to that. On the contrary, its core resides in a novel formulation of a classical theoretical element which refers to the relationship between *life* and *politics*. To put it crudely, we might say that before the emergence of biopolitics, the relation between life and politics was *extrinsic*, in the sense that the two poles defined different fields of intervention and development which, although often overlapping each other, used to be conceived autonomously, as irreducibly distinct. On the contrary, after the “threshold of biological modernity” was crossed, the two fields merged into one set of phenomena within the context of which their respective identities became indistinguishable. In other words, life became a specific target of political power and, as a consequence, their relationship was configured as *intrinsic*.⁹ To put it differently: neither scientific reductionism nor cultural determinism can properly represent the new internal and qualitative connection between life and politics. The governmental *dispositif* through which this epochal passage was accomplished is to be found in the notion of *population*. Clearly, the concept did not arise in the Eighteenth century, but (according to Foucault) in that period its meaning undertook a decisive transformation. Previously, the role of the population was subordinated to its *territorial function*: the mere sum total of individuals inhabiting a determined geographical area, to be managed through the creation of docile bodies, was the main goal of sovereign power. With the emergence of biopolitics, however, what is

⁹ It might be useful to note that the intrinsic relationship between life and politics also necessarily implies the fall of the rigid distinction between nature and history. Within the biopolitical horizon, naturalness and artificiality are kept in an indefinite interplay which defines, *after* their encounter, the specificity of any given situation.

mainly at stake is the *governmental function* of the population. Accordingly, the intervention on the laws of development of the population is no longer *external*, namely juridically exercised *over* a flat, disposable given nature, but rather *internal*, since the active regulation of this development is the peculiar goal of the art of government. In Foucault's own words:

Taking the effects specific to population into consideration is, I think, a very important phenomenon: *the entry of a 'nature' into the fields of techniques of power, of a nature that is not something on which, above which, or against which the sovereign must impose just laws*. There is not nature and then, above nature and against it, the sovereign and the relationship of obedience that is owed to him. We have a population whose nature is such that the sovereign must deploy reflected procedures of government within this nature, with the help of it, and with regard to it (Foucault 2007: 75. Our emphasis).

As we see, population is surely defined in terms of *naturalness*, but this naturalness presents very different features than the normative, eternal, factual nature that is traditionally opposed to politics as a value-oriented practice. Here politics and nature merge into each other and finally open up a new field of power intervention – the *environment* – which will be defined as the permanent negotiation between natural and historical determinations.

The new concept of *natural population* possesses three fundamental aspects (Pandolfi 2006):

a) Its substance is constituted by a *net of variables*. It is not a “primary datum,” a primordial matter, an immediate referent upon which power deploys its mechanisms. On

the contrary, the peculiar being of population is attainable through mediation, through the specific knowledge that allows its changeable individuation. The rigidity of this *mediative individuation* is not given once and for all (the regularity of climate laws functions on a different level than, for example, the pedagogic strategies that organise the education of children), but what really matters is that it defines the field of tensions within which power must intervene if it aims at producing effective regulation.

b) The second aspect concerns the notion of *desire*. The naturalness of population is, in fact, a peculiar weaving of heterogeneous desires. Some of them are irrepressible but potentially noxious, whereas others might produce, when left free to spontaneously organize, “the general interest of population.” Again, more than definitions, what counts is that governmentality must act as a *translation process* in which the passive acceptance of a plurality of irreducible desires co-exists with the active regulation of their interplay.

c) The third aspect that characterises the naturalness of population is *constancy*. This is a sort of practical perspective through which what appears to be singular, unstable and contingent can be inscribed in a series of occurrences that repeat themselves with a certain regularity. In other terms, phenomena like *natality*, *morbidity*, *ability*, and the *environment* are susceptible to (at least partially) predictable distributions and statistical partitions.

To conclude, the emergence of this new concept of population opens up the possibility to *govern the environment*, conceived of as nothing more than the principle by means of which a set of heterogeneous elements, both natural and artificial, are formalized to be managed, or subordinated to an abstract *mise en série* in order to be

politically regulated. In other words, if in the *sovereign paradigm* nature and politics were confronting each other from mutually exclusive standpoints, the *biopolitical paradigm of nature* determines the exact opposite situation: political artificiality and species naturality melt into a zone of indistinction constitutively exposed to governmental capture.

The methodological premises of Foucault's biopolitical period are a much contested issue.¹⁰ Again, these controversies might be due to actual contradictions disseminated throughout various sources of the Foucauldian *corpus*. To better contextualise this crucial debate, let us briefly (and very schematically) recall the succession of Foucault's three phases from a methodological standpoint:

- a) In the “archaeological” period, Foucault assumes the non-existence of his objects of study, which he calls “historical *a priori*” (Foucault 2002: 142) or “positivities” (*Ibid.*:183), in order to epistemologically isolate the discursive formations in which these objects find themselves embedded. As it has been noted (Sorrentino 2008), this perspective cannot give a proper account of historical change. While it is formally irreprehensible, it lacks the capacity to give historical consistency a meaningful role.
- b) In the “genealogical” phase, Foucault amends his methodology through a new take on power relations, assuming history as a non-historicist element:

¹⁰ Two opposite, but equally remarkable perspectives are elaborated by Cutro (2004) and Revel (2005).

If the genealogist refuses to extend his faith in metaphysics, if he listens to history, he finds that there is “something altogether different” [a reference to Nietzsche's *The Dawn*] behind things: not a timeless and essential secret, but the secret that they have no essence or that their essence was fabricated in a piecemeal fashion from alien forms (Foucault 1980: 142).

As we can see, the postulate of the non-existence of the objects of study remains intact. Affirming their non-existence, however, does not mean that they are nothing: on the very contrary, this approach allows researchers to genealogically reconstruct the historical processes through which a given epistemological field *realises* itself as a practical grid of intelligibility. Nonetheless, the trap of the omnipresence of power relations produces an uncomfortable feeling of legitimising the *status quo*. In other words, it seems as though everything changes in accordance with power strategies.

c) In the “ethical” phase, as we shall see in more detail later, Foucault turns his gaze towards the multifarious processes of subjectification that constitute, at least potentially, an insuperable barrier to the full realisation of power prescriptions. Those latter will be investigated as *problematizations*, namely as always-contested processes of establishing new grids of intelligibility. In other words, the emergence of the new in history is due to the intrinsic possibility of resistance. In this way, freedom assumes the role of a methodological principle.

As we already said, the biopolitical period represents both the apex of the second phase and the inception of the third. As a consequence, we simultaneously find elements of the genealogical period and openings towards a successive, freedom-based

methodology. Referring to the former, this passage from *The Birth of Biopolitics*, in which Foucault reviews his previous works, is particularly instructive:

It was a matter of showing by what conjunctions a whole set of practices – from the moment they become co-ordinated with a regime of truth – was able to *make what does not exist* (madness, disease, delinquency, sexuality, etc.), *nonetheless become something, something however that continues not to exist*. That is to say, what I would like to show is not that an error [...] or an illusion could be born, but how a particular regime of truth, and therefore not an error, makes something that does not exist able to become something. It is not an illusion since it is precisely a set of practices, real practices, which establishes it and thus imperiously marks it in reality [*et le marque ainsi impérieusement dans le réel*] (Foucault 2008: 19. Our emphasis).

Evidently, Foucault's perspective here is not ontological, but rather *ontogenetic*: more than the discovery of what things *are*, his research attempts to show how things *came to be*, *how they realised themselves* and *how they work* in relation to each other.¹¹ In other words, establishing the intelligibility of a historical occurrence consists in “simply showing that it was possible [*que le réel soit possible; c'est ça sa mise en intelligibilité*]” (Foucault 2008: 34). As we said, this approach presents the relevant advantage of providing excellent empirical insights. Nonetheless, the apparently “simple” act of delineating the possibility of reality hides insidious analytical risks. In fact, the very

¹¹ From this perspective, the following statement by Alexander Galloway and Eugene Thacker seems to be at the same time profoundly insightful and strikingly contradictory: “Such an analysis [Foucault's one] describes how power comes to be, but says little about *how it works* or even *that it exists* as such” (Galloway and Thacker 2007: 8). As for the non-existence of power, and the concern about its appearance, they are absolutely right: genealogy as methodology prescribes such theoretical procedures. More problematic is the claim that this approach says little about how power works: if so, through which alternative analytic processes could it be possible to describe how power came to be?

possibility of a critique of what is real becomes methodologically unacceptable: once the intelligibility of reality has been shown, what remains is the indelible trace of power. To put it differently, genealogy is intrinsically haunted by the possibility to transform what could merely be an unstable outcome of strategic force relations into the necessary result of an omnipotent *deus ex machina*. Paradoxically, genealogy seemed to be trapped in a curious inversion: the refusal of the deterministic tyranny of the origin barely brought to light the uncomfortable transcendence of the *status quo*, marked by an indisputable legitimacy provided by the mere fact to be real, actually occurring.

However, in *Birth of Biopolitics* we can also find, surely in embryonic form, a criticism of this involuntary analytical outcome. In a dense passage concerned with the particular modulation of the notion of freedom within the framework of liberal governmentality, Foucault takes a methodological *detour* and states:

We should not think of freedom as a universal which is gradually realised over time, or which undergoes quantitative variations, greater or lesser drastic reductions, or more or less important periods of eclipse. Freedom is neither a universal which is particularised in time and geography, nor a white surface with more or less numerous black spaces here and there and from time to time. *Freedom is never anything other – but this is already a great deal – than an actual relation between governors and governed, a relation in which the measure of the “too little” existing freedom is given by the “even more” freedom demanded* (Foucault 2008: 63. Our emphasis. Translation modified).

As we see, freedom is proposed as an inherently relational concept and, even more importantly, its measure within a given governmental framework is defined by the demands advanced by the governed and not by the concession gracefully granted by the

governors. This articulation of freedom, which will be subsequently refined, opens up the possibility to formulate the *ontological primacy of resistance over power*.¹² We shall see later in this section the methodological implications of freedom conceived as an ontological postulate. For the time being, we want to show how this development begins, in a sort of larval configuration, during the biopolitical phase of Foucault's research, without being for this reason the only key to interpret it.

2 - AGAMBEN vs. HARDT & NEGRI: BIOPOLITICS REVISITED

In recent years the debate about biopolitics has mainly been centred around the formulations proposed by Giorgio Agamben, on the one hand, and, on the other, by Michael Hardt and Antonio Negri. Although in very different fashions, we claim that their attempts operate an ontological revision of Foucault's work. Consequently, the point of contention between these two approaches is fundamentally related to ontology. Whereas Agamben, maintaining *sovereignty* as an irremissible theoretical compass, originally reworks sources such as Heidegger, Benjamin and Schmitt, Hardt and Negri privilege an alternative line of development, based on the notion of *constituent power*, whose crucial articulations are to be found in Spinoza, Marx and Deleuze.¹³ However, the

¹² It is necessary at this point to acknowledge that the first thinker to make this point was Gilles Deleuze in his famous commentary on Foucault's work, in which he stated that "the final word on power is that *resistance comes first*" (Deleuze 1988: 89).

¹³ An excellent interpretation of the ontological differences between Agamben and Negri can be found in Neilson (2004).

aim of this section is to provide a critical methodological comparison between the specific modalities through which these authors utilise the concept of biopolitics.

2.1 - Let us start with Agamben. His attempt to “ontologise” Foucault's methodology is clearly exposed in an important book titled *The Signature of All Things: On Method*, published in 2009. In “What is a Paradigm?”, the first essay of the volume, Agamben rightly points out the profound differences between Foucault and epistemologist Thomas Kuhn with regard to the notion of paradigm. In fact, whereas for Kuhn a paradigm designates a sort of disciplinary matrix, the common set of statements and procedures which define a particular scientific field in a given moment, for Foucault the paradigm (especially during the genealogical phase) incessantly refers to the interplay between politics and epistemology and, accordingly, is configured as a sort of cartography of power/knowledge relations in a determined historical period. Moreover, as Agamben convincingly argues, the peculiar logic of the Foucauldian paradigm cannot be constrained within the dichotomous (or binary) structure of traditional Western logic since it enacts neither an inductive development (from the particular to the universal), nor a deductive one (from the universal to the particular). Rather, this concept of paradigm enables the researcher to establish an epistemological connection *from a singularity to another singularity*. Agamben calls this formal structure *analogy*, whose specific production is epistemological intelligibility. Analogy is situated in a diagonal position with regard to the particulars it connects and consequently creates a third term which is at the same time *included* in their relationship (as an example of their commonality) and

excluded from it (in order to be exemplary, the third element must lose its particular features). In Agamben's own words:

The analogical third is attested here above all as the disidentification and neutralisation of the first two [elements of the relation] which now become indiscernible. The third is this indiscernibility, and if one tries to grasp it by means of bivalent caesurae, one necessarily runs up against an undecidable. It is thus impossible to clearly separate an example's paradigmatic character – its standing for all cases – from the fact that it is one case among others. As in a magnetic field, we are dealing not with extensive and scalable magnitudes but with vectorial intensities (Agamben 2009a: 20).

This passage is crucial because it shows the very foundation of the Agambenian attempt to turn Foucault's methodological genealogy into an ontological structure. First of all, we see that intelligibility is no longer read as that specific standpoint, situated *between* power/knowledge and *within* a given historical conjuncture, which is potentially able to show how that reality is to be conceived as actually possible. On the contrary, the deepest layer of Agamben's intelligibility rests upon an inescapable *indiscernibility*. In fact, it is on the basis of a paradoxical, simultaneous co-existence of an inside and an outside within the formal structure of a bipolar analogical model that singular historical occurrences can show their irreducible differences. Rather than accounting for the singular uniqueness of the various manifestations of the consistency of history, this intelligibility shows their common dependence on an ineluctable indiscernibility (whose political side is a radical *indecidability*). Moreover, Agamben makes clear that the indiscernible intelligibility embedded in the notion of paradigm possesses an ontological

status: “The intelligibility in question in the paradigm has an ontological character [...] There is, then, a paradigmatic ontology” (Agamben 2009a: 32).

A fundamental consequence derives from the assumption of the paradigmatic nature of ontology: *methodology is conflated onto ontology*. Valid research about the world is possible as far as the ontological structure of this world is mirrored in the methodological presuppositions of the investigation. Obviously, this is not a deterministic statement (the act of mirroring might be multifariously performed), but it undoubtedly privileges the ontological substratum (*indiscernibility*) over the epistemological phenomenon (*historicity*). In other words, the particular articulations of power/knowledge relations in given events is not disregarded by Agamben, but his emphasis is clearly placed on the formal structure (*bipolar analogical model*) of the paradigmatic ontology. This is why his elaboration might be defined as an *onto-logical* interpretation of Foucault's biopolitical hypothesis. The primacy of the *logical* moment over the *historical* one is never in question. This approach presents a number of advantages: a) it possesses a strong theoretical and narrative coherence; b) it cleverly shows continuities and analogies between apparently unrelated (and supposedly unrelatable) historical phenomena; c) it posits (*contra* the biopolitical Foucault) the necessity of thinking ontology and methodology as *distinct* but in no way *separate* entities (even if it does so by assuming the indisputable priority of the ontological moment).

On the other hand, however, this theoretical perspective also presents problematic shortcomings. Firstly, its emphasis on the formal structure of being seems to over-determine and pre-shape any possible empirical material, no matter the choice of various methodological techniques. Any concrete difference ends up being nothing but an

irrelevant epi-phenomenon of the fundamental structure that, being situated in a different – and higher – level of intelligibility, cannot be refuted by empirical findings. Secondly, we contend that Agamben's methodology is *politically disempowering*. As Paolo Virno puts it: “Agamben is a thinker of great value but with no political vocation” (Virno 2002). The problem is that insofar as every historical discontinuity ends up being, in a way or in another, a confirmation of an apparently timeless and unchangeable ontological structure whose formal configuration is detectable in every situation, the only political solution is a *radical act of distancing* (no matter whether in the guise of *inoperativeness*, as Agamben seems to suggest, or as a violent and palingenetic revolution). We suggest that this call for an *absolute radicalness* is responsible for the vagueness and, in the last instance, impracticability of Agamben's political formulas, as exemplified by the following passage:

The problem of the profanation of apparatuses – that is to say, the restitution to the common use of what has been captured and separated in them – is all the more urgent. But this problem cannot be properly raised as long as those who are concerned with it are unable to intervene in their own processes of subjectification, any more than in their apparatuses, in order to bring to light the Ungovernable, which is the beginning and, at the same time, the vanishing point of every politics (Agamben 2009b: 24).¹⁴

¹⁴ These kinds of messianic political statements are recurrently disseminated throughout Agamben's work as a whole. Other examples are the following: “Only a politics that will have learned to take the fundamental biopolitical fracture of the West into account will be able to stop this oscillation and to put an end to the civil war that divides the peoples and the cities of the earth” (Agamben 1998: 180); “The profanation of the Unprofanable is the political task of the coming generation” (Agamben 2007a: 92); “It does not make any sense to oppose secularism and the general will to theology and its providential paradigm. Rather, what is needed is an archaeological investigation like the one we attempted here that, dating back to the origin of the scission that produced them as rival brothers but inseparable, shows and makes inoperative the economic-theological apparatus as a whole” (Agamben 2007b: 313). A quotation less messianic and more programmatic than the previous ones might be this: “Selecting in the new planetary humanity those characteristics that allow for its survival, removing the thin diaphragm that

Before engaging Hardt and Negri's work, let us provide an example of the methodological structure we traced in Agamben's philosophy. The primacy of the logical form of the sovereign ban, with its paradoxical inclusion and exclusion of bare life, over the contingent configurations of historical events is articulated since the beginning of *Homo Sacer*, undoubtedly the most important study published by Agamben. As he writes in the "Introduction":

The idea of an inner solidarity between democracy and totalitarianism (which here we must, with every caution, advance) is obviously not [...] a historiographical claim, which would authorise the liquidation and levelling of the enormous differences that characterise their history and their rivalry. Yet this idea must nevertheless be strongly maintained on a historico-philosophical level, since it alone will allow us to orient ourselves in relation to the new realities and unforeseen convergences of the new millennium. This idea alone will make it possible to clear the way for the new politics, which remains largely to be invented (Agamben 1998: 10-11).

As we see, Agamben is well aware of the problems we highlighted above. He does not intend to claim a putative flatness of history; however, he prefers to situate his enunciation on the "historico-philosophical level", that is "the logical and topological

separates bad mediatized advertising from the perfect exteriority that communicates only itself – this is the political task of our generation" (Agamben 1993: 65).

In the fourth chapter of this work, we shall attempt to remove Agamben's fruitful notion of *profanation* from its political vagueness in order to use it as a methodological compass to analyse contemporary social movements in the field of climate justice.

structure of sovereignty” (Agamben 1998: 67). This tension profoundly permeates his *corpus* as a whole. With regards to biopolitics, Agamben not only concedes that the camp as paradigm is a *modern* phenomenon,¹⁵ but also goes as far as envisaging the crossing of a threshold *within* modernity,¹⁶ which might be interpreted, perhaps forcing the point a little, as the shift from liberalism to neoliberalism. However, the primacy of the formal structure of the camp, its being in a sense “beyond history”, is quickly re-stated and, finally, operates as an indisputable postulate.¹⁷ This is also demonstrated by the apparently peremptory thesis according to which “the fundamental activity of sovereign power is the production of bare life as an originary political element”, whose main implication would be “that Western politics is a biopolitics from the very beginning” (Agamben 1998: 181). Therefore, biopolitics does not disclose a *historico-political horizon*. Rather, it names the *logico-formal operation* through which sovereign power (and its paradoxical interplay between inclusion and exclusion) produces bare life. Obviously, this operation occurs differently in different historical contexts, but this difference is by no means essential. What really matters is its structural coherence at the “historico-philosophical level”.

¹⁵ “The birth of the camp in our time appears as an event that decisively signals the political space of modernity itself” (Agamben 1998: 174).

¹⁶ Discussing the issues of “overcoma” and, more broadly, of the process of politicisation of death, Agamben writes that “neither Reiter nor Versucher [Nazi eugenists] had ever gone so far along the path of politicisation of bare life. But (and *this is a clear sign that biopolitics has passed beyond a new threshold*) in modern democracies it is possible to state in public what Nazi biopoliticians did not dare to say” (Agamben 1998:165. Our emphasis). This biopolitical shift within the context of modernity seems confirmed by the following passage from *State of Exception*: “the state of exception has today reached its maximum worldwide deployment” (Agamben 2005: 87). It seems to us that the emphasis on a contemporary situation implies a qualitative change between the state of exception as having become the rule, already envisaged by Benjamin in late-1930s, and our current globalised world.

¹⁷ “If it is true that the essence of the camp consists in the materialisation of the state of exception and in the subsequent creation of a space of indistinction, then we must admit that we find ourselves virtually in the presence of a camp every time such a structure is created, independent of the kinds of crime that are committed there and whatever its denomination and specific topography” (Agamben 1998: 174).

Evidently, Agamben's conclusions cannot be labelled as “false” or “incorrect”. However, we might ask ourselves whether or not fruitful lines of further research are opened up by them. We contend that Agamben's work tends to organise issues according to the logic of an *original either/or structure*. As a consequence, the potential of empirical research is underestimated when not dismissed. In order to rehabilitate the empirical side of the biopolitical hypothesis we suggest that the relationship between the consistency of history and the “historico-philosophical level” must be further and differently problematised.

2.2 - The attempt to “ontologise” the Foucauldian methodology of the biopolitical period is shared by Hardt and Negri. The modalities through which this task is accomplished, however, are very different from those of Agamben. Rather than emphasising the formalistic structure of ontology, in fact, Hardt and Negri underlines the pivotal role of the substance of being conceived of in terms of *constituent power*. This concept refers to the fact that historical change is irreducible to the multifarious forms that *constituted power* has assumed in different spatio-temporal configurations. On the one hand, constituent power is presented as a distributed, multitudinous force of desire that drives ontological emergence and social innovation, as a sort of minoritarian energy perpetually opposed to the static, parasitical sedimentations of the modern state (Negri 1999). On the other hand, constituted power might be defined as the centralised, transcendental force of command that characterises established forms of political order and bureaucratic institutional organisation. As we see, every formalistic metaphysics is resolutely rejected in favour of an immanent materialism whose political and epistemological implications

are of fundamental importance in the economy of our discussion. As Negri writes: “Materialism is revolutionary because truth 'without ornament' is an engagement in being” (Negri 2003a: 176).

In order to understand the specific relevance of this intertwining of politics and epistemology with regard to the notion of biopolitics as proposed by Hardt and Negri, it is necessary to briefly outline their central methodological assumption, whose original formulation dates back to the 1960s and the heterodox re-reading of Marx articulated by the Italian *operaismo*.¹⁸ To put it briefly, this strain of thought proposes to theoretically assume, in the context of a practical and empirical production of knowledge – “workers' inquiry” (Panzieri 1965) – the *primacy of working class struggle over capitalist structurations*.¹⁹ This means that the historical phases of capitalist development have to be read as subsequent articulations of resistance on the part of the governed. First comes labour, whose capability to shape the world (*labour-power as production of surplus-value*) marks its ontological consistency. Then, and *only* then, comes capital, whose ability to violently appropriate labour's creative potential (*exploitation*) entails its ontological vampirism. As Negri remarks: “The rhythm of the passage from one epoch of capitalist development to another is marked by proletarian struggles” (Negri 1996: 166). Accordingly, this view interprets the industrial model as having emerged from the

¹⁸ On *operaismo* (or *workerism*, as it is often translated into English), see Hardt and Virno 1996; Dyer-Witheford 1999; Wright 2002; Borio, Pozzi and Roggero (2002).

¹⁹ It may be useful to report a passage from the classical *locus* of this methodological formulation, namely Mario Tronti's *Operai e capitale*: “We too have worked with a concept that puts capitalist development first, and workers second. This is a mistake. And now we have to turn the problem on its head, to change perspective and start again from the beginning: and the beginning is the class struggle of the working class. At the level of socially developed capital, the capitalist development is subordinate to workers' struggles, comes after them and on them it has to build the political mechanism of its own production (Tronti 2006: 39)

struggle of the professional worker, the welfare state as having been brought to light by the opposition of the mass worker and, finally, the current phase of Post-Fordism as having originated with the widespread refusal of work carried by the 1968 (and beyond) planetary uprisings. Moreover, the positive corollary of this statement is that politics has to be understood as *partiality*, as the antagonistic activity of conflictual *parts*. And it is just through the subjective assumption of this partiality that an effective revolutionary strategy can be set up.

This methodology can be said to possess a twofold epistemological character as well as a twofold political aim. Firstly, it proposes a conception of both knowledge articulations and historical becomings as marked by an irreducible *discontinuity*. The processes through which history unfolds and through which knowledge is produced are never linear, necessary and deterministically defined. On the contrary, these processes are radically contingent and impossible to be foreseen, to be given in advance. Moreover, the subjective dimension that is embodied in the cultural/historical processuality is considered to be intrinsically *excessive*, which is to say beyond measure. In other words, measure is always configured as the seal of a certain power structure, as the violent closure that the form operates over the substance-in-becoming. Epistemologically, Hardt and Negri's theoretical endeavour reflects the ontological primacy of creative productivity over formalistic measurement. Secondly, the political dimension of Hardt and Negri's thought is exposed in the double nature of their methodology. In *Empire*, the two approaches they intend to link are

intended to be nondialectical and absolutely immanent: the first is *critical and deconstructive*, aiming to subvert the hegemonic languages and social structures

and thereby reveal an alternative ontological basis that resides in the creative and productive practices of the multitude; the second is *constructive and ethico-political*, seeking to lead the processes of the production of subjectivity towards the constitution of an effective social, political alternative, a new constituent power (Hardt and Negri 2000: 47).

As we see, in this case we also have the *conflation of methodology onto ontology*, but in an inverse modality with respect to Agamben. They share a similarity in that Hardt and Negri also reverse the Foucauldian hypothesis according to which methodology is independent from ontology in order to state that the assumptions through which knowledge can be produced refer directly to the structure of being. However, unlike Agamben, these authors assume the incontestable primacy of creative substance (resistance) over static form (power) and, consequently, provide an *onto-logical* interpretation of biopolitics.

To better contextualize this theoretical passage we can read the double nature of Hardt and Negri's methodology from the perspective of the articulation of politics and epistemology. These two components are conceived of as closely interrelated and, indeed, co-extensive: only a partial decision can shed light on the ontological antagonism which opposes constituent and constituted power. Otherwise put, there is no such a thing as *neutral knowledge*. Conversely, however, a profound rigour is needed in order to properly decipher the historical tendency of this antagonism. In other words, *true politics* (i.e. revolutionary politics) exists only insofar as the tendency has been firmly and correctly grasped. From this methodological intertwining of politics and epistemology descends a deeply original understanding of biopolitics as method. In fact, although Hardt

and Negri partially agree with Foucault about the periodization of the historical horizon disclosed by the emergence of biopolitics,²⁰ for them, this aspect is not the fundamental one. Rather, they decline the concept along the double methodological line that we have just discussed. Firstly, from a political perspective, they claim that the current phase is defined by a radical separation between *biopower* (the parasitical apparatus through which capital ensures exploitation) and *biopolitical production* (the level at which the potentiality of social cooperation is autonomously and fully actualised). As they write in *Multitude*:

Both of them engage social life in its entirety – hence the common prefix *bio* – but they do so in very different ways. Biopower stands above society, transcendent, as a sovereign authority and imposes its order. Biopolitical production, in contrast, is immanent to society and creates social relationships and forms through collaborative forms of labour (Hardt and Negri 2004: 94-95).

It is clear that, in the authors' view, biopolitical production names the creative side of social ontology and is conceived of as an extension of class struggle in the Post-Fordist era of capitalist development. Conversely, biopower is the purely exploitative element which performs a sort of domination without social guidance.²¹

²⁰ Hardt and Negri read Foucault through Deleuze and, as a consequence, interpret the first biopolitical period (from the second half of the Eighteenth century to mid-Twentieth) as a *disciplinary society*, whereas the co-optation of the 1968 struggles is seen as the birth of the second biopolitical period, namely a *society of control*. This type of society is defined by the full deployment of biopower as a *dispositif* through which life is fully captured by power. As we saw, Foucault's account is a little different (and perhaps less schematic), but it has to be noted that he was not interested in mapping the development of an ontological antagonism.

²¹ Hardt and Negri concede that in the first biopolitical period the rule of capital was managerially progressive (although absolutely damaging and finally parasitical). However, with the shift from Fordism

From an epistemological standpoint, the second aspect of their twofold methodology, Hardt and Negri argue that true knowledge has to be conceived of as inherently part of the broader process of *subjectivation* through which the Multitude organises its struggle (in the form of exodus) within and against the Empire. In fact, it might be argued that there is a sort of “biopolitical incarnation of method” (Negri 2003b: 47), which would be the passage of real abstraction from the ethereal laws of value production to the material corporeality of bodies and affects. As they clearly expose in *Commonwealth*:

Biopolitics is a partisan relationship between subjectivity and history that is crafted by a multitudinous strategy, formed by events and resistances, and articulated by a discourse that links political decision making to the construction of bodies in struggle (Hardt and Negri 2009: 61).

As we can easily recognise, politics and epistemology are nothing but two sides of the same coin, namely methodology. With a single move, Hardt and Negri not only articulate an effective critique of scientific objectivism, but also undermine cultural flatness or transparency, that is the pretension that the social field can be traversed without being modified (and, in turn, without modifying it) by the movement of knowledge. Another advantage of their complex methodology resides in its being *politically enacting*: claiming partiality as a necessary condition (and not an obstacle) to the production of

to Post-Fordism the new level of autonomy gained by social cooperation makes the rule of capital *completely* parasitical, without any positive role whatsoever.

truth implies an immediate engagement of knowledge in the very texture of social struggles. Properly isolating the core elements of the current tendency of (antagonist) capitalist development inherently means engaging either in the liberating assemblages that compose biopolitics or the exploitative apparatuses that constitute biopower. However, this politically enabling potential must be paired with rigorous and meticulous empirical research in order to avoid the trap of *self-referentiality*.²² In fact, what Negri once named, reversing Gramsci's famous slogan, “optimism of the intelligence” (Negri 1996: 173) permanently runs the risk of confusing the cartography of contemporary tendential effects with the projection of a desired autonomy of the oppressed onto strictly scientific investigations.

Although it is not our intention to deny the relevance of Hardt and Negri's theoretical achievements, we nevertheless contend that the biopolitical grounding of the notion of multitude constitute exactly such a confusion. By opposing an always-already progressive/creative ontological force (biopolitical production) to an always-already negative/exploitative formalistic entity (imperial biopower) these authors end up delineating a mystical profile of social cooperation, an image of the multitude as good in itself, as intrinsically innocent. As Nick Dyer-Witheford has appropriately noted through a Deleuzo-Guattarian terminology, Hardt and Negri emphasize the “smoothness” of the global multitude at the expenses of its (empirically incontestable) “striating divisions” (Dyer-Witheford 2005: 154). As a consequence, the profound *ambivalence* which defines

²² Paradoxically, the pure positivity accorded to ontological substance newly proposes the question of formality in the guise of a monolithic axiomatic. From this perspective, Hardt and Negri's theoretical elaboration actually runs the risk of fulfilling the dark prophecy Tronti expressed as early as in 1962: “A discourse which grows upon itself carries the mortal danger of verifying itself always and only through the successive passages of its own formal logic” (Tronti quoted in Wright 2002: 12).

the notion of the antagonistic tendency is overlooked in favour of the clear demarcation of two irreducibly different subjects: the heroic triad multitude-biopolitics-constituency versus the villainous articulation of the empire and its constituted biopower. In other words, what should be posed as a *task* of a correctly grasped *materialist teleology*,²³ is instead presented as an actual state of affairs. As we shall see in the subsequent section, a new account on the relationship between empirical findings and historical lines of development *within* the methodology of the antagonistic tendency might provide a set of amendments to the shortcomings we just highlighted.

3 - METHODOLOGICAL ASSEMBLAGES

Through a critical confrontation with the three perspectives discussed so far, we will now be able to fully clarify what we mean by the expression “biopolitics as method.” From Foucault, we retain the conceptualisation of biopolitics as a *historical horizon* which discloses an unprecedented relationship between life and politics such that the two terms have to be thought simultaneously but distinctly. Moreover, his reflection about the naturalness of population will serve as a basis for the problematisation of the notion of environment, which will be the next step of our research. Nevertheless, we assume as necessary an effort to “ontologise” Foucault's thought in order to escape the trap of legitimizing the *status quo*. In this regard, our task is similar to those of Agamben and

²³ It might be useful to recall that, given the workerist emphasis on discontinuity, this teleology is based on the contingency rather than pre-given determinacy of history. Hence, it must not be confused with the putative historico-materialist determinism.

Hardt and Negri. However, we will try to overcome the shortcomings that affect their propositions: on the one hand, an extreme emphasis on the formal structure of being and its politically disempowering implications and, on the other, an unjustified overlooking of the constitutive ambivalence that characterises the contemporary tendency of capitalist development.

In order to overcome such shortcomings, however, we want to introduce three more elements, again drawn from our sources, which can be connected originally to produce a new methodological tool-kit potentially able to guide our exploration of the *biopolitical nature of the environmental crisis*. The first component of this politico-epistemological assemblage is provided by Foucault in a well-known essay published in 1982, titled “The Subject and Power” (2000). Here, the notion of freedom ceases to be conceived of as a universal (or a positivity) and turns into an ontological postulate, a constitutive feature of the notion of power. As he writes: “Power is exercised only over free subjects, and only insofar as they are free” (Foucault 2000: 342). This intransitivity of freedom allows for a re-reading of the research results of the biopolitical period in terms of the primacy of resistance over power and, consequently, is able to dismantle the all-encompassing nature of power *dispositifs* with their legitimizing features.²⁴

Moreover, this freedom presents fundamental implications in terms of methodology. In a series of six lectures delivered at the University of California at Berkeley in the Fall Term of 1983, Foucault advanced a central distinction between

²⁴ It is just from this perspective that claims such as those of John Protevi, according to which a distinctive Deleuzian ontology is at play in Foucault's biopolitical texts, can be effectively sustained (Protevi 2010). In other words, although a fully genealogical approach denies its own ontological consistency, it is nonetheless possible to re-read its results from an ontological standpoint (which can be Deleuzian, of course, but also late-Foucauldian, as we are attempting to argue).

“history of ideas” and “history of thought” (Foucault 2001b: 74). The former is basically concerned with questions such as when a specific field of knowledge emerged, how it was structured and through which modalities it influenced the development of other related ideas. In contrast, history of thought designates the effort to isolate the ways through which unproblematic areas of research became progressively contested issues, objects of new public interest, targets of social institutions, discursive practices and technologies of power. This is what Foucault refers to as *problematization*: the definition of material practices that constitute the conditions upon which what was previously taken for granted emerges as an object of government, namely as at the same time exposed to power/knowledge relations and to potentially autonomous processes of subjectivation (1990). What is crucial here is that, differently from the genealogical period, it is freedom that sets in motion the thought-procedure. As Foucault masterfully explains in an interview released in 1984:

Thought is freedom in relation to what one does, the motion by which one detaches from it, establishes it as an object, and reflects on it as a problem. To say that the study of thought is the analysis of a freedom does not mean one is dealing with a formal system that has reference only to itself. Actually, for a domain of action, a behaviour, to enter the field of thought, it is necessary for a certain number of factors to have made it uncertain, to have made it lose its familiarity, or to have provoked a certain number of difficulties around it. These elements result from social, economic, or political processes. But here, their only role is that of instigation. They can exist and perform their action for a very long time, before there is effective problematisation by thought. And when thought intervenes, it doesn't assume a unique form that is the direct result or the necessary expression of these difficulties; it is an original or specific response – often taking many forms, sometimes even contradictory in its different aspects – to these difficulties, which are defined for it by a situation or a context, and which hold true as a possible question (Foucault 1997: 119).

As this passage clearly shows, the complex variables which compose a problematisation can be grasped exclusively from a *historical perspective* (be it expressed in a “social, economic or political process”). By means of a comparison of this perspective with the genealogical one, we are finally able to see a key aspect of Foucault's late philosophy: whereas freedom is ontologically invested (power exists only in so far as it assumes the form of an “instigation”), the specific modalities through which this ontological agonism exposes itself become intelligible only in historical terms.

The second component of the assemblage we are trying to delineate refers to the notion of the *antagonistic tendency*, which we have already (briefly) discussed. Our point is that it must be further problematised in order to avoid the trap of over-simplification (i.e. biopolitics vs. biopower as monolithic entities confronting each other upon the same battlefield). In this context, it might be useful to engage in a discussion with the key text in which Negri developed, following/re-interpreting Marx's *Grundrisse*, this complex methodology. In *Marx Beyond Marx*, an extremely dense text originally published in 1979, Negri writes that in the *Grundrisse*

the relation between the simple and the complex is *a relation* in the full sense of the term, and therefore *a dynamism*, animated by historical subjectivity, by the dynamic collective which is its mark [...] There exist different degrees of abstraction: on the one hand the abstraction which seeks the real in the concrete (determinate abstraction), and on the other hand, *the concrete which seeks in abstraction its determination* (the process of the tendency). It is a historical movement which is determined by production and class struggle: which goes from the first to the 'second nature', from the first, immediate, concrete truth to the truth of the reversal, of the project (Negri 1984: 48).

Let us try to clarify the fundamental twofold procedure of this tendential method as articulated in this passage. In order for the tendency to be properly grasped, two abstractions are needed: the first goes beyond scientific objectivity to discover “the historical subjectivity” which represents the driving force of capitalist development (class struggle). The second abstraction, equally important, intervenes in the ambivalence of the tendential antagonism to show its potential reversibility by means of an autonomous political project (communism). For this methodological intervention to work, it is crucial that the *balance* between the two abstractions is firmly maintained. It is a matter of proportion between ontological constitution (revealed by the first abstraction) and historical horizon (which is the political object of the second abstraction).²⁵ This balance or proportion is what differentiates a “voluntaristic projection”, which is to say a process of flattening the ambivalence of the antagonistic tendency, from a “subjective verification”, namely the operation through which increased knowledge of the tendency fosters a higher degree of political autonomy (and vice versa).

It seems to us that that the question concerning the *proportion* between the two abstractions can be epistemologically reflected in the relation between theoretical activity and empirical research. In fact, we contend that a careful balance between awareness of a

²⁵ As Negri notes: “it is a process that goes from the abstract to the concrete, and *then*, in proportion to the historical extension of the horizon, of the tendency, goes again from the abstract to the concrete” (Negri 1984: 50-51).

timeless ontological productivity and scientifically valid empirical insights²⁶ is a necessary condition for the proper deciphering of the antagonistic tendency in its multifarious ramifications. And it is at this level that Hardt and Negri's position appears to be more similar to a voluntaristic projection than to a subjective verification. The rigid distinction between biopolitics and biopower conceals the tendency rather than illuminating it by positing a political task to be achieved (the communist project) in terms of an already present historical condition (the autonomy of the multitude). Moreover, there seems to be a consolatory aftertaste in their interpretation of a succession of struggles that do not know defeat. For these reasons, in the course of our research we shall privilege the analysis of ambivalence over the tactical reflection on how to re-appropriate what is already there to be merely picked up. Put otherwise, we shall consider the figure of the researcher and that of the activist to be reciprocal and mutually constitutive, but in no way perfectly overlapping or intrinsically convergent. In fact, whereas politics (the realm of decision) and epistemology (the *locus* of scientific validity) are not thinkable outside of the relation that links them, it is nonetheless undeniable that they do *not* belong to the same ambit of thought and practice. Their convergence is indeed indispensable for the transformative historical process to occur, but it is *not* already present. Rather, it represents the possible outcome of a struggle which is dependent on historical contingency.

²⁶ Let us stress that it is not our intention to radically separate theoretical and empirical work. As Negri himself would put it “there exist different degrees of abstraction.” From this perspective, the category of *proportion* points towards the presence, within the scientific enterprise, of both logical consistency and political realism (in the Machiavellian sense).

The third element of our methodological assemblage is provided by Agamben and refers to the relationship between ontology and politics. Above we have defined the political as the realm of decision; to develop our discourse a bit further, we might add that deciding means, in this context, *acting in a non-neutral way*. This non-neutrality, which from the outset requires the abandonment of every kind of rigid determinism (we shall talk instead of *reversible processes of determination*), also implies its own inevitability. To put it otherwise, the only postulate of our account of politics is the *unevenness of the social field* (Laclau and Mouffe 1985), namely the impossibility to fully compose its various elements in an organic, unified whole. In the framework established by this hypothesis, it is clear that violence, antagonism and struggle cannot but find themselves at the core of every political understanding. This conception does not deny *a priori* the possibility of a provisional unity or composition, but shows how this possible crystallisation of force relations cannot claim eternity, neither as a *restoration* of a putative Golden Age nor as the *final triumph* of a self-declared New Man. To put it differently, this formulation seems very much akin to Nietzsche's concluding words in his famous lecture on Anaximander: "Infinite worlds one after another" (Nietzsche 2006: 37).

Starting from this indicative definition of politics, we are now ready to analyse its relationship with ontology. In a recent work on Heidegger, Agamben provides an illuminating point of departure for our exploration:

Ontology, or first philosophy, is not an innocuous academic discipline, but in every sense the fundamental operation in which anthropogenesis, the becoming human of the living being, is realised. From the beginning, metaphysics is taken up in this strategy: it concerns precisely that *meta* that completes and preserves

the overcoming of animal *physis* in the direction of human history. This overcoming is not an event that has been completed once and for all, but an occurrence that is always under way, that every time and in each individual decides between the human and the animal, between nature and history, between life and death (Agamben 2004: 79).

As it is manifest, Agamben distinguishes between *ontology* as the discourse on the *ontos*, the general framework within which anthropogenesis occurs, and *politics* as the “always under way” (i.e. reversible, never completed) act of deciding where the demarcating line between animality and humanity has to be drawn. The two elements must be thought as *distinct but inseparable*. They are not the same thing, but outside of their relation they lose their meaning as theoretical categories. This is the way the following, apparently peremptory remark proposed by Negri has to be understood: “Every metaphysics is a political ontology” (Negri 2007: 11)²⁷. Thus, we suggest, it is from the standpoint of this constitutive ambiguity between sameness and distinction that the politico-ontological dimension of biopolitical governmentality should be conceptualised.

To conclude this section, we propose a *political and epistemological ontology* centred around three main bases: a) an account of the One as a timeless and unstructured field pervaded by pre-individual intensive energies; b) a concept of the Multiple as a dynamic and reversible putting-into-form of these energies (which become extensive); c)

²⁷ It may be useful to underline that, if ontology and politics were one and the same thing, the expression “political ontology” would be tautological and, consequently, uselessly redundant. When the *workerist* tradition claims that “everything is political”, it is not implying that everything is reducible to politics, but that every single act, whatever form it assumes, involves to a certain degree the necessity to operate a decision, which amounts to saying that everything possesses a *political dimension*.

and a notion of the methodological (politics + epistemology) threshold from which we can access this ontological scheme as characterised by its own historicity (diachronic dimension) and by its necessary partiality (synchronic-cartographic dimension). In other words, the threshold is the battlefield upon which the virtual configuration of a thousand possible worlds becomes a determined social formation. From this perspective, *biopolitics is configured as an entirely methodological category*. In fact, it designates at the same time the *historical horizon* that we are embedded in (with its political opportunities and epistemological borders) and *its fragility*, which is to say the lines of force that can potentially reverse its current mode of socio-political organisation (i.e. governmentality).

CONCLUSION

In order to bring to a close the discussion we have articulated in this chapter, let us briefly introduce some elements of the next steps in our research. In particular, let us come back (and sketch a provisional answer) to the question we posed at the beginning of this section: how can the biopolitical framework help us in defining the specific features of the ecological crisis? First of all, as a preliminary warning, the concept of biopolitics refers to a historical horizon marked by its *inconclusiveness*. This means that the biopolitical transition (begun during the second half of the Eighteenth century) is still under way and that it is important to acknowledge its constitutively mobile, differentiated and viscous reality (Chignola 2008). By emphasising the methodological side of biopolitics, we investigate, research and analyse *from within* this heterogeneous spatio-

temporal dimension. This internal positionality is especially fruitful from the standpoint of environmental studies (Dobson 1990), an emergent field whose characteristic feature is *uncertainty*. Furthermore, this methodology entails the possibility to take into account the *contested nature of the ecological crisis*, both from an epistemological perspective (Latour 1991; 2004), and from a politico-subjective one (Guattari 2000).

Even more importantly, however, biopolitics as method allows us to read the problematisation of the concept of the environment as a ramification of the two fundamental tendencies of capitalist historical development: liberalism (or Fordism, as its mature form) on the one hand, and neoliberalism (or Post-Fordism, as its inceptive form) on the other. In other words, in our dissertation we will follow the hypothesis according to which the environment would have been “silent” or “familiar” until the emergence of biopolitics and that only afterwards has it been recognised as a fully political issue. Far from being a linear development, however, this passage involved highly contested paradigmatic shifts in the fields of *knowledge* (most notably the rise of political economy), of *politics* (the rule of the bourgeoisie and the resistance of the proletariat), and of *technology* (for the first time productive applications could provide the means for a systematic pollution). It is not a coincidence, we argue, that the first wave of ecological issues was inextricably related with industrial production (air and water pollution, unsustainable urban development, depletion of natural resources, etc.). Moreover, the establishment of the population as the main target of governmental capture made politically practicable the specific articulation of *artificiality* and *naturality* that, in turn, opened up the possibility to join biology and political economy within the realm of power exercise. In other words, we claim that, without the peculiar intertwining of life and

politics which defines the biopolitical horizon, the emergence of the environment as an object of public and scientific concern would be unthinkable.²⁸

Another important transformation is the shift, internal to the biopolitical horizon, from liberal to neoliberal governmentality (Rose 1999; 2007; Harvey 2005). In fact, whereas the liberal constellation of political, epistemological and technological developments made the multifarious phenomenology of the ecological crisis *visible*, the actual attempts to politically *deal with* it are entirely neoliberal (it is not by chance that the very idea of a comprehensive environmental policy emerged in Western societies during the second half of the 1960s). Moreover, neoliberalism brought to light the second wave of environmental issues, most notably climate change and post-industrial biotechnological applications. Our hypothesis to interpret such a transformation refers to the fact that, whereas liberal naturalism posited the environment in terms of a *given to be exchanged* (either as a unity of production – raw materials – or as final container of waste), neoliberalism envisages the environment as a political surface upon which to produce new commodities in order to enact a *creative conception of economic competition*. The next chapter shall be entirely dedicated to the analysis of these issues. For the time being, however, to clarify this theoretical junction suffice to say that, whereas in liberalism the circuits of capital accumulation and valorisation are deployed *onto* nature (conceived of as a limit to capital's [re]production), in neoliberalism the same circuits occur *within* nature (conceived of as a target of capital's [re]production) (Heynen,

²⁸ Obviously, we do not intend to deny the well-documented fact that the surrounding environment has always constituted a problem for human populations. Less ambitiously, we simply would like to suggest that biopolitics opens up a new configuration of the relationship (intrinsic rather than extrinsic) between natural environment and social environment. To put it otherwise, the environment in the biopolitical context represents the fundamental stake of the relation between nature and politics and not merely the passive background upon which they relate to each other.

McCarthy, Prudham, Scott 2007). From a “managerial” perspective this shift is especially visible in the different language spoken by environmental actors (policy makers, enterprises, social movements): whereas in the first half of the Twentieth century ecological discursive practices are mainly organised around the theme of *passive restoration* of damaged natural sites, from the late 1960s onwards their rhetoric becomes based on the recurrent theme of *active production* of socio-natural environments (Darier 1999). It is this new role of the natural that will frame the next step of our analysis.

On the Difference Between an Ancient Almond and a Roundup Ready GM Soybean

INTRODUCTION

In the previous chapter we have argued that the disclosure of a distinctive biopolitical horizon, marked by the discursive centrality of population – conceived in terms of limited but malleable naturalness – brought to the foreground the possibility to *govern the environment*. The very existence of such a possibility implies a profound *historical rupture* concerning the interface between nature and politics. Moreover, we advanced the hypothesis according to which a new split would occur, *within* the biopolitical era, in the passage from liberal to neoliberal capitalism. The aim of this chapter is to “verify” such hypotheses, which is to say to “implement” on a slightly less abstract level the methodological structure previously outlined. To do so, our focus shall be centred around the multifarious relationships linking the notion of *nature*²⁹ to the power/knowledge apparatus of *political economy*.

The idea of a multiple historical shift in the interrelation between nature's evolution and society's development is, however, deeply contested and, in some instances, entirely refused. As a consequence, in order to precisely clarify what the stakes of the matter amount to, we shall set our argument against the background of an important stream of thought which tends to deny the role of history in human vicissitudes. Not surprisingly, our reference is to the best-selling book *Guns, Germs and Steel: The Fates of Human*

²⁹ Notion which is rendered, in purely governmental terms, by *land/earth* in Marx and by *milieu/environment* in Foucault.

Societies, published in 1997 by environmental anthropologist (amongst other academic qualifications) Jared Diamond. Diamond attempts to answer the famous Yali's question³⁰ by exclusively emphasizing the role played by environmental factors: “Environment moulds history” (Diamond 1997: 352). In a nutshell, the argument runs as follows: every relevant event in human development since the Paleolithic is caused by environmental influences. More specifically, every difference to be detected amongst human societies, distinctions that eventually decided their “success” or “failure”, depends on strictly natural agents, such as climate, geographical location and resource availability. History, posits Diamond, is nothing more than the temporal structure which mirrors the interplay between environmental forces. Consequently, culture is irrelevant to explaining the multilayered diversity – power, technology, political systems, religious beliefs, etc. – which defines human societies (Blaut 1999; 2000).

According to Diamond the most decisive historical event in humankind's developmental trajectory was the co-presence of three environmental advantages (large number and kind of domesticable plants and animals, plus multiple natural barriers to dispersive travelling) in the Fertile Crescent after the last Ice Age, some 13,000 years ago. In passing, it might be worth noting that the current environmentalist common sense, marked as it is by a vaguely Heideggerian “return to nature” and a decidedly Hayekian stress on the imperfection of human nature, is paradoxically able to enact, at the very same time, a dismissal of any project of social transformation (as irremediably utopian) *and* a new

³⁰ The book's *incipit* shows the American scientist walking on a solitary beach with Yali, a New Guinean politician, who asks him: “Why is that you white people developed much cargo and brought it to New Guinea, but we black people had little cargo of our own?” (Diamond 1997: 3). In general terms, the problem Diamond is trying to address relates to the rise of white Europe (and, by extension the United States) as a dominant power on a world scale.

cultural framework legitimating eco-business based on the ideology of eco-technological fix. Here lies, we contend, its precise *political* danger.

Yet, while it would be unfair to ignore the appreciable political critique Diamond's approach allows us to address to “racial hereditarians” – whose main point consists in explaining cultural difference through genetic asymmetries – it would nonetheless be false to infer that for such a critique to be formulated one needs an environmental determinist framework. In fact, critical historical analysis can be (and has been) as much if not more effective than environmental determinism in deconstructing and opposing racism, in all its forms and variations. Diamond's reflection, however, is important to us in that it represents the *polar opposite* of a biopolitical method applied to the logico-historical trajectory of the nature-society dyad. A good case in point to appreciate the implications entailed by such a sidereal theoretical distance is outlined in the well-known chapter 7 of *Guns, Germs and Steel*, titled “How to Make an Almond”. Here, Diamond narrates the adventures of plant domestication, a practice defined as the act of genetically modify a wild plant, whether consciously or not, to better fit human needs. Almonds are a perfect example since, in their wild state, they are very bitter and in many cases fatally poisonous. How did they become domesticated? Initially by means of natural selection; subsequently, artificial selection became prominent: at first unconsciously through trial-and-error procedures, then increasingly consciously as knowledge progressed. Indeed, knowledge cumulative increase is what connects – albeit by way of differentiation – ancient hunter-gatherers to contemporary hi-tech lab scientists. In fact, whereas for the former “the resulting evolution of wild plants into crops was an unconscious process”, for the latter

crop development is a conscious, highly specialised effort. [...] They already know about the hundreds of existing crops and set out to develop yet another one. To achieve that goal, they plant many different seeds or roots, select the best progeny and plant their seeds, apply knowledge of genetics to develop good varieties that breed true, and perhaps even use the latest techniques of genetic engineering to transfer specific useful genes (Diamond 1997: 115).

This passage is of particular relevance in that it illuminates the respective roles played by history and the environment, as mediated by knowledge, in Diamond's methodology. History, or the mere flow of temporal progression, allows us to map our surroundings based on incremental scientific discoveries in the realm of the environment. Every subsequent stage of humankind's development is thus better equipped than its predecessor to cope with natural threats: the wise use of perpetually advanced knowledge is what marks “successful” civilisations whereas, conversely, “failing” societies either did not possess a sufficiently advanced scientific system or proved unable to properly apply it.³¹ This presupposition is what allows Diamond to compare, in a strikingly unproblematic manner, “the little wild peas collected by hunter-gatherers for thousands of years” and

³¹ Such overly simplistic view of historical becoming is even more evident in *Collapse: How Societies Choose to Fail or Succeed* (2005), where Diamond confronts on a putative social common ground civilisations as diverse as the Norse and Inuit of Greenland, the Maya, the Anasazi, the indigenous people of Rapa Nui (Easter Island), Japan, Haiti, the Dominican Republic, and contemporary Montana. It comes as no surprise, given the lack of any socio-political dimension to the analysis, that Diamond ends *Collapse* by praising big oil corporation Chevron for its genuine concern for the environment, as expressed by the “bird-watcher's dream” (Diamond 2005: 444) created by the author in Papua New Guinea. The lack of socio-political critique exposes another difference with the biopolitical paradigm: by sharply separating nature and society, environmental determinism finds itself unable to formulate a critique of contemporary green economy (most of the times, actually, such a theoretical option ends up fostering this kind of corporate strategy). On the contrary, as we will discuss later in this chapter, biopolitics as method allows us to deconstruct the very premises of the green economy and, potentially, to articulate embryonic prefigurations of alternative ways to conceive of (and live) the intrinsic relationship between environment and economy.

contemporary “supermarket apples” (*Ibid.*: 117-118) on the sole basis of the different level of scientific understanding their producers bore. Unfolding such an argument until its logical conclusion, calculating the difference between an ancient almond and a GM soybean would be simple: botanics + classical genetics + genetic engineering. In other words, the amount of scientific knowledge to which they refer.

As we see, underlying Diamond's theoretical procedure is a conception of science as an independent variable, as a hidden but stable treasure to be progressively discovered by human courage and perseverance – environmental conditions permitting, of course. This idea of science could not be more incompatible with the intertwining of epistemology and politics biopolitics evokes. In the biopolitical arena, power and knowledge are seen as entangled in multifarious *dispositifs* whose very existence – and internal articulation – rest upon irreducible historical contingency and spatial situatedness. Thus, grasped through biopolitical lenses, *Diamond's almond has little to do with contemporary GM crops, simply because such products belong to different forms of the socio-natural link.*

The rest of the chapter will be dedicated to a clarification of this statement. Our exploration shall begin by focussing particularly on two fundamental sections of Marx's *oeuvre*, namely the “Forms which Precede Capitalist Production” [*Formen, die der kapitalistischen Produktion vorhergehen*], from the *Grundrisse*, and the part on the “So-Called Primitive Accumulation”, from *Capital*. After this mainly historical *detour*, we shall turn our attention to the inner logic of capital's valorisation and, more specifically, to the way Marx's critique of political economy deals with its inceptive agent, namely Physiocracy. Following this, we shall analyse how Foucault's reflections on the Physiocrats' policy recommendations differs, but also complements, Marx's insights and

how this issue sheds new light on the shift from liberalism to neoliberalism, especially from an environmental perspective. On this basis, we will advance the hypothesis of an elective affinity amongst ecological crises, financial markets and neoliberal governmentality. Such an affinity, we will show, is rooted in the new role played by knowledge in the productive process and shows a new type of capitalist abstraction whose core is perfectly represented by the proliferation of business practices and theories about the *green economy*. Finally, a critique of this contemporary discursive formation shall shortly precedes the conclusion of the chapter, which shall discuss the many reasons that make Diamond's almond and a Roundup Ready GM soybean incomparable, and indeed belonging to different worlds.

1 - MARX: NATURE AS CAPITAL

Before undertaking our reading of Marx's passages, it is necessary to transpose the methodological argument formulated in Chapter 1 on the proper terrain upon which our current interest (the relationship between the notion of nature and the development of political economy) ultimately rests. This is that a fruitful but problematic tension between *logical aspects* and *historical elements* seems to be at play also in Marx's theoretical endeavour. In proper Marxist terms, the friction is located between the *logic of capital's self-reproduction* and the *history of capitalism as a mode of production*. Although such an issue is far from new and has been largely debated in Marxist scholarship, it will be useful for our purposes to briefly recall a facet of this debate in order to clarify the goal of

our current exploration. The kernel of the controversy is entirely contained in Marx's famous methodological statement from the *Einleitung*:

Bourgeois society is the most developed and the most complex historic organisation of production. The categories which express its relations, the comprehension of its structure, thereby also allows insights into the structure and the relations of production of all the vanished social formations out of whose ruins and elements it built itself up, whose partly still unconquered remnants are carried along within it, etc. Human anatomy contains a key to the anatomy of the ape (Marx 1993: 105).

From a very general perspective, this passage reiterates and exemplifies one of Marx's greatest achievements, namely the thought-procedure movement from the abstract to the concrete (i.e. historical materialism). Nonetheless, such a formulation, which in different ways affects both the analysis of pre-capitalist societies and that of primitive accumulation, raises a number of problems. For instance, how does one consider issues as diverse (and crucial) as that of transition, of the relationship between “core” and “peripheries”, of uneven development? From a methodological standpoint, however, the most profound concern is arguably that of *historicism*, which is to say the assumption that behind capitalist abstractions (those “categories which express its relations”) would lay – concealed – a strict general law of development of which capitalism would be the current, unavoidable stage and communism, just as necessarily, the next. To a certain extent, such a historicist emphasis is undeniably present in Marx's words. From this perspective, Antonio Negri is right in pointing out that “the general law smells of philosophy of history” (1984: 111), and Dipesh Chakrabarty is justified in associating Marxism and liberalism on the basis of a common view of capital as arising in a specific geographical

location and then diffusing to the rest of the world or, if “global”, similarly operating as a “totalising unity” (2000: 23). It is important to stress that such a problematic does not merely concern theoretical production. For example, Marx's striking ambiguity *vis-à-vis* colonisation – always criticised but often conceived of in terms of “necessary evil” – manifestly materialises the practical implications of such a delicate issue.

Yet it must also be acknowledged that a number of non-historicist, counterbalancing elements are dispersed both throughout Marx's *corpus* and in subsequent elaborations by a variety of Marxist scholars. Belonging to the first category are the profound interest Marx shown for empirico-historical specificities and the very relevant late reconsideration of the necessity of the transition from capitalism to communism.³² More importantly, however, what must be highlighted and fully appreciated is the political dimension of Marx's method: *capitalism sheds new light on what precedes it because the goal set for the analysis is to show capitalism's contradictions in order to eventually overcome it*. In other terms, although the present is highly influenced by the past, it is the former that illuminates the latter. Present urgencies shape the way we approach historical past: every single degree of explanatory power gained by Marx's reflections is *directly* a weapon to be employed in class struggle. This is why the danger represented by

³² In the preface to the Russian edition of the *Communist Manifesto*, Marx wondered whether or not the *obshchina*, social formation typical of Russian countryside, could possibly pass into the form of common ownership without experiencing a process of capitalisation. His answer was that “if the Russian revolution becomes the signal for the proletarian revolution in the West, so that both complement each other reciprocally, the current Russian ownership of land could serve as a starting point for communist development” (Marx quoted in Tomba 2009: 47).

On this issue, see Shanin (1983) and Fusaro (2009); this latter cautiously advances the hypothesis, plausible at the very least, that behind the late Marx's (partial) loss of interest in the economic analysis of the modern capitalist mode of production may lay a progressive lack of trust in the imminent collapse of capitalism.

philosophy of history (once conceived of in terms of subjective intervention, of a risky but fruitful mixture of political practice and historical analysis) must be always taken in careful account but cannot be avoided once and for all. In fact, as soon as we get rid of *capitalist historical development* we would find ourselves immediately confronted with two very troubling problems: on the one hand, we would lose a specific point of view *on* capitalism, a theoretical positionality that allows us to select empirical data on the basis of a methodological grid of intelligibility (which will always be to a certain degree arbitrary, but that does not necessarily have to present itself as pure subjective projection). On the other hand, we would be facing a paradoxically static vision of capitalism, always-already caught up in the perpetually synchronic repetition of its defining contradiction (only labour-power produces value but capital can never fully appropriate it). We shall develop such critique in the next few pages and chapters, but it is important to introduce in this context an important point formulated by Fredric Jameson:

When one is immersed in the immediate [...] the abrupt distance afforded by an abstract concept, a more global characterisation of the secret affinities between those apparently autonomous and unrelated domains, and of the rhythms and hidden sequences of things we normally remember only in isolation and one by one, is a unique resource, particularly since the history of the preceding few years is always what is least accessible to us. Historical reconstruction, then, the positing of global characterisations and hypotheses, the abstraction from the 'blooming, buzzing confusion' of immediacy, was always a radical intervention in the here-and-now and the promise of resistance to its blind fatalities (Jameson 1998: 35).³³

³³ Jameson's point in 'Marxism and Postmodernism' aims at defending a Marxist totalising methodology. He seems to imply that abstraction and totalisation are overlapping concepts (even synonyms). We contend that, although totalisation is surely a form of abstraction, the opposite does not hold true.

Jameson's passionate praise for the notion of abstraction and, indirectly, for that of capitalist development, allows us to reinstate, at the level of Marx's analysis of pre-capitalist forms of production, the method of (balanced, cautious) tendency we drew from the *workerist* tradition elaborated in Chapter 1. The tendency's main task is to articulate historical discontinuities as real abstractions, so that the twofold trap of the *dictatorship of abstraction* (objective philosophy of history) and of the *tyranny of concreteness* (non-intelligibility of the historical context) can be avoided. Far from re-instating the historicist equation according to which, *mutatis mutandis*, every epoch (and every phase of capitalism) would be confronted with a formally similar set of contradictions, the method of the tendency seeks to discern the thin line of capitalist development in order to produce an analysis at the same time empirically accurate and politically empowering. *Repetita juvant*: a proper account on historical contingency does not necessarily imply the absence of a line of expansion characteristic of a given social constellation.

1.1 - In the course of our previous discussion we have briefly introduced the notion of *real abstraction*. Such a category plays a pivotal role in the analysis we are going to undertake and thus requires a more detailed exploration. According to Marx, capitalism can be adequately understood as a *machine of abstraction*. The process of valorisation upon which it rests is first and foremost defined by its *indifference* toward the concrete qualities which, in different modes of wealth production, used to define objects (or

products, or “things”).³⁴ However, such indifference has nothing to do with a refusal to engage in the “secret abode of production”. To the contrary, although markedly self-referential, it is a typology of indifference which produces *actual worlds* and the multifarious social relations that structure them. This kind of performative, self-referential indifference is one of the many possible permutations of real abstraction. As Alberto Toscano poignantly argues, ultimately “abstraction *transforms* (and the fact that what it transforms is itself abstract does not make it any less *real*)” (Toscano 2008a: 279). Beyond its transformative character, what is unique of real abstraction is the special link – we might even call it a true *elective affinity* – it establishes with capitalism: real abstractions (such as labour, value, money, etc.) emerge *historically* in connection with the rise of the capitalist mode of production and deploy themselves (along temporal, geographical and logical lines) in accordance with capitalism's inner transformations. After having countered humanist-based denunciations of the dominant ideology on the premise that capitalist society is to a great extent driven by abstract entities, Toscano concludes: “A particular modality of social abstraction can thus be identified as the *differentia specifica* of capitalism *vis-à-vis* other modes of production” (Toscano 2008b: 65). Following Toscano, in maintaining the relationship between nature and value as our object of study, our main analytical compass shall refer to the ways through which real abstractions arose within classical political economy (and got subsequently modified following the rhythm of capitalist dynamics).

³⁴ Marx refers to the opposition between “natural distinctness” and “economic equivalence” (Marx 1993: 141).

A fundamental example of real abstraction is labour. As an original introduction to this fundamental category, let us briefly return to Diamond's almond production. Recall, he assumes as his starting point a very precise definition of plant domestication; what might appear as more surprising, perhaps, is that with all probability Marx would have enthusiastically accepted it. Diamond writes: "Plant domestication may be defined as growing a plant and thereby causing it to change genetically from its wild ancestor in ways making it more useful to human consumers" (1997: 114). Leaving aside a clear distinction in style and terminology, this formulation does not substantially differ from the following: "The product of the [labour] process is a use-value, a piece of natural material adapted to human needs by means of a change in its form" (Marx 1990: 287).³⁵ Despite their similarities, however, Marx's and Diamond's paths diverge irremediably as soon as the analytical requirement of historicisation is introduced. Given the general, timeless validity of a notion of labour conceived of in terms of organic interaction, or metabolism, between man and nature (*mythical abstraction*), a scientifically correct analysis sets as its task the definition of the actual, empirical translations of such a generalisation into multifarious – but always determinate – space-time co-ordinates.³⁶ Hence, Marx's and Diamond's accounts of plant domestication would be identical only in

³⁵ To stress the trans-historical validity of such a definition, Marx adds shortly after: "The labour process is purposeful activity aimed at the production of use-values. It is an appropriation of what exists in nature for the requirement of man. It is the universal condition for the metabolic interaction [*Stoffwechsel*] between man and nature, the everlasting nature-imposed condition of human existence, and it is therefore independent of every form of that existence, or rather it is common to all forms of society in which human beings live" (Marx 1990: 290).

³⁶ "This example of labour shows strikingly how even the most abstract categories, despite their validity – precisely because of their abstractness – for all epochs, are nevertheless, in the specific character of this abstraction, themselves likewise a product of historic relations, and possess their full validity only for and within those relations" (Marx 1993: 105).

so far as they specifically refer to a pre-capitalist context, in which such a translation gives rise to what we might define as *pure concretisation*.

To properly understand this crucial point it is useful to take a closer look at *Die Formen*. Here, we arguably find the most detailed study Marx devoted to the specific logico-historical distance that separates capitalist from pre-capitalist societies. First and foremost, pre-capitalist social formations are characterised by the hegemony of landed property and agriculture, which constitute an economic disposition whose main objective is the *creation of use-values* or, in other words, whose productive system is devoted to the mere sustenance of the community with no interest for the generation and accumulation of a *surplus*.³⁷ The purpose of labour, in this context, is limited to the simple (re)production of the community-form: “The aim of this work is not the *creation of value* [...] its aim is sustenance of the individual proprietor and of his family, as well as of the total community” (Marx 1993: 471-472).

A second fundamental feature of pre-capitalist modes of production is the naïve relationship between nature and community as mediated by a collective, unitary system of common property. As Marx puts it:

In this natural community [...] the earth is the great workshop, the arsenal which furnishes both means and material of labour, as well as the seat, the *base* of the community. They relate naïvely to it as the *property of the community*, of the community producing and reproducing itself in living labour. Each individual

³⁷ On the theoretical role played by the concept of *surplus* in the transition from feudalism to capitalism, see the important essay by Pietro Bianchi (2010), and in particular the following sentence: “The cut that separates the capitalist mode of production from allegedly ancient societies devoted to the pure reproduction of themselves, is none other than the production of a surplus: an element that cannot be explained in pure conservative and homeostatic terms” (126).

conducts himself only as a link, as a member of this community as *proprietor* or *possessor*. The *real appropriation* through the labour process happens under these *presuppositions*, which are not themselves the *product* of labour, but appear as its natural or *divine* presuppositions. (Marx 1993: 472).

In this passage we find the very kernel of the relationship between man and nature in pre-bourgeois “natural communities”: humans and the surrounding environment stand in external opposition to each other, confronting themselves on the basis of a reciprocal irreducibility. The earth is nothing more than the inorganic condition of communitarian reproduction. Man is tied to the land as its “natural workshop [*natürliches Laboratorium*]” (*Ibid.*: 471).³⁸ The mediation between the two (labour) is purely concrete in that it is entirely centred around the production of *use-values*, whose sole finality is the satisfaction of social needs. Labour before capitalism is an essentially *qualitative* practice since its only source of measurement is defined by the unique attributes of the products it brings to light. This qualitative dimension can be fully appreciated considering the scheme of simple circulation (C-M-C): money here is a thoroughly transparent *medium* whose ultimate benchmark is the usefulness of a given commodity. No abstraction is at play here: concrete features of concrete objects preside over the measurement of labour, which is to say the exchange between man and nature.

³⁸ Marx brilliantly summarises this conceptual relation-through-externality as follows: “The individual relates simply to the objective conditions of labour as being his; [relates] to them as the inorganic nature of his subjectivity, in which the latter realises itself; the chief objective condition of labour does not itself appear as a *product* of labour, but is already there as *nature*; on one side the living individual, on the other the earth, as the objective condition of his reproduction” (Marx 1993: 485). It goes without saying that this formulation closely recalls Foucault's vision on the pre-biopolitical relationship between life and politics.

Before discussing the modality through which labour became a real abstraction – which is to say: a strictly capitalist category – we need to emphasise an important point regarding the internal articulation of the notion of pure concretisation. As we anticipated above, it is certainly possible to read in Marx's pages a sort of inclination towards a philosophy of history: after all, isn't communism a self-conscious form of collective property, whose naïvety has been erased by the “civilising” violence of capitalist real abstractions? Actually, the so-called “historical chapters” of *Capital* are not devoid of some problematic openings in that regard. This is much less the case with *Die Formen*, however: here Marx does not read historical phases – the succession of modes of production – as necessary stages of a single, inevitable evolutionary process. Regressions, aborted advancements – both socially and economically – and a plurality of developmental channels are consistent with the historical material examined to unfold the argument (whose focus is to show the genesis of capitalism in order to critically denaturalise it). As a consequence, there exist, according to Marx, different forms of pure concretisation which can be further dissected³⁹ and whose only common feature is the lack of an abstract mediative apparatus between man and nature. In particular, following but also innovating the periodisation laid out in *The German Ideology*, Marx distinguishes three pre-capitalist modes of production: Asiatic, ancient and feudal. The connection amongst those socio-economic formation is not predetermined or fixed: *Die Formen* provides several examples of contingent assemblages. Once again, what is important is to emphasise that the only element those historical configurations share is

³⁹ For example, Marx suggested that the Asiatic mode of production can be characterised by three different forms of State power: natural, ancient and Germanic.

“the natural unity of labour with its material presuppositions [*die natürliche Einheit der Arbeit mit ihren sachlichen Voraussetzungen*]” (*Ibid.*), which is to say the concrete mediation – via a use-value-oriented labour process – between man and nature.

How did labour become a real abstraction? Or, which is simply a different way to pose the same question, how did capitalism come to be? The best way to approach such a pivotal issue is to make explicit reference to the notorious part eight of *Capital*, significantly entitled “So-Called Primitive Accumulation”. The link between this text and *Die Formen* (beyond a clear thematic affinity) is explicitly expressed by the subtitle of these latter: “Concerning the Process Which Precedes the Formation of the Capital Relation or of Original Accumulation”.⁴⁰ According to Marx, “primitive accumulation plays a similar role in political economy as original sin does in theology” (Marx1990: 873). In fact, it disarticulated the two conditions of possibility of pure concretisation and, in so doing, paved the way for a full deployment of capital's mechanism of valorisation. On the one hand, such mechanism challenged (and eventually overthrew) the primacy of use-value by establishing a new, more complex form of circulation (M-C-M') based on exchange-value and, as such, *surplus*-oriented (money as *medium*, here, is all but transparent). This transformation was made possible by the dissolution of the “natural unity” of man and labour conditions: this kind of separation between the producer and the means of production is indeed the crucial element of Marx's “counter-history” of the birth

⁴⁰ “Primitive” and “original” accumulation are different translations of the same German expression: *Urprüngliche Akkumulation*.

of the proletariat. It is only insofar as the labourer confronts the capitalist as separated from both objective and subjective conditions of production – on the basis of a formal yet *real* freedom – that the dominance of exchange-value can be fully displayed. As Marx states:

As a matter of fact, the methods of primitive accumulation are anything but idyllic [...] The capital-relation presupposes a complete separation between the workers and the ownership of the conditions for the realisation of their labour. As soon as capitalist production stands on its own feet, it not only maintains this separation, but reproduces it on a constantly extended scale [...] So-called primitive accumulation, therefore, is nothing else than the historical process of divorcing the producer from the means of production. It appears as 'primitive' because it forms the pre-history of capital, and of the mode of production corresponding to capital [...] And this history of expropriation is written in the annals of mankind in letters of blood and fire. (Marx 1990: 873-875).

Three main points derive from this account of primitive accumulation: firstly, the process of separation between producers and means of production (with the former now confronting the latter as capital) is coextensively accompanied by an increase in the level of abstraction: “These *objective* dependency relations appear, in antithesis to those of *personal* dependence [...] in such a way that individuals are now ruled by *abstractions*, whereas earlier they depended on one another.” (Marx 1993: 164). More importantly, however, this irruption of real abstractions is characterized by the extreme violence of

exploitation⁴¹ and by a very concrete process of expropriation through enclosures, whose final consequence will be the proletarianisation of all underclasses.⁴²

Secondly, the separation between producers and conditions of production entails the dissolution of the unity, externally mediated by labour, between man and nature. In Marx's word, capital's dissolution of previous social relations gives rise to “the process of his [the worker's] release from the earth” (Marx 1993: 502). From the standpoint of the notion of nature, this crucial movement of atomisation explains why the role of labour as *medium* undertakes an epochal change. Instead of connecting external entities (as it was the case in pre-bourgeois societies), labour *internalises* both man and nature in order to differentially inscribe them in a productive process whose only aim is the creation of exchange-value. Moreover, such a profound melting of the ancient order produces a new configuration of space within the realm of productive activity: the inversion of the relationship between town and countryside.⁴³ Acutely, Henri Lefebvre (1991) reads this

⁴¹ The twofold nature of exploitation, both abstract and concrete, and its unmistakably violent root are fundamental achievements of Marx's analysis of the primacy of exchange-value: “This system of exchange rests on *capital* as its foundation, and, when it is regarded in isolation from capital, as it appears on the surface, as an *independent* system, than it is a mere *illusion*, but a *necessary illusion*. Thus there is no longer any ground for astonishment that the system of exchange values – exchange of equivalents measured through labour – turns into, or rather reveals as its hidden background, the *appropriation of alien labour without exchange*, complete separation of labour and property.” (Marx 1993: 509).

⁴² As Massimo De Angelis has aptly shown, the *drive to enclosing* is an essential character of capital (De Angelis, 2007 – especially Chapters 10 and 11: 133-149). On the dramatic consequences of early capitalist processes of expropriation it suffices to recall Thomas More's *Utopia*, and especially the section concerned with the problems of England, a country where “sheep, which are naturally mild and easily kept in order, may be said now to devour men and unpeople, not only villages, but towns” (More 2008: 16). In fact, arable land is turned over to the lucrative wool trade, creating a dispossessed underclass which will then form the industrial reserve army of labour.

⁴³ Particularly decisive is the following passage from *Die Formen*: “The history of classical antiquity is the histories of cities, but of cities founded on land property and agriculture; Asiatic history is a kind of indifferent unity of town and countryside [...] The Middle Ages begins with the land as the seat of history, whose further development then moves forward in the contradiction between town and countryside; the

historical development as the shift from the experience of *absolute space*, organised around the embodied principles of use-value, to the production of *abstract space*, based on the performative, empty logic of exchange-value.⁴⁴ As we shall see in more detail below, such an inversion is important to understand the “metabolic rift”⁴⁵ imposed by capital on the “original unity” between man and nature.

Thirdly, it is necessary to consider what exactly Marx's expression “pre-history of capital” means. On the one hand, there is an obvious reference to a set of historical transformations that made possible the rise, and progressive institutional establishment, of the capitalist mode of production. On the other hand, it is decisive not to forget that, for Marx, capital is a social relation and not, as was the case for Adam Smith, a stock. Accordingly, what primitive accumulation primarily accomplishes is the – dreadfully violent – creation of a set of conditions of possibility such that the capitalist relation of production, namely the “free” encounter of a seller and a buyer of that very particular commodity which is labour power, can actually take place. It is, in the last instance, a pure matter of power exercise and, therefore, of the social requisites of its increasing reproducibility. From this perspective, primitive accumulation is the constant *conditio*

modern [age] is the urbanisation of the countryside, not the ruralisation of the city as in antiquity.” (Marx 1993: 479).

The consequence of such a pivotal transformation, Marx writes in *Capital*, is twofold: “On the one hand it concentrates the historical motive force of society; on the other hand, it disturbs the metabolic interaction between man and the earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil” (Marx 1990: 637).

⁴⁴ For a compelling commentary of Lefebvre's analysis of space and visibility, see Gardiner (2012).

⁴⁵ See Foster (2000; 2009).

sine qua non of capital relations' (re)production and must therefore be ceaselessly performed. In the words of Sandro Mezzadra, what must be critically assessed is the “topicality of prehistory” (Mezzadra 2011: 302).

A last, very brief methodological remark: understanding primitive accumulation as a permanent character of valorisation does not mean it relates to a sort of compulsion to repeat, in such a way that we would face an always identical (formal) positing of always different (substantial) processes. This is a mistake that, albeit involuntarily, is made when the chaotic complexity of capitalist contemporaneity is read as the amorphous, synchronic co-presence of a multitude of contradictory elements, so that no unitary (if multilayered) logic can make sense of the multifarious components structuring the value-chains. Paradoxically, the insistence on the co-presence of heterogeneous elements, when devoid of any theoretical selecting-tool (e.g., the antagonistic tendency), freezes history by forcing the new to ineluctably show itself in the guise of the old.⁴⁶ It is, therefore, fundamental to clarify our approach with regard to these problematics: from a solely capitalist perspective, primitive accumulation is a substantial necessity. The contingent form of its eventual occurrence, however, cannot be predetermined. Moreover, the reproduction of capital relations undergoes a tremendous change in the moment in which their progressive extension reaches a certain limit. Insofar as there is no longer an outside

⁴⁶ Here resides the main difference between Mezzadra's (2011) and Tomba's (2009) analyses of the permanence of primitive accumulation: whereas Mezzadra uses the multiple temporalities of contemporary capitalism to criticise excessively linear understanding of the tendency of capitalist development (without getting rid of the concept), Tomba starts from the same premise to eventually negate the possibility of any theoretical emphasis which would be able to show the main line of capital's movement. As a consequence, he seems to consider extra-economic violence (mainly on the part of the state) as if a logico-historical comparison between state's functions with regard to accumulation-valorisation in the Seventeenth century and today would make even the slightest bit of sense!

to valorisation, the continuous production of capital relations must be investigated by accounting for its *intensive* character: capital incessantly carves its own surface of deployment seeking to create new, potentially exploitable time-space configurations. In other words, contemporary capitalism brings about new forms of real abstraction, which need and deserve specific – albeit not exclusive – consideration. It is from this perspective that our exploration of the notion of nature in political economy shall be carried out in the next sections.

1.2 - It is notorious that, as a very general point, Marx intended his theoretical production as a *critical engagement* with political economy, namely the science of capital from a capitalist perspective. Just as famously, his basic problem with Smith, Ricardo and all the other scientific political economists was their attempt to “naturalise” capitalism, to show its origin as an uncontested, peaceful and ultimately unproblematic transition. As we have seen, Marx was able to isolate and recognise not only the tragic amount of violence hidden behind primitive accumulation, but also the modality through which capital's real abstraction came to dominate the field of social production and reproduction. Keeping this in mind, we are now going to analyse the role played by nature in political economy, especially in its inceptive phase, as represented by the Physiocratic doctrine. Before doing so, however, it is important to underline that the “birth” of political economy as an internally structured scientific enterprise coincides with the disclosure of the biopolitical horizon as formulated by Foucault. This is no mere accident, of course. In fact, although biopolitics and capitalism cannot be conceived of in terms of overlapping concepts, it is clear that a fundamental solidarity links the two. As we shall see later, Foucault will

dedicate extensive attention to political economy in his attempt to trace a genealogy of biopolitics (especially liberal governmentality). For the time being, however, it is sufficient to recall that the formation of political economy occurs in the second half of the Eighteenth century and is developed primarily due to the appearance of a properly functioning capitalist mode of production. In other words, the process of autonomisation of the economic discourse is strictly intertwined with a large-scale deployment of capital's abstract self-referentiality (Napoleoni 1973).

This constitutive link is first glimpsed by the Physiocrats in the guise of the centrality accorded to production in the context of the analysis of wealth. Whereas Mercantilism saw the source of wealth in the realm of exchange, Physiocracy emphasised the primacy of the productive dimension. Such a centrality led to the “discovery” of an embryonic form of *surplus*-value: agricultural net product. This pivotal conceptual disclosure must be grasped in its three-dimensional character: from the point of view of its *recognition*, the net product did not distinguish between value-substance and physical substances. Lacking any theory of value whatsoever, the Physiocrats could only emphasise the physical aspect of production: this is why agriculture was the only sector involved in the actual productive realm. As a consequence, with regard to its *origin*, the net product cannot but be generated by the natural fertility of the soil. This is the driving force of production: in fact, it is not that agriculture is the only generative activity because capitalism takes place just in it; rather, it is because the net product exists only in agriculture that capitalism – as a means to enlarge the *surplus* – is configured as meaningful just in agriculture. Otherwise put, the Physiocrats definitely believe that capitalist agriculture is superior to any other, but such a superiority, in their view, is due

to increased efficiency and more attentive management rather than to a productive revolution. Finally, from the standpoint of *attribution* (namely the forms of revenue to which the *surplus* gives rise), Physiocracy consequentially stresses the exclusive role of land rent (as opposed to industrial profit). The role of manufactures cannot but be secondary, given the premise that only nature is, through the distribution of its free gifts, generative.

The famous *Tableau économique*, elaborated in different versions by François Quesnay starting in 1758-59, perfectly exemplifies such a peculiar view of the net product. According to these scheme, society is divided into *productive*, *sterile* and *proprietary* (landowners) classes. The first one (productive class) is constituted by the *ensemble* of subjects (no matter whether waged workers or capitalist tenants) involved in the agricultural sector. The second one (sterile class) is composed by the entirety of labourers employed in manufacturing activity; in Quesnay's thought, this activity is useful but does not create any *surplus*, hence must be defined as sterile. In contrast to the productive and sterile classes, the third class, i.e., the proprietary, does not perform any economic function but still possesses the right to appropriate almost entirely the net product. By analysing the interaction of flows and stocks among the three classes, the *Tableau* represents the first attempt to study the general equilibrium of the economic system from the perspective of its own *internal dynamics*.

Given its profound richness, the *Tableau* would surely deserve a more in-depth exploration. What is of particular interest for our purposes, however, is that Physiocracy as an economic set of theories represents a *transitional moment* in the history of political economy (and, as a consequence, of capitalism). In the view of its followers, what Marx

called “naïve relationship” between workers and the land is over, but the new man-nature bond based on the mediation of labour as a real abstraction remains elusive, out of sight. To put it differently, from a Marxian perspective the progenitor of *surplus-value*, namely the “net product” in Quesnay's terminology, is the greatest achievement of the Physiocrats, while the failure to recognise labour as its source is their main shortcoming.

In an important book, Paul Burkett (2006) reports and comments Marx's critique of Physiocracy in a very detailed and precise way, aptly underlining how his high regard for the like of Turgot, Quesnay and Mirabeau was not limited to the *Tableau*, but actually constituted to a significant extent an invaluable basis for his own reflection. Burkett, however, focuses more on mature writings (in particular *Capital* and *Theories of Surplus-Value*) whereas, from our perspective, the best *locus* of Marx's *corpus* at which to look in order to grasp the Physiocrats' “*productive* mistake” (Marazzi 2011: 62) in its full assemblage of implications is constituted by the *Economic and Philosophic Manuscripts of 1844*. Here, the articulation amongst historical rupture, logical irruption of labour as real abstraction and new qualitative dimension of the notion of nature are so closely entangled that the richness of political analysis shows itself in the most disruptive form. In an astonishing excerpt, which is worth quoting at length, Marx writes:

The Physiocratic doctrines of *Dr. Quesnay* forms the transition from the mercantile system to Adam Smith. *Physiocracy* represents directly the decomposition of feudal property in *economic* terms, but it therefore just as directly represents its *economic metamorphosis* and restoration, save that now its language is no longer feudal but economic [...] Land is not yet *capital*: it is still a *special* mode of its existence, the validity of which is supposed to lie in, and to derive from, its natural peculiarity. Yet land is a general *element*, whilst the mercantile system admits the existence of wealth only in the form of *precious*

metal. Thus the *object* of wealth – its matter – has straightway obtained the highest degree of universality within the *bounds of nature*, insofar as even as *nature*, it is immediate objective wealth. And land only exists for *man* through labour, through agriculture. Thus the subjective essence of wealth has already been transferred to labour. But at the same time agriculture is the *only productive* labour. Hence, labour is not yet grasped in its generality and abstraction: it is still bound to a particular *natural element as its matter*, and it is therefore only recognised in a *particular mode of existence determined by nature* (Marx 1988: 96-97).

This quotation allows us to properly frame Marx's new understanding of nature: first of all, what must be acknowledged is the *historical rupture* imposed by the rise of capitalism. A red thread that runs through Marx's work as a whole is what he sees as one of the main characteristics of capital, namely its constitutive *cannibalism*, its irrepressible drive to cross the borders it had itself previously established. In the *Grundrisse*, he states: “Every boundary [*Grenze*] is and has to be a barrier [*Shranke*] for it” (Marx, 1993: 334). Shortly after Marx further specifies the concept: “The quantitative boundary of the *surplus*-value appears to it as mere natural barrier [*Naturschranke*], as a necessity it constantly tries to violate and beyond which it constantly seeks to go” (*Ibid.*: 334-335). This formulation is particularly interesting because it permits us to advance a methodological distinction between what is formally invariant in capitalism (the drive to overcome its self-imposed limits) and what is historically contingent in its development (the actual content of the “natural barrier”). In other words, limits must be continually posed and thus change according to spatial as well as temporal coordinates.

Furthermore, Marx underlines “the great civilising influence of capital; its production of a stage of society in comparison to which all earlier ones appear as mere *local developments* of humanity and as *nature-idolatry*.” (*Ibid.*: 409-410). Whereas in pre-capitalist economic formations nature is seen as a transcendent force, as an external normative entity, in capitalism its function is from the very beginning mediated by the social production of *surplus*-value. The kind of nature to which capital refers is from the very beginning *internal* to its production and reproduction. Far from being transcendent or external with regard to the interplay between productive forces and capitalist relations of production, nature has to be understood *as* capital, as a specific modality of its existence. Here the reference to Physiocracy is crucial: according to Marx the Physiocrats were right in pointing out that wealth is produced within the limits of nature, but they fell short in recognising that this nature is not something other than capital, but capital itself in its natural form. Indeed, the function of nature in the early Nineteenth century capitalism is to provide an internal and flexible limitation to the process of valorisation.

In order to fully grasp this idea of *nature as an indirect, enacting limit to valorisation* it is necessary to take a closer look to the relationship between *surplus*-value and its natural basis. For the Physiocrats, there is no distinction between the two: the net product is the direct function of soil fertility. What they do not recognise, however, is labour as real abstraction: the natural basis of *surplus*-value is surely a *necessary* condition for its production, but it is nonetheless far from being also *sufficient*. On the contrary, it sets the limits within which abstract labour is put to work to produce *surplus*-

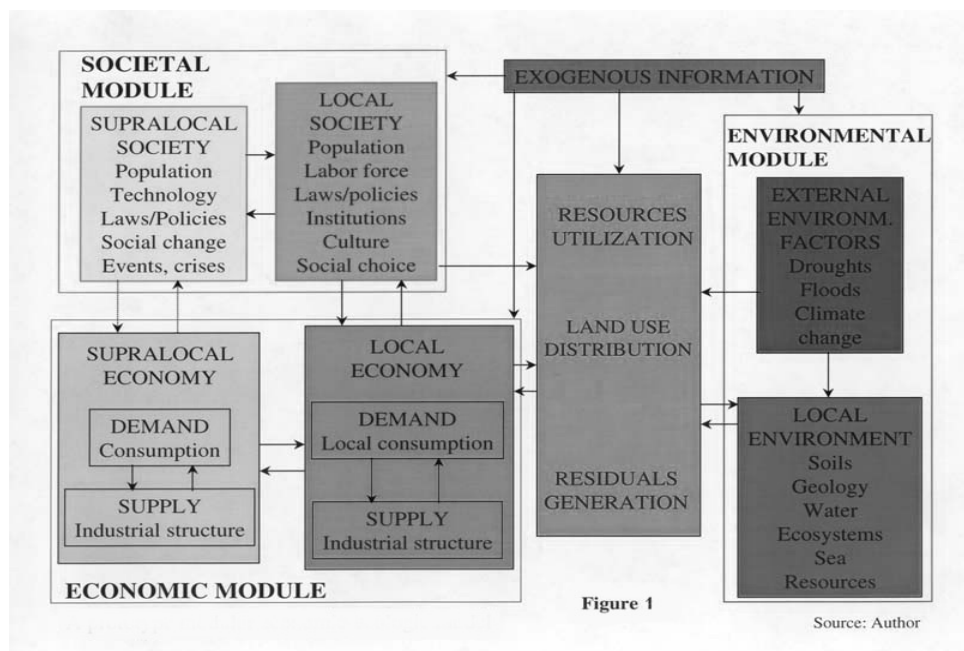
value.⁴⁷ This point can be better appreciated by following Marx's analysis of Smith's and Ricardo's reaction to the Physiocrats. Smith goes beyond them in recognising labour as the substance of value, but does so by fatally forgetting the role played by nature: "In manufactures [...] *nature does nothing; man does all*" (Smith quoted in Marx 1963: 60). On the contrary, Ricardo realised that the function of nature in the early Nineteenth century capitalism was to provide an internal and flexible limitation to the process of valorisation. He must have been well aware of that if he could write: "There is not a manufacture which can be mentioned, in which nature does not give her assistance to man, and give it too, generously and gratuitously" (*Ibid.*). This free assistance may take the form of an infinite source of raw materials, at the beginning of the process, or that of an inexhaustible garbage bin, at its end. In both cases, however, nature and valorisation do not overlap according to Ricardo; rather, nature is configured as the border within which value-creation occurs. To summarise: in its compulsive search for limits to overcome, capital assumes nature as its primal hold, as the relatively stable surface upon which differentiated circuits of valorisation deploy themselves. Its function, far from being transcendent, is rather that of providing an internal limit to the process of valorisation.

A possible example of such an enacting limitation may be provided by the input/output model formulated in the 1930s by Wassily Leontief (1986), whose graphic rendition can be found in figure 1. Leontief's input/output model makes explicit reference

⁴⁷ Abstract labour as substance of value is valid if, and only if, capitalist self-referentiality is already fully deployed. In fact, as Burkett (1999) reminds us, as far as *wealth*-creation (which is not to be confused with *value*-production) or use-value is concerned, labour and nature performs an equally important role.

to Quesnay's *Tableau*, but, for obvious reasons, does not consider agriculture to be the only productive sector in the economy. It represents the general production of wealth starting from the combination of a series of components provided by the natural environment (populations, raw materials, energy sources, etc.) which, through a transformative process performed by a technical system (machines), eventually generate a product (output). Bringing together all economic sectors in a matrix structured in such a way, it becomes fairly easy to deduce the golden rule of political economy: maximising the value of final products and, simultaneously, minimising the cost of initial components.

Figure 1. Source: Author.



Leaving aside other possible critical considerations, what is important to show in our research context is that, in this model, *nature works as internal but unaccounted for limit* both at the beginning of the process (raw materials, energy sources) and at the end of the process (waste disposal). To conclude, here nature is surely internalised (it appears as free source of inputs and as free landfill for outputs), but it is so in such a way as to define the limits of the productive process, limits that prevent it to be involved in the generative-transformative activity properly defined. Again: the relationship between nature and capital assumes the form of an intrinsic, but nonetheless indirect, principle of limitation.

1.3 - Before engaging in a comparison between Marx's account on the nature-capital bond and Foucault's elaboration on the *milieu*-governmentality link, we would like to briefly situate our analysis so far within the international debate about the relationship between Marxism and ecological thought. Such a debate has flourished recently,⁴⁸ and even a succinct overview would be well beyond the limited scope of our study. That said, from our present vantage point, one can identify two elements of such a rich debate that must be taken into careful account: John Bellamy Foster's analysis of the metabolic rift (2000; 2009) and Jason Moore's definition of capitalism as world-ecology (2011a; 2011b).

⁴⁸ Fundamental references are the following: Smith (1984), Martinez-Alier (1987), Benton (1989), Harvey (1996), O'Connor (1998), Heynen et al. (2007).

Foster's masterful reading of Marx's contribution to ecological thought is centred around the notion of *metabolic rift*. Although Marx never directly used the term, he alluded to it by mentioning several times the word “metabolism” [*Stoffwechsel*] and by arguing in Volume III of *Capital* that an “irreparable rift in the interdependent process of social metabolism” (Marx 1981: 949) was caused by the historical development of the capitalist mode of production. More than philological accuracy, however, what Foster is able to show is the consistency of the theory of metabolic rift with Marx's thought in general. By reviewing Marx's engagement with Malthus, Ricardo and, above all, chemist Justus von Liebig, Foster argues that the capital-driven process of “urbanization of the countryside” (Marx 1993: 479) broke the naturally balanced – tendentially – interaction between economic circular flows and ecological circular flows and, in so doing, produced the conditions of possibility for the environmental crisis to arise. A good case in point to understand this key shift is provided by the evolution of the town-countryside relationship from the second half of the Eighteenth century onwards (Foster 2000: 148-149). In this period, known as the first agricultural revolution, the rapid diffusion of capitalist farming techniques represented the apex of a slow and gradual process which brought to its extreme limits the *closed energetic circle* binding town and countryside: whereas the latter provided food and raw materials, the former returned organic waste to be employed in agriculture as fertiliser. Although capitalistic innovations (i.e., improved manuring, crop rotation, drainage, more efficient livestock management, etc.) significantly increased the yields, they also involuntarily entailed progressive soil exhaustion. In order to solve this debilitating problem, capital heavily resorted to soil chemistry in agriculture. Chemical intervention constitutes the kernel of the second agricultural revolution (1830-

1880), whose main character is a decisive *global dimension*, since soil depletion was to be fought particularly by means of massive imports of guano from Peru and nitrates from Chile.⁴⁹ Although such innovations fostered a short-term recovery in terms of agricultural productivity, the contradiction between economic circular flows and ecological circular flows was by then an established reality and, with it, the very notion of environmental crisis made its historical appearance. By showing capitalism's systemic tendency towards biophysical degradation in the countryside and towards increasing pollution in the city, Foster aims to place the emergence of ecological issues within the development of capitalism itself. He does so by arguing that the crisis of the earth, based on the contradiction between “natural distinctness” and “economic equivalence” (Marx 1993: 141), accompanies the periodic crises of accumulation that marks capital's reproduction. Foster's theory of metabolic rift is important in two main ways: first, it provides a solid argument against a putative Marx's indifference towards ecological issues (allegation which is today commonplace in a large section of environmentalist advocacy); second, it articulates, from an *internal perspective*, the rise of capitalism and the exploitation of the biosphere. There are, however, two important problematic points that should be addressed. On the one hand the separation in incommunicable spheres between accumulation crises and ecological crises seems to recall all too evidently a suspicious Cartesian epistemology. In fact, how to sharply distinguish between the two? As Jason Moore precisely puts it: “From biorhythms (proliferating shift work) to bioaccumulation

⁴⁹ A third agricultural revolution took place in the first half of Twentieth century and involved, among other factors, the substitution of animal traction with mechanical traction, the massive diffusion of intensive breeding, the primacy of monocultures, and the large dissemination of synthetic pesticides and fertilisers.

(rising toxicity), on a closer inspection we find it challenging indeed to determine the boundaries of the allegedly social and the seemingly natural” (Moore 2011a: 9). On the other hand, taking a different path to get to the same conclusion, the theory of metabolic rift fails to properly assemble the *specific internality* of nature to capital's circuits of valorisation. The qualitative dimension of nature as capital is surely the source of contemporary environmental crises, but not as an accident, a mere unintended side effect of capitalist development; rather, it is a constitutive element of it. The biopolitical nature of the ecological crises, after all, implies exactly this: capitalism *does not* produce the environmental crisis; it *is* the environmental crisis. To paraphrase Moore, capitalist circuits of exploitation do not act upon nature but, rather, pass through it.

Moore's analysis, however, proposes much more than a mere – if crucial – critical remark. It suggests a fundamental concept to read the relationship between capitalism and socio-natural interactions and, furthermore, it advances a convincing framework to grasp the transition to capitalism from an ecological perspective. Firstly, Moore proposes to read capitalism as a world ecology, as a specific articulation of what he calls, following Theophrastus, the *oikeios*:

This signifies the *relation* that produces manifold environments and organisms as irreducibly plural abstractions. To take the Nature/Society binary as a point of departure confuses the origins of a process with its results. The plethora of ways that human and biophysical natures are intertwined at every scale – from the body to the world market – is obscured to the degree that we take nature and society as purified essences rather than tangled bundles of human- and extra-human nature (Moore 2011b: 114).

Posing capitalism as *oikeios* is a fundamental theoretical move which allows us to account for the historicity not only of capitalism as a specific mode of production, but also as a mode of production which developed through history presenting a variety of different socio-natural crystallisations. Moore further specifies how “Capitalism-in-nature” (*Ibid*: 109) is characterised by a complex and multilayered process of simultaneous *internalisation* and *externalisation* of nature: while abstract labour becomes the measure of value through which nature is mediated, the free appropriation of its “free gifts” does not cease to foster profits' increase. To better understand this passage (especially in historical terms), Moore introduces the concept of *commodity frontier*,⁵⁰ according to which capital's further expansion is possible only insofar as, beyond the frontier, non-commodified land and labour are available.⁵¹ The historical succession of different commodity frontiers shows the irreducible contradiction between the logic of capital (best expressed by political economy), which does not account for nature unless in the form of free source of raw materials/free waste disposal container, and the actual history of capitalism with its uncountable episodes of plunder and degradation. As Moore concludes: “Capital's dynamism turns on the exhaustion of the very webs of life necessary to sustain accumulation; the history of capitalism has been one of recurrent frontier movements to overcome that exhaustion, through the appropriation of nature's free gifts hitherto beyond capital's reach” (*Ibid*.: 110). It would be difficult to find a better

⁵⁰ The critical issue of the *frontier* is also brilliantly raised by Anna Lowenhaupt Tsing (2005). Her analysis highlights the twofold nature of the frontier: *savage* frontier accounts for the violence unavoidably entailed by such a practice; *salvage* frontier shows how capital cynically takes advantage of the emptiness created by the destruction of traditional social environments.

⁵¹ Clearly, this analysis is deeply influenced by Rosa Luxemburg's understanding of imperialism (1951).

definition of the paradoxical position of *nature as enacting limit to capitalist valorisation*: on the one hand, it is internal but unaccounted for, whereas on the other it is posed under constant threat of destruction. The biopolitical nature of the environmental crisis is nothing other than this constant and unsurpassable tension.

Keeping the valuable insights provided by such an elaboration firmly in mind, as we move towards an attempt to analyse the current role played by nature in the most recent developments of political economy, two shortcomings of Moore's understanding must nevertheless be emphasised. The first concerns the total absence of social struggles from his accounts. He seems to be aware of this issue,⁵² and contends that “Alas, we cannot do everything at once” (Moore 2011a: 16). This is obviously true, but it sounds as a sort of *excusatio non petita*: such a criticism, in fact, is not addressed to the actual analysis (which can evidently be pursued as one prefers), but rather to its presuppositions. In Moore's view, it is not clear what drives capitalist development and, as a result of a prolonged exposition to this missing element, it is difficult to avoid the impression of facing not a *social relation* but a *thing* (somehow similar to Smith's *stock*) equipped with a sort of independent will and power. A methodology based on a biopolitical re-reading of the *workerist* “primacy of working class struggle”, we propose, would overcome such a problem by implying (even without analysing it) the historical role of struggles in the context of the rise of capitalism⁵³ and by clarifying what is at stake in contemporary

⁵² “Mine is a capital-centric approach that brackets the necessary questions of class struggles and social movements” (Moore 2011a: 16).

⁵³ On the pivotal role of peasants' revolts in disarticulating the feudal social fabric, and especially pre-capitalist agriculture, see Allen (1997).

environmental struggles.⁵⁴ When Moore reflects on whether the current crisis is *developmental* (pushing towards a “higher” restructuring of capitalism) or *epochal* (leading to the dissolution of capitalism), he does so by neglecting that such alternative is not a matter of objective investigation, but rather the very battlefield upon which global social movements are engaging capital's supremacy and, in many instances, prefiguring viable alternatives to the *status quo*.

Secondly, Moore's attempt to read the relationship between the general law of underproduction (i.e. rising cost of input procurement and waste disposal) and the capitalisation of nature through the lenses of the process of financialisation is at the same time important and insufficient. Surely important because it provides an excellent innovation of the process of commodification towards a more historically specific application. Insufficient, however, because it fails to recognise the unprecedented *abstraction leap* which tendentially characterises the current phase of biocapitalist development. To properly grasp such a leap, as we shall discuss later, it is necessary to couple the analysis of capitalism with a biopolitical critique of governmentality. This is why, before engaging with the unique features of contemporary environmental crises (most specifically, climate change), we need to investigate the link between nature and political economy through Foucault's notion of governmentality.

⁵⁴ On the new scenario opened up by the centrality of the “commons”, see Mattei (2011). We shall discuss this issue both in Chapter 4 and in the general Conclusion.

2 - FOUCAULT: NATURE AS GOVERNMENTAL ELEMENT OF VALORISATION

Although Foucault was interested in a genealogy of biopolitical governmentality and not, as Marx was, in a critical analysis of the capitalist mode of production, their conclusions about the relationship between the concept of nature and political economy significantly converge. Before exploring such a convergence, however, its methodological presuppositions must be explored in a little more detail. What is at stake here is the modality through which the Marx-Foucault encounter can be established. As we proposed in Chapter 1, capitalism and biopolitics must be understood as distinct but inseparable concepts in order to provide a methodological grid of intelligibility which is able to illuminate the irreducibly singular character of contemporary environmental crises. This remark implies that the bond which link Marx and Foucault from our standpoint is *not* be found in a philological examination of their texts. Other scholars have attempted such an examination, with equal cleverness but radically incompatible outcomes: whereas Thomas Lemke emphasises that “Foucault’s analytics of government offers a theoretical and critical perspective that parallels very similar endeavours and recent developments in Marxist theory” (Lemke 2002: 60), Adelino Zanini points out that looking for a fruitful relationship with Marx in Foucault's writing is “substantially useless” (Zanini 2010: 39). Our point, however, is a different one: by staging a theoretical dialogue between Marx and Foucault, we seek to forge a conceptual apparatus which is able to grasp and, at least potentially, disarticulate *contemporary* forms of valorisation, management and

exploitation. From this vantage point, we agree with Roberto Nigro when he compellingly argues that “in posing to Marx Foucauldian problems, and in posing to Foucault Marxian problems, we can discover new aspects of their *oeuvres* and, at the same time, new path for *today's* research” (Nigro 2001: 433). This double contingency, at once temporal (primacy of the present) and thematic (focus on environmental crises), makes our methodological toolbox resolutely context-specific. We do not claim universal validity: while attempting to select a *general* line of bio-capitalist development we do not intend to provide a model to be automatically applied to every set of problematics. On the contrary, we maintain that the specific assemblages we are going to highlight reproduce and deepen the fruitful tension between historical elements and logical aspects. From this perspective, two are the Foucauldian conjunctures we would like to address more specifically: a) the relationship between nature and political economy in the context of liberal governmentality; b) the development of such a relationship in the shift from liberalism to neoliberalism.

2.1 - In the lectures delivered at the Collège de France at end of the 1970s, Foucault reads the emergence of liberalism, conceived of in terms of a political rationality rather than of an economic theory, as a shift from the centrality of external legal limits to the absolute power of the sovereign (disciplinary mechanisms) to the increasing importance of an art of government based on political economy (security apparatuses). Liberalism, in other terms, is seen as a governmental permanent critique of sovereign power. And it is precisely from this critical perspective that the notion of the naturalness of the economic process (namely, the relationship between nature and governmentality) is developed by

liberal thinkers. Moreover, this notion emerges (both historically and logically) in close connection with the rise of *population* as the specific target of political power; the main feature of this category resides in its being historically transformable rather than anthropologically normative (Bazzicalupo 2010). As we have discussed in Chapter 1, such a peculiar concept of population presents both biological and statistical elements and is defined not so much by originary and immutable characters but, rather, by its function as a partially dependent variable of power effects that simultaneously *pass through it* and *are exercised upon it*.⁵⁵ It is the existence of this partially dependent variable as the main object of governmentality that structures the articulation between nature and political economy:

Political economy does not discover natural rights that exist prior to the exercise of governmentality; it discovers a certain naturalness specific to the practice of government itself. There is a nature specific to this governmental action itself and this is what political economy will study. The notion of nature will thus be transformed with the appearance of political economy. For political economy, nature is not an original and reserved region on which the exercise of power should not impinge, on pain of being illegitimate. Nature is something that runs under, through and in the exercise of governmentality. It is, if you like, its indispensable hypodermis [...] It is not background, but a permanent correlative. Thus, the *économistes* explain, the movement of population to where the wages are highest, for example, is a law of nature; it is a law of nature that customs duty protecting the high price of the means of subsistence will inevitably entail something like dearth. (Foucault 2008: 15-16)

⁵⁵ From this standpoint we can fully appreciate analogies and differences between Marx and Foucault: both are interested in showing how power first *shapes* and then *manages* its subjects. However, whereas Marx deploys such an analysis along the conceptual line that connects *valorisation* and *exploitation* of labour-power, Foucault configures the problem in terms of power relations between *governmental effects* and *population*.

This excerpt is key in that it explicitly shows not only the constitutive link between a new concept of nature and political economy, but also the modality through which population is mobilised in order to enact it. And, not surprisingly, here we find another example of a common-but-divergent issue raised by both Marx and Foucault: in fact, the *économistes* to which the passage refers are none other than Quesnay and his colleagues. For both Marx and Foucault, Physiocracy inaugurated a theoretical development which transformed the notion of nature from external idolatry to internal principle of limitation.⁵⁶ In a relevant passage, Foucault defines the Physiocratic doctrine as “the founding act of economic thought and economic analysis” (Foucault 2007: 55). Differently from Marx, however, this development is not read through the lenses of the shift from *wealth* to *value* but, rather, from the perspective of the innovative set of governmental reforms the Physiocrats advocated.

⁵⁶ Foucault paid consistent attention to the Physiocrats already in *The Order of Things* (2002), originally published in 1966. The context of that engagement is, however, very distant from the one Foucault was immersed in the late 1970s. In *The Order of Things*, Foucault advanced the well-known epistemological thesis according to which in the second half of the Eighteenth century the order of representation, which is to say the transparency bond that situates sign and content within the same field of visibility, crumbled. The consequence of such a collapse is the emergence of human sciences, namely that process of progressive emptying which will slowly substitute natural history, general grammar and analysis of wealth with, respectively, biology, philology and political economy. The essential feature of this latter is the radical assumption of *finitude* as a starting point of the knowledge-process. From this perspective, there is a crucial difference between Mirabeau (and Physiocracy in general) and Ricardo: according to the former, “for value to be created nature must be endowed with endless fecundity” (Foucault 2002: 217), whereas for the latter “the apparent generosity of the land is due to its growing avarice; what is primary is not need and the representation of need in men’s minds, it is merely a fundamental insufficiency [*carence originaire*].” (*Ibid.*: 279). The crucial issue at stake is surely that of *scarcity* but, while in the 1960s it played the role of “archeological” discursive formation, in the 1970s it will become a matter of “genealogical” element in the history of power techniques. Adelino Zanini (2010) rightly suggests that the *finitude* of the 1960s, conceived of in terms of nomination of the “outside”, could possibly have become the *population* of the 1970s, read as the internal folding of governmentality.

(2009); for, instead, a strong emphasis on discontinuity, see Paras (2006).

The main problem faced by European governments during the second half of the Eighteenth century was that of *scarcity*. Such a complex and decisive burden was feared for two interrelated reasons: on the one hand, it generated a shortage of resources (mainly food); on the other, it increased the likelihood of urban revolts and uprisings. As for the first issue, Foucault notes that scarcity in the late Eighteenth century acted as a self-propelling process whereby a decrease of food supply would cause a rise in the price of grain which would, in turn, induce the hoarding of grain. As a final consequence, the price of grain would further increase and the livelihood of the population would be fatally threatened (and, evidently, this could entail violent riots). Historically, there were two main strategies to tackle this complication: the Mercantilist and the Physiocratic. To use Foucault's terminology from the 1960s, the difference between the two strategies bears witness to the shift from the analysis of wealth to political economy proper. According to the Mercantilists, scarcity should be prevented through the implementation of highly “artificial” measures – simultaneously juridical and disciplinary – such as price-stabilizing policies (e.g. imposing a low price on grains), customs duty on exports and administrative regulation of commodity circulation (e. g. banning grain hoarding). Such a differentiated set of policies, whose common feature is the attempt to avoid scarcity and price rising, failed in that it lowered peasants' profits and, consequentially, diminished their incentives to sow. As a logical effect, resource-availability was further constrained and food supplies ended up being dangerously exposed to the slightest vicissitudes of the weather. The Physiocrats' approach to the problem of scarcity is the polar opposite of this. To start with, for them scarcity “was not evil at all”; rather, “it should be considered as a phenomenon that, in the first place, is natural, and so consequently, secondly, neither

good nor evil. It is what it is” (*Ivi*: 59). Referring primarily to Louis-Paul Abeille's *Lettre d'un négociant sur la nature du commerce des grains*, originally appeared in 1763, Foucault shows how Physiocracy's policy recommendations were configured as the categorical opposite of Mercantilism's: the price of grain should be allowed to rise by means of the suppression of hoarding prohibitions and the elimination of customs duty for exports. Such an increase in price would have the consequence to elevate peasants' profits and would incite them to sow more and more. The effect of an increase in cultivated fields would be a larger quantity of grains on the market with the next harvest and thereby impeding the increase in the price of grain and possibly even halting it completely. In fact, even in the event of a meagre harvest in the subsequent year, a high price of grain would benefit exports and, in so doing, would “naturally” lead towards a decrease. To put it differently, the very rise in prices would set in motion a process whose eventual outcome would be its opposite, which is to say a progressive lowering of prices. As Foucault notes, the Physiocrats established a governmental *dispositif* for dealing with scarcity such that “by connecting up with the very reality of these fluctuations, and by establishing a series of connections with other elements of reality, the phenomenon is gradually compensated for, and finally cancelled out, without it being prevented or losing any of its reality.” (*Ibid.*: 59-60). In other words, it is the very *naturalness* of scarcity that, when properly managed, nullifies its own reality.⁵⁷ This digression on the Physiocrats allows us to appreciate in a clearer way the constitutive link between nature and political economy that Foucault articulated in the passage we quoted above. Nature is a biological-

⁵⁷ It is important to stress that Foucault discusses Abeille's text in the context of the shift from discipline to security, which is to say in the context of the disclosure of the biopolitical horizon.

statistical set of fluctuations which is internal, albeit indirectly, to the exercise of governmentality. Political economy, conversely, is the *ensemble* of knowledge practices and power *dispositifs* that allows a coherent, although contingent and context-specific, management of such fluctuations.⁵⁸

At this point, we might ask: how is this constitutive link between nature and political economy enacted? According to Foucault, it acquires social effectiveness through the role played by the *market*. Obviously, Foucault refuses to conceptualise the market as a passive, hidden matter progressively brought to light by the improvement of economic theory. Moreover, his analysis is incompatible with the Marxist critique of the market as ideology, as a fetishistic mystification of real contradictions in the realm of production. Rather, for Foucault the market is a principle of veridiction that allows a new art of government to concretely work. In other words, the market is the centrepiece of a new biopolitical regime of truth. This crucial, unprecedented mediative/verificative function of the market within the nature-political economy nexus is described by Foucault as follows:

Inasmuch as prices are determined in accordance with the natural mechanisms of the market, they constitute a standard of truth which enables us to discern which governmental practices are correct and which are erroneous [...] Inasmuch as it enables production, need, supply, demand, value and price, etc., to be linked together through exchange, the market constitutes a site of veridiction, I mean a site of verification-falsification for governmental practice [...] The market now means that to be good government, government has to function according to truth. In this history and formulation of a new art of government, political economy does not therefore owe its privileged role to the fact that it will dictate a

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For a brilliant – if resolutely anti-biopolitical – reading of this nexus, see Hoffman (2010).

good type of conduct to government. Political economy was important inasmuch as it pointed out to government where it had to go to find the principle of truth of its own governmental practice (Foucault 2008: 32).

From this perspective, the natural traits attributed to market-laws are justified in that they play a *veridical limiting role* with regard to sovereign power. Being unable to fully grasp the opaque totality represented by the economic process, the sovereign must limit its interventions to possible market failures. Those incidental failures, however, do not put into question the spontaneous deployment of the invisible hand that, in connecting individual pursuit of profit to the general interest, naturally leads to the best allocation of social wealth: as Foucault states, “what we see appearing in the middle of the Eighteenth century is a naturalism much more than a liberalism” (Ivi: 62).⁵⁹ Thus, in Foucault the relationship between nature and liberal governmentality is analogous to that of nature and capital in Marx. In fact, nature (or, better, the naturalness of the market) provides an internal limitation upon which liberalism can put to work its differentiated *dispositifs*.

A good example of the liberal way of intersecting nature and political economy through the market can be found in the realm of microeconomics and, more precisely, in the

⁵⁹ Nevertheless, since it is freedom the centrepiece of the governmental practice, Foucault keeps using the adjective “liberal” to describe it. Especially because what is specific to such governmentality is its freedom-consuming activity: “The new governmental reason needs freedom, the new art of government consumes freedom. It consumes freedom, which means that it must produce it. It must produce it, it must organise it. The new art of government therefore appears as the management of freedom, not in the sense of the imperative: 'be free', with the immediate contraction this imperative may contain. The formula of liberalism is not 'be free'. Liberalism formulates simply the following: 'I am going to produce what you need to be free'” (Foucault 2008: 63).

neoclassical thought of English economist Arthur Cecil Pigou (1952). What is commonly known as *Pigouvian tax* (originally formulated in 1912) is, in fact, a perfect representation of a sovereign intervention which, while counterbalancing possibly detrimental market outcomes, avoids nonetheless to interfere with the invisible hand. In liberalism, in fact, governmentality works *because of* the market (to fix its – inessential but ineluctable – imperfections), not *for* it (to build its – contingent but necessary – conditions of possibility). Starting from a general view akin to that of Leontief,⁶⁰ Pigou nonetheless realises that productive activities can (and indeed often do) impact the quality of the surrounding environment. As a consequence, both raw materials and waste disposal should not be considered as infinite and, as such, should not be gratuitous. Clearly, nature appears as *internal* to productive activities but *external* to the market. In our terms, nature is an enacting – internal but indirect – principle of limitation. In Pigou's view, *environmental negative externalities* (unintended social costs/damages connected with productive processes) cannot be sold and bought on the market but should nevertheless be internalised in the costs of production. The policy tool through which such an internalisation can take place is *taxation*. From a Pigouvian perspective, the entrepreneur must pay for every unit of pollution produced (La Camera 2009). By means of fiscal imposition, then, her economic behaviour will be influenced in such a way that her interest will be to minimise the social cost (tax) and maximise the efficiency of

⁶⁰ It must be stressed, however, that the Leontief model and the Pigouvian tax are very different conceptual efforts: whereas the first belongs to the field of macroeconomics, being a general equilibrium theory, the second refers to microeconomics and, as such, is mostly concerned with the cost-benefit analysis.

productive factors (marginal private interest).⁶¹ The sovereign nation-state, thus, plays a fundamental regulatory role in this theoretical framework. Its goal is to allow the market to function in a situation of *optimal information*: the sovereign must limit itself to provide market operators with the best information available so that they can interact on the basis of a transparent system of comparability between prices/quantities supplied and products/services demanded. Behind the political articulation of such procedures lays the explicit assumption that the market will be able – by following its own naturalness – to efficiently maximise the economic welfare for every community involved in the productive process.

2.2 - Before undertaking the analysis of internal stirrings in the history of biopolitics, it is important to properly frame the nature of Foucault's engagement with economic theory in general. Ute Tellmann has recently argued that, in attempting to overcome the totalising economism putatively affecting the Marxist tradition, Foucault “circumvents rather than takes up the issue of economy” (Tellmann 2009: 9). His biopolitical lectures, in particular, would be fatally flawed by this “strategic evasion”. As Adelino Zanini (2010) has compellingly pointed out, however, this strategic evasion allowed Foucault to grasp the core of the matter by avoiding a certain economism – related to Marxism as well as to Liberal theory – in the understanding of the relationship between the *economic field* and the *political field*. Refusing simultaneously a *formal isomorphism* which would imply the

⁶¹ The same reasoning applies to possible *environmental positive externalities*: in this case, we would refer to *Pigouvian subsidy*. What is fundamental, however, is the regulatory function played by the sovereign which, in this context, is represented by the nation-state.

possibility to conceive of power as a “sellable good” on the basis of its conformity to a contractual exchange, and a *functional subordination* which would conceptualise power as the trustee of the *status quo*, Foucault finds himself in a suitable position to re-articulate the relation between the two fields. Such a link could be defined as *asymmetrical complementarity*, since the first term implies the second (and vice-versa) without a possible harmonic and peaceful configuration. Both realms endlessly refer to each other in a state of relative autonomy whose specific crystallisations must be posed as what is at stake in the analysis, rather than what is presupposed before the research takes place.⁶² This conceptual linkage allows Foucault to use the transformations of the triadic structure nature-market-political economy as a theoretical compass to analyse the historical shifts occurred to governmental power within the biopolitical horizon.

We are now in the position to ask whether this relationship between economic field and political field, that took shape between the Eighteenth and Nineteenth centuries, has remained unchanged or, on the contrary, has been undertaking significant processes of modification. As a starting point, let us stress that the historical horizon of biopolitical governmentality is not flatly linear but, rather, contested and traversed by social transformations. In fact, at least two different phases of governmentality can be detected. The first is *liberalism*, whose characteristics we briefly discussed. The second phase is

⁶² In “*Society Must Be Defended*” (2003), Foucault provokingly asks: “Can the analysis of power, or the analysis of powers, be in one way or another deduced from the economy?” (Foucault 2003: 13). Only the dismissal of both Marxist accounts and Liberal formulations can open up the space for a new approach: “The indissociability of the economy and politics is not a matter of functional subordination, nor of formal isomorphism. It is of a different order, and it is precisely that order that we have to isolate.” (*Ibid.*: 14).

Pointedly, Ottavio Marzocca has noted that this contraposition surely requires a significant degree of simplification, but it also allows to unearth the potential of a new way of understanding the mutual reciprocity between the economic and the political fields (Marzocca 2007). For an application of this reciprocity to the field of environmental studies, see Marzocca (2011).

neoliberalism and it is interesting to note how profoundly its emergence is connected to the concept of nature. According to Foucault, what *does not change* in the shift from liberalism to neoliberalism is the function of the market as a site of veridiction. Thus, also neoliberalism is concerned with the construction of an economic naturalness which is enacted by a biopolitical regime of truth based on the market. In other words, the formal invariance of governmentality is the *production of limits to power exercise*. What, on the contrary, *does change* is the specific modality of that production, its historical contingency. In liberalism the naturalness of the market is centred around the notion of *exchange* and, as such, it is still clearly distinguished from the artificiality of fluxes of money, commodities and individuals it is supposed to rationally channel. By contrast, in neoliberalism the naturalness of the market is directly created in accordance to the artificial principle of formalisation represented by *competition*. To put it crudely, nature has to be artificially constructed in order to practically allow the formal structure of economic competition to work. This is why the first wave of neoliberal thinkers considered by Foucault (German *ordoliberalism* of the 1940s and 1950s)⁶³ could accuse their liberal predecessors of “naturalistic naïveté”. According to the ordoliberals, the market is not a primary *datum* whose spontaneous structure would be revealed by the competitive logic. The order of the factors must be reversed: for the market to function

⁶³ This group of German economists, also known as the Freiburg School of political economy, include Walter Eucken, Franz Bohm, Müller-Armack, Wilhelm Röpke and, in general, those who were involved in the journal *Ordo* (founded in 1936) and later became advisors of Chancellor Ludwig Erhard. This latter, in 1948, declared that “the priorities of Germany during the reconstruction period would be the removal of price controls, and the setting of clear boundaries between individuals and the state. Erhard was aiming not only to differentiate the new Germany from the National Socialist state of the recent past; this reconstitution of state powers also reflected the challenge facing the new German state, which could draw upon neither historical rights nor the continuity of its juridical institutions as bases for its own legitimacy. What instead emerged was a performative basis for legitimacy, where the economic freedom of citizens can in itself constitute the basis for political legitimacy” (Flew 2012: 53).

properly, competition is to be first established and then continually enforced. The very *status* of competition as an economic category is radically displaced. For our purposes this issue is fundamental and, as a consequence, it is worth quoting Foucault at length with regard to it:

For what in fact is competition? It is absolutely not a given of nature. The game, mechanisms and effects of competition which we identify and enhance are not at all natural phenomena; competition is not the result of a natural interplay of appetites, instincts, behaviours and so on. In reality, the effects of competition are due only to the essence that characterises and constitutes it. The beneficial effects of competition are not due to a pre-existing nature, to a natural given that it brings with it. They are due to a formal privilege. Competition is an essence. Competition is an *eidos*. Competition is a principle of formalisation. Competition has an internal logic; it has its own structure [...] Competition as an essential economic logic will only appear and produce its effects under certain conditions which have to be carefully and artificially constructed (Foucault 2008: 120).

In this passage we assist to a sort of *dislocation of the notion of limit*: whereas in liberalism natural limits to artificial interventions are produced to allow social wealth to freely circulate and increase, in neoliberalism artificiality is directly applied onto nature in order to be deployed within the abstract boundaries of the competitive logic. To put it differently: whereas in liberalism nature is internalised to function as an enacting limit to economic exchange, in neoliberalism nature is artificially created to enact a process of valorisation homologous to the formal generative structure represented by economic competition (Terranova 2009).

We would like to formulate two considerations at this point. The first concerns the possibility to interpret this historical shift also from a Marxist standpoint. As we shall

better specify in the next section, we contend that recent analyses on the shifts from Fordism to Post-Fordism, and from Industrial Capitalism to Cognitive Capitalism, at the very least justify such an enterprise. From this perspective, it is possible to refer to a shift from *liberal capitalism*, in which *nature is perceived as the limit of valorisation*, to *neoliberal capitalism*, in which *nature is an element of valorisation*. Recent processes of *marketization of the environment* (carbon trading, privatization of natural commons, financialisation of scientific research, patenting of cellular structures of living organisms, etc.) should be read as *the act of crossing a threshold in the abstract internalisation of nature within valorisation as a productive element*. The second consideration refers to the emergence of ecological crises. Neoliberal articulations of naturalness, artificiality and competition allow us to shed light on the historical process through which environmental degradation (which is an ancient phenomenon that has always affected humanity) has been transformed into a pervasive and unavoidable political problem. The hypothesis we would like to advance is the following: *the ecological crisis is historically rooted in the process of industrialisation, and as such it emerged during the liberal phase of capitalism. Nonetheless, environmental policies as we know them belong to neoliberal capitalism: it is just when the action of governmental actors has the possibility to produce nature (which is to say, the surface of their own deployment) that an eco-political strategy can be set in motion*. To borrow Jason Moore's terminology, there has been a shift in the socio-natural relations that structure our contemporary *oikeios*.

At this point, two further relevant effects of the shift of emphasis from exchange to competition must be acknowledged. The first concerns the necessity of a constant

intervention on the part of the state not *on* the market (to fix negative outcomes), but rather *within* its conditions of possibility (to structure reality according to its needs). Rather than a passive referee supposed to supervise the rules of the market-game, what is needed is now an *interventionist governmentality*, a proactive political entity whose task is to incessantly re-create the material conditions of a given society according to competition, which is to say a flexible principle of formalisation.⁶⁴ As Foucault brilliantly summarises, in neoliberalism “one governs *for* the market, not *because of* the market” (Foucault, 2008: 121. Our emphases). The analysis carried out by the ordoliberal perfectly exemplifies such transformation. For them, in fact, the main problem is to create “a state under the supervision of the market rather than a market under the supervision of the state” (*Ibid.*: 116). Otherwise put, what needs to be tested is the capacity of a market economy based on competition to shape the state and re-form society. Competition, therefore, becomes a social model centred around inequality (as opposed to the crucial role of equivalence in a system structured around contractual exchange). This perfect inversion of roles between market and sovereignty “displaces the naturalist idea of *laissez-faire* [originally popularised by Physiocrat Vincent de Gournay in the 1750s], which needs an essence, whereas competition is a principle of formalisation, and as such is produced by an effort, by a tendency” (Zanini 2010: 95). What in classical liberalism was a spatial, indirect separation between political sphere (state) and economic sphere

⁶⁴ With regard to our contemporary situation, Wendy Brown (2006) has poignantly underlined, as a consequence of this radically interventionist governmentality, the silent process of de-democratisation which has been under way for decades. As she writes: “Neo-liberalism casts the political and social spheres both as appropriately dominated by market concerns and as themselves organised by market rationality [...] The state itself must construct and construe itself in market terms, as well as develop policies and promulgate a political culture that figures citizens exhaustively as rational economic actors in every sphere of life” (Brown 2006: 694).

(market), in neoliberalism is substituted by a mutual interference.⁶⁵ In passing, it is important to underline that environmental policy, to be conceived of as a specific neoliberal feature, can be configured as the sectorial answer to this newly discovered governmental need to intervene in/for the economic field to create proper solutions for profit.

The second effect to be highlighted concerns the unprecedented importance gained by *production of subjectivity* as a consequence of a new approach to productive factors, developed in particular by the second wave of neoliberal thinkers considered by Foucault (the applied neoclassical economics of the Chicago School in the United States).⁶⁶ This new approach is defined by a different way to understand labour, namely as a human capital composed by “assets” such as education, professional experience, mobility (but also language, affect, care, and so on). Foucault is interested in such a perspective because it sets in motion a process of “extension of economic analysis into a previously unexplored domain” (Foucault 2008: 219). The procedure whereby labour can be defined as human capital is relatively straightforward: individuals work for a wage and, from their perspective, wage is income; if income is defined as the product or return of capital, then it is possible to define labour *as* capital; since such labour is inseparable from its bearer, then it is the labourer that ends up being conceived of as an enterprise. From this perspective, thus, “the worker himself appears as a sort of enterprise of

⁶⁵ Thomas Lemke (2001) has aptly noted how, from this perspective, it is possible to read the process of “withdrawal of the state” as a governmental technique.

⁶⁶ This group of American economists includes Theodore Schultz, Gary Becker, Jacob Mincer and, in general, those associated with the *Journal of Political Economy* in the 1960s and early 1970s. Their main focus, through the notion of *human capital*, was the generalisation of market relations to the totality of social spheres. This theoretical effort generated significant intellectual innovations, with economy-based understanding of crime, family, marriage, capital punishment, and so on.

himself”, or as an “entrepreneur of himself” (*Ibid.*: 225-226). This process of further abstraction by means of which capital is turned into not only the *external measure* of social value, but its exclusive *internal source*, is what distinguishes (indeed: paradoxically inverts) liberal and neoliberal interpretations of the notion of *homo oeconomicus*. The former was politically intangible since its course of action was “naturally” led by a market-driven exchange; the latter, on the contrary, shows itself as the permanent correlative of a governmentality that, by endlessly modifying environmental variables, is finally able to penetrate the very subjectivity of each and everyone of economic actors.⁶⁷

Foucault's own words invaluablely summarise this paradoxical process. In neoliberalism,

homo oeconomicus, that is to say, the person who accepts reality or who responds systematically to modifications in the variables of the environment, appears [...] as someone who responds systematically to systematic modifications artificially introduced into the environment. *Homo oeconomicus* is someone who is eminently governable. From being the intangible partner of *laissez-faire*, [it] now becomes the correlate of a governmentality which will act on the environment and systematically modify its variables (Foucault 2008: 270-271).

Following Christian Laval's interpretation (2007), we can argue that, if all actions are seen (and forced) to conform to the economic golden rule (maximise profits/minimise costs), this is not because an ideological structure is expanded across the entire society,

⁶⁷ Jason Read (2009) has properly remarked how such a governmental, subjective penetration bears deep resemblance with Antonio Negri's revision of the Marxian notion of real subsumption of labour under capital. For a critical reading of this resemblance, see Flew (2012).

but because the subject of economic thinking, its concealed anthropology, is now all-pervasive.

Let us briefly come back to the triadic assemblage of nature-market-political economy to analyse how it is enacted in the context of neoliberal governmentality, which is to say how nature functions as an element of valorisation. As above, a good example can be found in the realm of microeconomics and, more precisely, in the thought of English neoclassical economist Ronald Coase. Coase takes issue with Pigou's attempt to internalise unintended socio-environmental costs through taxation and contends that such a formulation misses the true nature of the matter. In economic processes, according to Coase (1960), the emergence of socio-environmental costs presupposes the existence of an entrepreneur-producer (subject A) who causes damage to other actors (subject B). Consequently, claims on the part of those putatively damaged represent an advantageous (for them) limitation to the entrepreneur's free initiative. The Pigouvian approach, which relies on such a situation as a correct one, neglects precisely the *bidirectional nature of this relation*. In other words, a limitation imposed on subject A will cause him a damage in such a way that subject B would, conversely, receive an unjustified advantage. Thus, economic efficiency in a situation marked by externalities can be better fostered – taking in careful account the bidirectional nature of the question concerning the abatement of socio-environmental costs – by clearly defining property rights, reducing transaction

costs⁶⁸ and allowing economic actors to freely negotiate the achievement of the best position. In other words, *contra* Pigou, Coase proposes to monetarily quantify socio-environmental damages (i.e. air pollution) and allow them to be translated into the grammar of property rights (and, as such, to “freely” circulate in a competitive market). Doing so will make it possible to *own* the right to pollute, as well as to *owe* the right not to be exposed to pollution. In such a circumstance, barring any constraints to negotiation, the original allocation of property rights will automatically lead to an optimal equilibrium – to be defined in terms of market efficiency (La Camera 2009). As we see, through a market-based reconfiguration of the notion of externality, nature is turned into an element of the process of valorisation. With Pigou, the state had to intervene to correct possible market failures; with Coase, in contrast, the state has to create proper condition for a *market of externalities* to be established and to properly function on its own terms. This passage is perfectly exemplified by the *negotiable emission permits* which represent the main economic tool used to tackle climate change.⁶⁹ Such permits are based on a normative limitation of emissions (*cap*) and on the creation of a market (*trade*) on which economic actors can exchange their quotas. Two consequences descend from this governmental arrangement: the creation of a veritable *right to pollute* and the possibility to *make profit* out of such polluting activity.

Another significant reference point in economic theory is represented by Robert Solow's (1974) concept of constant elasticity of substitution between natural and artificial

⁶⁸ Transaction costs are the expenses to be assumed in order to operate on the market. In general, they apply to all activities which precede or follow the act of transaction (if, obviously, their cost is not already contained in the price of the good/service object of transaction).

⁶⁹ We shall analyse this issue in more detail in Chapter 3.

capital.⁷⁰ Solow's problem asks: how is it possible to sustain economic growth in a situation of progressive resources exhaustion?⁷¹ According to him, a positive solution to such a challenge requires two conditions: that exogenous resource-augmenting technological progress occurs at a constant rate and, as we anticipated, that a possible reduction in the natural share of the global capital stock can be compensated (or even overcompensated) by an increase in its artificial share. Such formulation entails a variety of problematic facets, not the least being a grotesque technological optimism that is not possible to cover here. What is crucial, for our purposes, is to register how manifestly natural resources are now considered *as* artificial resources (at least tendentially). This means that the role played by nature is no longer that of an enacting limit to the economic process, but rather that of an actual element of valorisation.

2.3 - From what precedes we can now conclude that neoliberal capitalism is presently attempting to transform environmental crises into profitable business opportunities. As François Ewald has compellingly argued, ecology is not a rupture; rather, it “accomplishes the dream of biopolitics” (Ewald 1986: 9). The governmental *dispositif* through which capital internalises nature as an element of valorisation or, in Ewald's terms, biopolitics absorbs ecology, is the paradigm of so-called *green economy*. Although

⁷⁰ Significantly from our perspective, before applying this concept to the interplay between natural and artificial capital Solow and his colleagues (1961) constructed it with regard to the labour-capital relation, thereby gesturing towards the inceptive phase of the translation of labour into the grammar of capital that Foucault detected in American neoliberalism.

⁷¹ In 1974 the scarcity of natural exhaustible resources was highly topical in the United States. The Club of Rome report entitled *Limits to Growth*, with its famous prediction of imminent catastrophe, had been published shortly before (Meadows et. al. 1972) and the issue had been largely covered in the media.

scholars do not share a single and unitary understanding of the notion of green economy (Zoboli 2012), we might define it, in a preliminary way,⁷² as a neoliberal capitalist attempt to overcome the spectre of resource exhaustion on the basis of a further incorporation of the environmental limit as a new terrain for accumulation and valorisation. Through the discursive formation of *sustainability*,⁷³ and in full synergy with capital's need for profit-growing, this process is supposed to governmentally harmonize two elements once considered mutually exclusive: economic growth and environmental protection. It is this markedly neoliberal framing that, even though rarely in an explicit fashion, sets the boundaries within which the green economy debate could first arise and then develop. In Foucauldian terms: the green economy is an unprecedented key element for a new configuration of governmental practices. Such practices can assume a variety of shapes. In the next few pages we will briefly report and analyse three of them: a) new business forms; b) new institutional policies; c) new conceptual innovations. Our examples do not pretend to fully cover the spectrum of new governmental practices; rather, their aim is to show the *novelty* brought to the foreground by the emergence of neoliberal capitalism. In fact, let us recall that the modality through which we frame this pivotal issue follows the hypothesis according to which, although liberal governmentality (with its peculiar constellation of political, epistemological and technological elements) made the multifarious phenomenology of the ecological crisis

⁷² The notion of green economy (and its critique) will run as red thread in Chapter 3.

⁷³ The term “sustainability” is derived from “sustainable development”; this latter was popularised in *Our Common Future*, a report published by the World Commission on Environment and Development in 1987. Also known as the Brundtland report, *Our Common Future* included the “classic” definition of sustainable development: “development which meets the needs of the present without compromising the ability of future generations to meet their own needs”. For a Foucauldian analysis of the concept of sustainable development, see Luke (1995).

visible, the actual attempts to economically *manage* and politically *deal with* it are entirely neoliberal.

2.3.1 - *Better Place: Doing Business in Neoliberal Green Economy*

Better Place is a venture-backed company based in California; its “mission” is to reduce global dependency on oil through the creation of a market-based transportation infrastructure that supports electric vehicles. In its view, the environmental benefit of such an infrastructure would be double: a significant cut in carbon emissions and the creation of a distributed storage mechanism which is potentially able to absorb under-utilised, off-peak electricity. In June 2011, in preparation for the commercial launch of the company's network of charging infrastructure (entirely powered by wind mills), Better Place unveiled the first Battery Switch station in Europe at an event in Gladsaxe, just outside Copenhagen. The realisation of the project was made possible by the partnership with a big player such as Renault-Nissan, which produced the electric car Fluence Z.E., and by the implementation of supporting national policies, which provided substantial tax breaks.⁷⁴ As for expected rates of profitability, Johnny Hansen, CEO of Better Place Denmark, shows understandable optimism: “based on the interest we have received so far, I expect this to be the top selling car in Denmark in just a few years” (Hansen reported in betterplace.com).

⁷⁴ Let us note, once again, how the artificial convergence between big business and institutional policy-making is a necessary condition for neoliberal green economy to properly work.

So far, what we see is the quite common adventure of a successful start-up involved in the realm of green economy. But there is more to it, especially if we refer to the words used by Shai Agassi, the founder and current CEO of Better Place, to explain his vision:

If we can provide the drivers an enjoyable car, that costs less but drives better, a country can build a *virtual oil field* – one that works forever, but leaves no footprint on the environment. *Such a virtual oil field is more natural than the holes we have been digging into the earth to fuel our addiction to oil* (quoted in Makower, 2010: 151-152. Our emphases).

We emphasized Agassi's last claim because we contend that his interesting wording reveals an entirely new conception of nature and, as a consequence, of the crucial relationship between economy and environment. Such a new conception is consistent with our hypothesis of nature as element of valorisation. In fact, Agassi sees nature as a virtual, relatively malleable matrix assembling which it is possible to ensure profitability and, simultaneously, to avoid negative impacts on the environment. His “virtual oil field” is not natural because of its uncontaminated crude state; rather, it is *more* natural than earthly reserves of oil stored in the subsoil. The naturalness of this virtual oil field is situated on a different level of abstraction: it derives its cogency by its capability to account for both a low environmental impact of infrastructures and a high level of energetic consumption (hence, profits growth). In the last instance, this kind of naturalness revolves around the indisputable assumption according to which the market relation is not only the best tool to allocate social wealth within the oscillations of demand and supply, but also the best strategy to fix the unbalances that those same

oscillations created from the industrial revolution onwards. It is clear, then, that in Agassi's vision nature (in this case renewable energy produced by wind mills) is neither an external factor to the economic system nor an indirect limit to its internal functioning. Rather, it is the fundamental element through which economic value can be created, accumulated and then further valorised. In other words, his vision epitomises the neoliberal understanding of sustainability, through which mainstream advocates have long been trying to harmonise imperatives of economic growth and standards of ecological protection.

2.3.2 - EU Environmental Policy: Institutional Arrangements in Neoliberal Green

Economy

The emergence of environmental policy in the course of the 1970s can be read as the complex outcome of a series of converging pressures. To name just a few: destabilising antagonism on the part of ecological movements; the rise of new, profoundly invasive biotechnologies; the struggle-induced *impasse* of a regime of accumulation exclusively based on industrial production; the fiscal crisis of the state (and its effects on social legitimation); the Oil Shock of 1973 and a worldwide increase in conflicts over scarce resources.⁷⁵

A brief exemplifying application of our hypothesis can be found in the historical trajectory of the EU Environmental Policy (Aprile 2008; Scichilone 2008). In the 1950s,

⁷⁵ Some of these issues will be further discussed in the next section.

when European Communities arose (ECSC⁷⁶ 1951; EURATOM⁷⁷ 1957; EEC⁷⁸ 1957), environmental protection was not part of their institutional aims since, on the one hand, it was not perceived as a social urgency and, on the other, the main goal of this process of integration was the establishment of a common market based on free trade as key policy-principle. It was not until the Paris Summit (1972) that European leaders decided to extend their authority to ecological issues. As a consequence, they launched an ambitious program structured around a series of successive Environmental Action Plans (EAP). The first EAP (1973-1977), passed in a policy-climate still profoundly marked by liberal discourses, was based on a specific *corrective approach*, whose goal was to fix environmental problems that negatively affected the process of production. Significantly, pollution was conceived of as a pathology of the industrial system and, as such, the only curative solution was the *ex post* restoration of environmental anomalies. As a consequence, the main policy instruments of the first plan were restrictive legislation and application of monetary sanctions. As we see, the attitude towards the environment is clear: since it is a necessary condition of industrial production, it is impossible to ignore considerable damages. Its *ex post* restoration, however, is not productive in itself. On the contrary, it exclusively aims to reinstate proper conditions for the industrial circuit of valorisation. The logic of the environment and the logic of economy are both internal to capitalism, but play very different roles: the former is the condition of possibility of value creation, the latter is its means of actualisation.

⁷⁶ European Coal and Steel Community.

⁷⁷ European Atomic Energy Community.

⁷⁸ European Economic Community.

The second and third EAPs (1977-1981; 1982-1986) paved the way for the overcoming of the corrective approach and the endorsement of a *pre-emptive approach* whose official ratification occurred with the fourth EAP (1987-1992). This pre-emptive approach was established in close connection with the notion of sustainable development (as elaborated by the Brundtland Report - 1987) and marked a profound shift in the way of conceiving of the relationship between economy and environment. Here the main policy tool is represented by economic incentives and the fundamental goal is to directly integrate ecological objectives and industrial production. Progressively, environmental protection ceases to be seen as a necessary evil but, rather, comes to be viewed as an opportunity for business.⁷⁹ The tacit assumption of such a conception is that a proactive attitude towards the environment – whose aim is the creation of competitive conditions for the maximisation of its economic value rather than the reduction/sanction of its dissipative usage – would necessarily entail a better environmental protection performance. Far from being a limit to the process of valorisation, the environment is now proposed by the EU (especially through the politico-statistical production of data by the European Environment Agency - 1993) as an artificially created surface upon which capital can extract *surplus* value according to the formal logic of competition. Let us note, in passing, that this specific kind of *surplus* value is also invariably expropriated: under neoliberalism, even exploitation is anti-naturalistically naturalised.

⁷⁹ The fifth and sixth EAPs (1992; 2002) will push forward this tendency even more insistently. Nowadays, the modulation of public policies on market oscillations represents a priority for the EU strategic action.

2.3.3 - Bio-mimicry: Conceptual Innovations in Neoliberal Green Economy

It is now more than a decade that the notion of bio-mimicry (Benyus 1997) has been advanced and discussed in the circles of green economists. At first, the new concept was meant to express a severe criticism to dissipative growth models which were typical of industrial capitalism and, in particular, to oil lobbies which strongly opposed their abandonment (or even their slightest revision). Today, however, with the green economy riding a profitable wave of success – United States *American Clean Energy and Security Act* (2009) doubtlessly represents its apex – bio-mimicry seems to have lost a great deal of its critical potential. Beyond the ups and downs of its reception, however, what is interesting from our perspective is the silent paradox upon which bio-mimicry ultimately rests. In- and for-itself, subtly removed from its material context, this concept is configured as rather linear and self-explanatory: given unsustainable levels of pollution and resource consumption, the industrial system is doomed to fail economically (dramatic rise of raw material's price) and, consequentially, to collapse socially. This is due to the indirect artificiality of such a system, whose indifference towards environmental feedbacks brings about a fatal neglect of natural limits to growth. This issue could easily be solved if *productive systems* are conceived of as *living systems*. In other words, productive systems should imitate living systems and, in so doing, would simply erase the notion of “waste” from their practico-theoretical toolbox. As it is notorious, waste does not exist in nature. Such a model for productive systems “is not reliant on linear

processes, which are indifferent to waste; rather, on circular processes (e.g. cradle to cradle)⁸⁰, which reuse waste by getting inspiration from the most effective and efficient biological system we have ever encountered: nature” (Reina and Vianello 2011: 50). A deeply significant articulation of the link between green economy and bio-mimicry is proposed by Paolo Ricotti, heterodox economist who has dedicated the last years of his research to this issue:

In green economy there is full awareness of operating with high *strategic and competitive value*. Also in nature there is strategy, intelligence, capability of action in any observed case in point. Also in nature there is competition and, in fact, the fittest and the genetically strongest survives. Or the one who adopts the best procreation strategy [...] The green economy and the social model which it shapes are fully sustainable insofar as their general processes are engrained in a closed-cycle, 'systemic' vision. Such a vision is similar the natural one, whose basic logics are determined by chemical-physical-biological elements (Ricotti 2010: 103 / 171. Our translation).

As we see, at a first sight the argument seems reasonable and scientifically sound; moreover, its ostentatious simplicity seems to mantle it with an aura of indisputability: after all, “nature knows better” and all humans should follow its example, re-entering in it, re-integrate the realm of anthropic production within the much broader realm of living production. Things, nonetheless, are not exactly like this. In fact, under which condition is it possible even to “think” that natural cycles work “better” than industrial ones? Obviously, under the condition of their respective *comparability*. What is needed, in other

⁸⁰ See McDonough and Braungart (2002).

words, is the transformation of nature from material basis of living being's reproduction to *provider of biological services*.⁸¹ For bio-mimicry to become a viable politico-economical platform it is necessary to *have preliminarily economised ecology*. This is a perfect representation of the process through which *neoliberal environments* are created: we are kept in the paradox of proposing a “return to nature” which is nothing else than a further step in the direction of omni-pervasiveness of the subject of economic thinking.

It is instructive to note that, according to bio-mimicry supporters, the best (but most often the only) way to imitate living systems is to *measure and enforce their monetary value*. “Give a price to nature!” was, in fact, one of the slogans of *Grenelle de l'environnement*, an ambitious and world-wide celebrated program – launched in 2007 by newly elected French President Nicolas Sarkozy – whose main goal was to make environmental policies the cornerstone of a new model of economic development, no longer based on a quantitative increase of the volume of exchanges but rather based on a valorisation of the quality of life. One of the most interesting aspects of the debates surrounding the event was the argument according to which by considering raw materials “gratuitous”, what is obtained is a series of “*deliberate distortions in the marketplace*” (Hawken, Lovins and Hunter Lovins 1999: 15. Our emphasis). Here we find ourselves in the very core of

⁸¹ Hawken, Lovins and Hunter Lovins (1999) frame the issue of monetarily measuring nature as provider of biological services in the following terms: “Valuing natural capital is a difficult and imprecise exercise at best. Nonetheless, several recent assessments have estimated that biological services flowing directly into society from the stock of natural capital are worth at least US\$ 36 trillion annually. That figure is close to the annual gross world product of approximately US\$ 39 trillion – a striking measure of the value of natural capital for the economy. If natural capital stocks were given a monetary value, assuming the assets yielded ‘interest’ of US\$ 36 trillion annually, the world’s natural capital would be valued at somewhere between US\$ 400 and US \$500 trillion – tens of thousands of dollars for every person on the planet. That is undoubtedly a conservative figure given the fact that anything we can’t live without and can’t replace at any price could be said to have an infinite value” (Hawken, Lovins and Hunter Lovins 1999: 5).

neoliberal governmentality: by turning the environment from “condition” to “factor” of production, it becomes a crucial element of the process of value creation, opening up unprecedented opportunities for profit-making. It is as though, in a Marxian sense, capital reaches emancipation from nature just to reshape it in its own image and likeness (Leonardi 2012).

3 – FINANCE, KNOWLEDGE, ECOLOGY: THE CONTEMPORARY TENDENCY

Having assembled a Marxian-Foucauldian analytical toolbox, we are now in the position to investigate the main elements of the contemporary tendency of capitalist development from the specific vantage point of the ecological crisis. Two processes are of particular interest here: the emergence of a new form of valorisation/exploitation, which can be defined as *cognitive capitalism*, and the rise of financial mechanisms as pervasive *governmental dispositifs*. With regard to the first aspect, what must be emphasised is the appearance of the *general intellect* as a novel configuration of the notion of real abstraction, as well as the unprecedented role played by knowledge in the realm of productive activity. As for the second aspect, our aim is to uncover the elective affinity between financialisation and environmental management. To do so, we shall propose a context-specific interpretation of the financial crisis that shook the world in 2008 and the dramatic consequences of which we are still facing on a daily basis. The general point we

would like to argue for is that, in the course of the last four decades, an unprecedented *leap of abstraction* has taken place. Such a second order abstraction, we contend, is necessary (albeit in no way sufficient) for the understanding of the contemporary tendency of capitalist development and, consequentially, also of the current ecological crisis. To elaborate further on this practico-theoretical dimension, we shall provide a brief exploration of the socio-historical trajectory of biotechnologies, whose final point will show in all clarity the irreducible difference between Diamond's almond and a Roundup Ready GM soybean.

3.1 - Investigating the current configuration of the tendency of capitalist development means directing the focus of our attention towards the internal transformation of real abstractions. We have seen how the concept of real abstraction can be said to represent the *differentia specifica* of the capitalist mode of production. This quality, however, does not imply the logico-historical fixity of the concept. On the contrary, it makes real abstraction's stirrings a fundamental tool to map capital's transformation, to produce a political cartography of the present time. In other terms, real abstraction can serve as the basis for an analysis of the historical specificity of contemporary capitalism, with the aim of assessing the lineaments of a knowledge-intensive and information-led configuration of capitalism. According to the *workerist* tradition, this new real abstraction is named *general intellect*. The expression originally appears in Marx's *Grundrisse* (more precisely, in the section known as the "Fragment on Machines"), in one of the few passages in which the labour theory of value (according to which the measure/substance of value is abstract labour time) is radically put into question. Here Marx argues that a

potential development of large scale industry is that the “powerful effectiveness” set in motion by the process of valorisation does not originate from abstract labour time but, rather, depends “on the general state of science and on the progress of technology.” As Marx famously continues:

In this transformation, it is neither the direct human labour the worker performs, nor the time during which he works, but rather the appropriation of his own general productive power, his understanding of nature and his mastery over it by virtue of his presence as a social body – it is, in a word, the development of the social individual which appears as the great foundation-stone of production and wealth. The *theft of alien labour time, on which the present wealth is based*, appears a miserable base [*miserable Grundlage*] in the face of this new one, created by large-scale industry itself [...] The development of fixed capital indicates to what degree general social knowledge [*das allgemeine gesellschaftliche Wissen*] has become a *direct force of production*, and to what degree, hence, the conditions of the process of social life itself have come under the control of the General Intellect and been transformed in accordance with it. To what degree the powers of social production have been produced, not only in the form of knowledge, but also as immediate organs of social practice, of the real life process (Marx 1973: 704-706).

In the *workerist* tradition, this passage is supposed to describe a reality which will be fully in place only with the crisis of the Fordist modality of labour organisation. What is fundamental in Marx's analysis is the centrality ascribed to knowledge as a collective force (“general state of science”, “General Intellect”, etc.) which is immediately configured as a productive impulse, as a powerful, unmeasurable (at least in terms of

abstract labour time) source of value.⁸² Actually, in these pages Marx seems to anticipate contemporary debates about the new, pivotal role played by knowledge in globalised value chains. Knowledge today is not only a precondition of manufacturing, but the veritable centre of the production process. It is, in other terms, the fundamental productive factor, such that the economy can be said to be based on the “production of knowledge by means of knowledge” (Rullani 2004: 23). It is a circular process whereby the output constantly regenerates the input through a relatively cheap innovation based on seemingly endless reproducibility. Moreover, knowledge presents another crucial quality, namely a non-exclusive cumulativeness: in principle, the knowledge we use to produce a good/service can be used by anybody else (Rullani 2009). Thus, theoretically, a knowledge-based economy introduces a new era in the realm of production: the era of the *post-scarcity economy*.

There is, however, an element of the “Fragment” that *workerist* thinkers approach critically. In the “Fragment”, in fact, Marx establishes a direct correlation between *fixed capital* and the general intellect, in so doing suggesting that general social knowledge is, from the very beginning, incorporated in the system of machines. As such, it cannot but

⁸² Commenting on the “Fragment”, Adelino Zanini appropriately underlines: “The decisive point, evidently, does not consist only of the assertion according to which ‘the creation of real wealth comes to depend less on labour time and on the amount of labour employed than on the power of the agencies set in motion during labour time’; but rather in the acknowledgement that the ‘powerful effectiveness’ of those agencies is not related ‘to the direct labour time spent on their production’. In other words, this ‘powerful effectiveness’ neither limits itself to register the transformation of the living labour in objectified labour, fixed capital, nor to generate an even more complex labour, as a result of the utilisation of *that* fixed capital. Rather, the ‘powerful effectiveness’ expresses, first of all, the autonomy that, already in Marx’s epoch, characterised the ‘general scientific labour’ as social knowledge, as such irreducible to fractions of direct labour. It is *knowledge* which transforms the means of labour in machinery, and it is to the same knowledge that it is possible to ascribe a specific ability of valorisation: to knowledge, not to the automaton as such. In this transformative process, labour is even more constricted and exploited. The same process does not set aside labour; however, being an *innovative process*, it is no longer, and not necessarily, commensurate to direct labour” (Zanini 2008: 197).

appear to the worker as an *estranged* force. Criticising this account, Paolo Virno states that “in Post-Fordism, the *general intellect* does not coincide with fixed capital, but manifests itself principally as a linguistic reiteration of living labour” (Virno 2004: 106). Even more radically, Christian Marazzi refers to an “emerging anthropogenic model” based on the “production of men by means of men [through knowledge]” (Marazzi 2005: 109). In his hypothesis, the tendential de-materialisation of fixed capital (as well as of services/products) directly implies a “putting to work” of human faculties such as language, affect, social relations and knowledge-based skills acquired both in professional training and, increasingly, in everyday life activities. In other terms, we witness the progressive transfer of a series of productive and instrumental functions from capital-driven machinery to the living body of the workforce. Obviously, such analyses have profound repercussions on the validity of the labour theory of value, which is considered by *workerist* scholars as no longer valid in the current phase of post-Fordist organisation of the labour process. For our purposes, however, this aspect presents itself as secondary. What is of greater importance is, rather, an understanding of *the general intellect as the organising principle of contemporary production*. As such, the general intellect as real abstraction goes beyond the limits of the commodity-form and transposes the original indifference of exchange-value towards use-value in the field of a reflexive (and paradoxical) indifference of exchange-value with regard to itself. This is exactly the *leap of abstraction* we would like to thematise. Early capitalist real abstractions (labour, money, etc.) were grounded on a valorising detachment from a kind of usefulness which was presupposed as naturally existing *outside* the commodity-form. Use-value, in Marx, does not receive extensive elaboration since it is supposed to be the natural, pre-existing

modality of satisfying equally pre-existing social needs. This is, in the last instance, what a commodity is: a “good” kept in a bundle of social relations such that its value does not reside in its material usefulness but in its capability to be exchanged for money. In the current situation, however, such a presupposition no longer completely holds true: a significant number of use-values arise in direct accordance with social needs established by capital's irrepressible compulsion to further valorise itself.⁸³ What is at play here is a sort of *use-value loss of innocence*: at a conjuncture where capital's mechanisms of exploitation/valorisation are omni-pervasive (albeit heterogeneously assembled), the very creation of use-values must be thought, in abstract terms, as deriving from the antagonistic struggle that sets the process of capitalist development in motion.

This original understanding of the general intellect as the organising principle of contemporary production represents the basis of what is commonly known as the hypothesis of cognitive capitalism. Such a hypothesis is complex and multilayered, and can consequently be approached from a variety of perspectives. However, for our purposes, we limit the discussion to the analysis provided by Carlo Vercellone (2005; 2006a; 2006b; 2007) and Yann Moulier-Boutang (2007). Moreover, we simply outline a general premise and then move directly to the Marxian notion of *subsumption*,⁸⁴ which is what we would like to problematise. Such a problematisation is twofold: from the perspective of *exploitation*, we propose to supplement the interplay between formal and real subsumption in the current phase with the notion of *impression*. Similarly, from the

⁸³ A more empirical analysis of this issue will be carried out in Chapter 3 with regard to carbon trading.

⁸⁴ With the concept of *subsumption*, Marx qualifies the forms of subordination of labour to capital and it is clear that there is a strict link between this category and both exploitation and valorisation.

perspective of *valorisation* we suggest to supplement that same interplay with the concept of *abstract self-reflexivity*.

First of all, while referring to a paradigmatic analysis of the current phase the authors we mentioned earlier are not simply posing the problem of a *description* of the contemporary functioning of the multiple circuits of accumulation and/or valorisation. Economic sociology has already accomplished this task. Rather, we are dealing with the necessity of providing a *partial, class-based* understanding of Post-Fordist conditions, an understanding whose goal is from the very beginning its employment in the social struggle to overcome such conditions. Consequently, it is from an analysis of labour modifications that the hypothesis of cognitive capitalism allows itself to perceive the current phase as a *new great transformation*, a third capitalist era of which the difference from the previous two is precisely defined by a shift in the actual way that capital subsumes living labour under itself. On the basis of this elaboration, Vercellone proposes a *periodisation* of the history of capitalism marked by the presence of three main stages (Vercellone, 2006a).

- The first is mercantilist capitalism, in which *formal subsumption*⁸⁵ prevails. In this context, capital faces an already formed productive network and limits itself to assume it as its own base. In this way the privileged *locus* of production has to be individuated in

⁸⁵ “The labour process becomes the instrument of the valorisation process, the process of self-valorisation of capital – the manufacture of surplus-value. The labour process is subsumed under capital (it is its *own* process) and the capitalist intervenes in the process as its director, manager. For him it also represents the direct exploitation of the labour of others. It is this that I refer to as the *formal subsumption of labour under capital*.” (Marx, 1990: 1019)

the workshop, concomitant with the hegemony of workers' handicraft. The determined class-figure of this first moment is the *professional worker*.

- The second stage is industrial capitalism, the apex of which is represented by the Fordist model. This latter stage is informed by the logic of *real subsumption*,⁸⁶ which implies that capital produces on its own the means of production, and the pivotal *locus* of production itself is the large-scale factory. This peculiar mass-production of standardised goods implies a polarisation of workers' knowledge and skills that in turn involves a strict division between directly productive tasks and planning skills. Here the prevalent class-figure is the *mass worker*.

- The third stage begins with the crisis of the Fordist model and is represented by the emergence of cognitive capitalism, defined by a specific exploitative relation with knowledge, by the diffusion of mass education and, last but not least, by the violent inclusion of worker's subjectivity in the circuits of valorisation, conceived of in terms of *means of production*. Moreover, the crisis of the Fordist factory-system foregrounds the appearance of a new class-figure defined as *mass intellectuality*. This shift entails the emergence of *immaterial labour* as the central *locus* of production. As Maurizio Lazzarato points out, “the concept of immaterial labour presupposes and results in an enlargement of productive cooperation that even includes the production and reproduction of communication and hence of its most important contents: *subjectivity*”

⁸⁶ “The general features of the *formal subsumption* remain, viz. the direct *subordination of the labour process to capital*, irrespective of the state of its technological development. But on this foundation there now arises a technologically and otherwise *specific mode of production – capitalist production –* which transforms the nature *of the labour process and its actual conditions*. Only when that happens do we witness the *real subsumption of labour under capital*.” (Marx, 1990: 1034-1035)

(Lazzarato 1996: 140). Obviously, the concept of *mass intellectuality* does not mean that contemporary workers are experts in various academic disciplines; in other terms, it has nothing to do with the work of the mind. Rather, it has much to do with the apparently simple faculty of thought or, at an even simpler level, with the mere faculty of language.

Now, at this point one might legitimately ask: which kind of subsumption is proper to cognitive capitalism? Vercellone's answer is the following:

[...] the subsumption of labour under capital, from the point of view of the labour process, returns to be essentially formal. This means that the cooperation of labour no longer needs to be ruled by capital, and this reaffirmation of the autonomy of living knowledge could lead to a resurgence of tensions regarding self-determination in the organisation of labour and the social ends of production. (Vercellone, 2005: 10)

According to Vercellone, the new phase does not require a different conceptual apparatus to be grasped in its singularity; no qualitative shift seems to be involved. Rather, it is a matter of investigating a new articulation between formal and real subsumption, an articulation in which the former returns to dominance. In fact, since capital progressively loses its ability to direct and organise social cooperation, exploitation is deployed through a twofold strategy: the extension of actual working hours (new centrality of absolute surplus labour) and the hyper-productivity of finance (whose nourishment is the autonomy of the general intellect). As a necessary consequence, *financial rent* – conceived of in terms of cognitive means of exploitation – has to be understood as purely parasitical.

A different perspective is proposed by Moulier-Boutang (2007), who intends to show the unique features of contemporary accumulation by means of a new theory of exploitation, which is in turn based on the pivotal notion of a *second level exploitation*. To introduce this concept, the author provides a preliminary distinction within the notion of living labour: at a basic level, labour would be defined by a physical, material energy expenditure (labour-power), while at a superior level we find memory and cognitive functions (invention-power). At this point, Moulier-Boutang advances the thesis that cognitive capitalism is more concerned with the violent appropriation of affects, subjectivities, knowledge and mental or spiritual capacities, which we find at the superior level of living labour (hence *second level exploitation*). Conversely, both mercantilist and industrial capitalism were concerned, albeit in different ways, with the transformations of material energy into physical goods. As Moulier-Boutang explains:

The specificity of cognitive capitalism is that it receives its legitimacy from the very nature of its accumulation. And what is the quality of this accumulation referred to? It is referred to the fact that it is essentially grounded on second level exploitation. Inasmuch as the profitability of capital invested in productive activities almost exclusively arises from an exploitation of second degree (which means that exploitation of first degree can be reduced to its simplest expression), we are witnessing the full deployment of cognitive capitalism. Even before being a stabilised regime, a mode of accumulation, capitalism is the *tendency* to transform the mode of exploitation (Moulier-Boutang , 2007: 148. Our translation).

Although this analysis might appear overly simplistic and excessively schematic, and although the distinction between labour-power and invention-power may seem to be a kind of body-mind dualism (to which a shrewd post-Cartesian epistemology has

addressed convincing critiques), nonetheless we find it very important since it underlines the necessity of thinking the new forms of exploitation *outside* (albeit in no way *against*) the Marxian notions of formal and real subsumption.⁸⁷ In a fundamental passage, Moulier-Boutang explains that, in order to exploit the general intellect under cognitive capitalism, it is necessary “to avoid a *perfect objectification* (reification or alienation) of the invention-power in the labour process or in the product.” (Moulier-Boutang, 2007: 147-148. Our emphasis). Although valuable and fruitful, Moulier-Boutang's formulation is also affected by the problematic we already encountered in Vercellone: while focusing exclusively on the economic validation *ex post*, they seem to delineate a mystical profile of social cooperation, an image of the multitude as good in itself, as intrinsically innocent. From the perspective of biopolitics as method, this “optimism of the intelligence” dangerously resembles a purely voluntaristic projection. Thus, with specific regard to exploitation, we need to forge a new conceptual apparatus which is able to grasp the necessity of avoiding a perfect objectification of knowledge/labour as an imperative descending from the general intellect as real abstraction, as organising principle of production. It might be useful, in this regard, to introduce a term borrowed from French philosopher Gilbert Simondon (2005),⁸⁸ whose philosophical investigation mainly revolved around the notion of *individuation*.⁸⁹ In fact, if we substitute the expression

⁸⁷ For a truly remarkable analysis along the same argumentative line, see Chicchi (2005).

⁸⁸ Simondon's thought has undergone a sort of *renaissance* in recent years. This new interest in his theoretical production has given rise to a rich international debate, whose significant expressions are the following: (in French) Stiegler, 2004; Combes, 1999; (in Italian) Ciccarelli, 2008; (in English) Toscano, 2006.

⁸⁹ In the economy of our discourse, it is sufficient to highlight two main theses proposed by Simondon. The first is *the primacy of the process of individuation over individuated entities*. Simondon sees individuation as an operation, as a processual becoming by means of which structured individualities

“perfect objectification” with “transformation in individuated entities emptied of their potentials,” it becomes possible to see how Simondon's thought can help us properly conceptualise the forms of exploitation specific to cognitive capitalism.⁹⁰

From this perspective, we can advance two hypotheses and an inference: 1) Both formal and real subsumption essentially cope with relatively homogeneous *individuated entities* (in the first case capital finds them as already formed, while in the second it establishes a disciplinary process which starts from a well defined point – the individual worker formally free to sell her labour-power – and ends in another well defined point – the forced inclusion of the proletarian in the scarcely differentiated category of *waged-worker*);⁹¹ 2) Capital, in its cognitive phase, must grant to social cooperation, or subtly impose to productive citizens, a certain degree of self-government in order to

can emerge and relate to each other. At stake is the possibility to philosophically grasp the individual through individuation rather than individualisation through the individual. The second, closely linked theoretical statement is *the primacy of a relation over its own terms*. Such a relational precedence is expressed through the notion of the pre-individual field. By referring to such a field Simondon intends to advance the idea that, prior to individuality, being is affected by inconsistency, populated by divergent tensions, and pregnant with incompatible potentials. Relationality emerges in this phase of being and is consequently able to account for the onto-genesis of individuated entities.

In passing, let us stress the close proximity, *mutatis mutandis*, between Simondon's individuation and Moore's *oikeios*.

⁹⁰ It may be useful to note that we do *not* want to argue for a perfect transition from Fordist and Pre-Fordist forms of exploitation to Post-Fordist ones. On the very contrary, these exploitative practices tend to supplement each other presenting themselves in complex configurations dependent on the singularity of any given context. However, this should not prevent us from investigating the *specific (i.e. tendential) form of exploitation in cognitive capitalism*, which is becoming more and more diffused, especially in the metropolitan areas of the planet.

⁹¹ A further specification seems necessary at this point. When we refer to “scarce differentiation” we are *not* suggesting that professional and mass workers are comparable to mere automatons and that their working activity should be interpreted as mere repetition of mindless gestures. In contrast, what we want to highlight is the transformation of the role of autonomous creativity in the process of capitalist value-production: from fatal threat to be fought through discipline (mercantilist and industrial capitalism) to necessary resource to be simultaneously incited and controlled (cognitive capitalism).

subsequently, *ex post*, capture the value they produce. Here, self-government means the possibility for them to enter in a non-disciplinary – yet not uncontrolled – process of individuation; 3) If these two hypotheses are plausible, then it becomes possible to argue for a new conceptual apparatus potentially capable of providing a mediation between a determined mode of exploitation of individuated entities (formal and real subsumption), and an equally determined mode of exploitation of processes of individuation.

This is the reason that we propose to supplement (not to substitute) the notion of subsumption with the concept of *impression*, whose function is to define at a more abstract level the specific characteristics of the exploitation of individuation. The reason the term “impression” is chosen is twofold: on the one hand, it recalls the Latin locution *nihil obstat quominus imprimatur*, generally abbreviated in the term *imprimatur*. This expression was used by the ecclesiastical authority to approve the printing of books⁹² and refers to a form of control that (rhetorically) does not impose a pre-given outcome but rather establishes an initial (and firmly indisputable) condition of acceptability. On the other hand, it suggests a photographic metaphor; in fact, it recalls the constitutive indeterminacy of the impression of a photographic plate before subsequent treatments bring it to full development. Moreover, it discloses the virtual (but nevertheless real!) edges of an image without filling them with actual content. To put it otherwise, it refers to a dynamic regime of superimpositions in which at the beginning, *ex ante*, the

⁹² Texts to which the *imprimatur* was rejected were immediately included in the list of prohibited books (*Index Librorum Prohibitorum*), formally abolished by Pope Paul VI in 1966.

establishment of a limit or threshold takes place.⁹³ This limit then influences the process of subjective becoming without positing a necessary outcome to it. However, impression is not configured as the purely formal act which consists in drawing an immaterial border; on the contrary, it presents itself as a direct tool for governing life, as a biopolitical *dispositif* aimed at selecting subjective trajectories “potentially” functional to capitalist valorisation. We say “potentially” because, although the negative injunction occurs *ex ante*, its economic validation, its inclusion in the circuits of accumulation, cannot but manifest itself *ex post*, at the end of the process, when the unpredictable but not unlimited outcome actually appears. In other words, although impressed, a process of individuation always remains partially indeterminate (since, by definition, it proceeds through the activation of unactualised potentials, whose transparent measurement or complete management is simply impossible). This means that capitalism is forced to keep open this indeterminate processuality, whose mode of development necessarily implies the production of antagonisms (Leonardi 2010a).

Something very similar also occurs in the realm of *valorisation*. From this standpoint, it is important to highlight the centrality of informationalised knowledge in organising multifarious value chains in cognitive capitalism. The work of Italian political economist Lorenzo Cillario (1990; 1996) is particularly relevant in this regard. While maintaining a classical Marxist approach to abstraction, conceived of as the precondition of measurement and equivalence, Cillario nonetheless brings it beyond its limits by transposing its functioning from the commodity-form to the production process itself

⁹³ It is important – if perhaps superfluous – to stress that we refer to a temporal terminology from an abstractly logical (as opposed to linearly chronological) perspective.

(Toscano 2008a). Translating it into Foucauldian terms, we might argue that whereas real abstraction involved in the commodity-form proper is mainly concerned with exchange (making it possible by providing a system of equivalences), real abstraction in cognitive capitalism is configured as further internalised, hence connected with the issue of competition (establishing markets by means of calculation models, artificial and context-specific benchmarking, generic procedures). In other words, the general intellect *qua* real abstraction presents itself as an immediate means of production. Here resides the kernel of the leap of abstraction we referred to earlier: we might call it *self-reflexivity*. Cillario poignantly notes the reflexive character of cognitive capitalist real abstraction by underlining that “the concept of abstraction which is adequate to the phase in which knowledge becomes capital stems from the reflexive character of the process of social labour” (Cillario 1990: 168; 1996: 152). What seems to be missing in his analysis, however, is the self-referential nature of such reflexivity: capital not only doubles itself, but does so without making reference to any external source. In other words, use-values are not internalised to fit capital's dynamics (driven by antagonistic struggle); rather, capital's logic paradoxically (and, as always, antagonistically) produces use-values to which its own valorising processes will be indifferent. This is why it is possible to argue for the crossing of an *intensive threshold* in the process of capital's absorption of society as a whole. Again, such self-reflexivity does not deny the absolute relevance of the notions of formal and real subsumption. Rather, it supplements them to account for a new feature of the process of capitalist valorisation.

3.2 - The hypothesis of cognitive capitalism – with the fundamental role accorded to the general intellect, its valorisation and its exploitation – is not sufficient to delineate the contemporary tendency of capitalist development. If that were the case, in fact, we would be confronted with two very insidious shortcomings. The first concerns the long-standing misunderstanding about the hegemony of immaterial labour: as Steve Wright (2005) has acutely argued, we do not live in an immaterial world. Rather, the profound materiality of contemporary immaterial circuits of valorisation/exploitation should be emphasised: to manufacture a single laptop, quintals of contaminating materials and several hectolitres of water must be mobilised; the diffusion of servers has strongly increased energy requirements for offices; logistics and commodity transportations are today more diffused than ever. In other words, cognitive capitalism must be understood as the constant production of – utterly material – negative externalities which equally affects the environment and the quality of life. Moreover, the label “immaterial labour” is at the very least unfortunate. In fact, regardless of its product being tangible or intangible, labour activity is always material in that it is invariably composed of energy-expenditure. On a different but interconnected level, the immaterial labour thesis seems to overlook the twofold nature of contemporary occupational structure, in which “only one part corresponds to the ideal portrait of the technologically adept 'knowledge worker', while the other is constituted by a mass of low-end, poorly paid, insecure, service work” (Dyer-Witheford 2005: 147). Such complex, heterogeneous stratification, always accompanied by an enormous amount of violence, must be firmly kept in mind. With regard to the issue of new enclosures, then, George Caffentzis is right in pointing out how their occurrence “in the countryside must accompany the rise of 'automatic processes' in

industry, the computer requires the sweat shop, and the cyborg's existence is premised on the slave" (Caffentzis 1997: 37).⁹⁴ It is clear, thus, that the contemporary tendency does *not* register as an increasing hegemony of immaterial labour, but rather as a process of multiplication of labour practices (Mezzadra and Neilson 2012), an augmenting internal differentiation of the subjective figure of the global worker (Dyer-Witheford 2012).

A second problem concerning a perfect overlapping of the hypothesis of cognitive capitalism and the contemporary tendency is that it would underpin a too linear (and irreversible) logico-historical succession from formal subsumption to real subsumption (Tomba 2009; Mezzadra 2011). In actuality, these two forms of capital's domination are always co-present: what changes – from logical as well as historical standpoints – is the specific articulations which link the two, and their relationship with other possible intensive dynamics (like, following our hypotheses, impression or abstract self-reflexivity). How, then, can we properly understand the current, tendential articulation without falling in the twin-trap of the triumph of immateriality and/or of excessive historical linearity? We contend that the key to avoid such *impasses* is provided by an interpretation of the process of financialisation as neoliberal/governmental *dispositif*. Here, again, a simultaneously Marxian and Foucauldian conceptual apparatus proves invaluable to grasp the present in its multifarious, and at times profoundly contradictory, lines of expansion. It is doubtless, in fact, that the contemporary process of financialisation and the rise of neoliberalism must be read in close connection. By

⁹⁴ It is our conviction, however, that Caffentzis' argument would benefit from the supplement of notions such as impression and abstract self-reflexivity. With specific focus on legal and epistemic enclosures, see Tavares (2011).

“financialisation” we refer to the differentiated practices through which companies, institutions and individuals alike become completely embedded in financial transactions. The outcome is an unprecedented dependence on unstable markets and volatile money for everything from food supplies to services, from education to income. Obviously, we are aware of the fact that finance has always been a feature of the capitalist mode of production since even before it appeared in its mature form; nonetheless, we contend that the current configuration of finance is qualitatively and quantitatively unique. From a quantitative perspective, it suffices to recall that in 1973 financial returns accounted for 16% of all U.S. Profits, whereas in 2007 they made up a stunning 41% (McNally 2011). Such an increase is even more evident if we consider the changing amount of daily turnover in foreign exchange from 1973 (when the de-linking of money from gold first showed its effects) to 2007: \$15 billion vs. \$3.2 trillion (*Ibid.*). On a different level, but still from a quantity-based standpoint, we need to refer to the radical pervasiveness that characterises contemporary finance. It is actually difficult to think of single productive activity which is not, in one way or another, captured in global financial flows: the coercive expansion of pension funds; the inclusion of the planet's poor in financial markets through micro-credit; the inscription of real-estate mortgages in the very core of economic growth; the increasing political power of rating agencies; the privatisation of Keynesian deficit spending; the explosion of consumer debt to cover the gap between diminishing real wages and spiking costs of living, and the list might continue for long (Haiven 2011).

Contemporary finance is unprecedented, however, also from a qualitative perspective. In other words, it is a new, specifically neoliberal governmental *dispositif*. To grasp this

novelty we need to focus on the inceptive event of financialisation, its structural foundation. We are referring to the collapse of the Bretton Woods system, agreed upon in 1945, whose main feature was the creation of a dollar/gold standard (\$35 per ounce) and the establishment of a fixed rate of exchange to tie all other currencies to U.S. dollar. This agreement guaranteed a considerable degree of monetary stability from 1945 to 1971: in that year, in fact, Nixon suspended the dollar/gold convertibility. There are complex and controversial political and economical reasons for this move on the part of the U.S. administration, but for our purposes what is pivotal to highlight is that “for the first time in history capital operated with officially de-commodified money, a global currency regime lacking any tie to past labour embodied in a commodity” (McNally 2011: 92). This peculiar de-commodification, namely money as a second order abstraction, gave rise to a head-spinning proliferation of financial tools: derivatives,⁹⁵ Credit Default Swaps, Collateralized Debt Obligation are nothing else than immensely complicated – and rapidly multiplying – attempts to make profit out of the financial absorption of every aspect of social life. As Christian Marazzi brilliantly argues:

Financialisation is not an unproductive/parasitic deviation of growing quotas of surplus-value and collective savings, but rather the form of capital accumulation symmetrical with new processes of value production [...] Beyond the role of finance in the sphere of consumption, what has happened in these last 30 years is a veritable metamorphosis of production processes of this very surplus-value.

⁹⁵ The best critical definition of a derivative is to be found in Brian Holmes: “The idea was that all risks, including collective ones, should be made into sellable products, formatted for the market by private actors in search of a profit. Yet although it is sellable, the derivative cannot be understood as an ordinary commodity of the industrial era. Marx described the commodity as that product of human labour whose exchange-value, seemingly animated with a life of its own, acts to render invisible the social relations that produced it. Derivatives, however, have nothing directly to do with production; instead they are conceived to manage the environmental risks that weigh on the future of speculative activity. In this sense they are *meta-commodities* that govern the unfolding of the contemporary economic model” (Holmes 2010: 230).

There has been a transformation of valorisation processes that witnesses the extraction of value no longer being circumscribed to the place dedicated to the production of goods and services, but that extending beyond the factory gates so to speak, in the sense that it enters directly into the sphere of *circulation* of capital, that is in the sphere of the exchange of goods and services (Marazzi 2011: 48).

Endless expansion led eventually to abstract self-reflexivity. Marazzi himself, by referring to dot-com bubble of 2000, significantly talks about a crisis of *overproduction of self-referentiality* (Marazzi 2008).⁹⁶ Moreover, a new form of accumulation/valorisation requires an institutional, governmental counterpart. And it is in this conjuncture that finance shows itself as a neoliberal *dispositif*. In fact, financialisation fundamentally transformed managerial practices in at least three central areas: a) in business strategy, it privileged the logic of shareholders activism; b) in wage relations, it internalised workers by turning them into powerless micro-shareholders; c) in everyday life activities, it absorbed people's lives by capturing them in the debt process (from student loans to pension funds).⁹⁷ In general we are witnessing the deployment of a veritable *government through instability*,⁹⁸ an expansion of financial reason to society as

⁹⁶ For an intelligent criticism of Marazzi's argument, see Bianchi (2011).

⁹⁷ For a brilliant analysis of the recent transfiguration of the Foucauldian *entrepreneur of himself* into an *endlessly indebted man*, see Lazzarato (2011).

⁹⁸ Our perspective is here very similar to what Italian sociologist Luigi Pellizzoni refers to as *governing through disorder*: "Uncertainty [in neoliberalism] is seen no more as a circumscribed situation on which to build a few strategic decisions, but as an empowering everyday condition [...] Contingency means lack of limits rather than lack of order. Better: disorder, as a positive, enabling systems condition, can be handled by carving out provisional room for purposeful *manoeuvre*. The more unstable the world, the more manageable" (2011: 797).

a whole. In particular, from our perspective, such an expansion is clearly visible in the field of environmental governance.

At this point, let us recall the main elements of the contemporary process of financialisation by applying them to an understanding of the meltdown that started (and which is currently far from being solved) in 2008. In our opinion, the best interpretation of the financial collapse is provided by scholars involved in the *Uninomade* project (Fumagalli and Mezzadra 2010).⁹⁹ Although their analyses are very complex and richly articulated, in the economy of our discussion it is sufficient to highlight three fundamental points:

- *This crisis is a new kind of crisis.* Although *formally* identical to every other capitalist breakdown (in Marx we find convincing arguments about the systemic function of crises as necessary tools to periodically re-create proper conditions for new cycles of accumulation), this crisis is *historically* new in that it concerns the unprecedented modalities of accumulation and valorisation that emerged from the 1970s onwards.

- *Finance plays a productive role.* Although financialisation is no way a new phenomenon (for instance, Marx's articles for the New-York Daily Tribune in the late 1850s provide an excellent analysis of financial speculation), its contemporary *centrality* and *pervasiveness* makes the opposition between real and financial economy obsolete.

We prefer the term “instability” over “disorder” because it more clearly indicates the constant but differentiated alternation of ordered and disordered states as the specific terrain upon which contemporary neoliberal governmentality deploys itself.

⁹⁹ Obviously, there are many other accurate analyses of the global crisis. Amongst the best, let us recall: Bazzicalupo and Tucci (2010); Moulier-Boutang (2010); Žižek (2009).

This does not mean that the latter has absorbed the former. Rather, it suggests that the two elements must be thought as *distinct but inseparable*. They are not the same thing, but outside of their relation they lose their meaning as interpretative categories. A confirmation can be found in the fact that real and financial dimensions are profoundly imbricated in the behaviours of economic actors (financialisation of corporate strategies and financialisation of wage relations). Finance is directly and actively involved in the production of surplus value and, as a consequence, this crisis is financial *and* real in its very essence.

- *Finance is the cornerstone of neoliberal governmentality*. This crisis is also the crisis of a governance based on systemic instability. From this perspective, what must be stressed is the active engagement of finance in subjectively shaping social actors and objectively establishing neoliberal environments.¹⁰⁰ In fact, financialisation is here understood as the specific form of capital accumulation attuned to the new processes of value production, namely a governmental *dispositif* which is able to configure discursive regimes that, by affirming themselves as indisputable truths, influence people's conduct through a modulation or amplification of their trust and expectations. In other words, we witness a crisis of financial governmentality based on the market, whose main feature is the *dependency* of every individual on the financial system. This dependency is secured through credit in its various forms and through social insurances, pension funds and saving investments. As a consequence, individuals are captured in a logic of

¹⁰⁰ On the subjective side of the governmental dimension, see Chicchi (2012). On the objective side, see Pellizzoni (2010). On the articulation of the two, see Marzocca (2010; 2011).

financialisation whose constraints heavily influence their lives (in the present as well as in the future).

We are now in the position to analyse in more detail the elective affinity which link financialised capital and ecological governance. In fact, it is our conviction that in neoliberal capitalism the government of the environment as an element of valorisation is performed to a great extent by finance. A recent study published by Oikos International – Foundation for Economy and Ecology, a sustainable economics network, shows clearly how environmental dynamics are kept in the financial process of establishing competition as the generative structure of value creation (Chavez 2010). The study begins by recalling the “Porter Hypothesis,” advanced in 1991, that asserts that environmental compliance and economic competitiveness are not inconsistent but, rather, complementary. This hypothesis is confirmed, according to the study, by the increasing tendency to include in financial rating non-directly-economic parameters. For example, the creation in 1999 of the *Dow Jones Sustainability Group Index* (DJSGI) established a global benchmark in corporate sustainability by upgrading the stock valuation methodology through the so-called *triple bottom line*, which means rating financial performances from economic, social and environmental perspectives. More interestingly, however, the study poses the question of whether or not there is a positive correlation between good practices of Corporate Environmental Governance and companies' market value. In explaining his affirmative answer, the author states:

Investment strategists are in search of new sustainability sources of gaining long-term competitiveness by differentiation focusing on *environmental-based corporate strategy*. It means learning about how to manage environmental issues beyond law and regulation. It means knowing how to identify and to build hard-

to-imitate sources of environmental-based competitive advantage across the entire upstream-downstream business value-chain. This is the genuine differentiation strategy some leading CEOs [Chief Executive Officer] and CFOs [Chief Financial Officer] are now pursuing. It suggests *going from environmental compliance to ESG [Environmental, Social and Governance] Business Intelligence* (Chavez 2010: 4-5. Our emphasis).

Leaving aside the triumphalist tone of the article, it seems to us that this profound intertwining of ecology and finance reveals how corporations are attempting to reinvent environmental challenges as a source of competitiveness. This pervasive and increasing marketisation of the environment through financial mechanisms is the concrete face of the abstract shift from nature as limit to nature as element of valorisation.

Another article which is useful to consider is “The Greening of Markets”, published in 2008 by Paul Mills, Senior Economist at the IMF [International Monetary Fund]. Focusing specifically on climate change, Mills argues that financial markets can play two important roles in challenging global warming. First, they can foster mitigation strategies (which is to say, reduction of GHGs [Greenhouse Gases] emissions for a given level of economic activity) by optimising carbon permits trading and by directing capital towards cleaner technologies. Second, financial markets can “cut the costs of adaptation – that is, how economies respond to climate change – by reallocating capital to newly productive sectors and regions and hedging weather-related risks” (Mills 2008: 32). The first role is fundamental to show how climate change management is increasingly translated into the grammar of market logic, whereas the second role is particularly interesting in that it is composed by highly complex hybrid instruments (financial *and*

environmental) such as weather-derivatives and CAT bonds [catastrophe bonds]. The former are designed to price and trade both in the uncertainties of the weather and social uncertainties about the future of climate change, while the latter are insurance-like mechanisms that are putatively intended to disperse catastrophic weather risk and, in so doing, to protect vulnerable sectors such as agriculture and coastal property (Cooper 2010). In his article, Mills explains at length the limits and potentialities of these financial tools (as well as the constant governmental support they need to properly work), but from our standpoint it is sufficient to report his significant conclusion:

It seems likely that financial markets will play an integral role in climate change mitigation and adaptation in the future. Cap-and-trade seems to be becoming the mitigation policy of choice in high-income countries, in which case the global market in permits for GHG emissions is likely to become the largest global commodity market [...] Moreover, although weather derivatives and CAT bonds do not offer a complete panacea, recent deepening in these markets prompts optimism that they will continue to innovate and further help adaptation to climate change (Mills: 36).¹⁰¹

It seems to us that the link between finance and ecology could not be expressed in a clearer manner. Finance is today the main governmental *dispositif* through which environmental challenges are turned into opportunities to create surplus-value and to entirely subsume nature under the valorising logic of capitalist markets (Leonardi 2011). As we shall see in more detail in Chapter 3, nowhere else than in carbon trading can the financial government through instability be seen in a “purer” form.

¹⁰¹ A more detailed analysis of this issue shall be proposed in Chapter 3.

3.3 - A good case in point to appreciate both nature as element of valorisation and its being shaped by financial mechanisms is provided by the development of biotechnologies or, to borrow Melinda Cooper's apt term, the rise of *bioeconomy* (Cooper 2008). Such a concept refers to the expansion of the logic of valorisation to the field of life itself through the development of biotech industries. Appropriately, Cooper notes how this development is configured as inextricable from the planetary diffusion of neoliberalism: “the history of neoliberal theories of growth and biotechnological visions of growth needs to be pursued simultaneously” (*Ibid.*: 19). Neoliberal elites, in fact, have driven the process through which financialisation has made it possible to exploit nature as an element of valorisation. Contrary to the commonsensical idea according to which political leaders would have been in denial about the ecological crisis, Andrew Ross has pointed out how they have been collecting data to overcome the challenge of resource exhaustion at least since 1972, namely since the publication of *Limits to Growth*. As Ross explains: “in the four decades since the Club of Rome sounded its loud alarm about unsustainable growth, we have seen a sharp, upward redistribution of wealth and resources [...] The long-term impact of efforts to repossess and hoard assets can be seen quite clearly in the statistics of class polarisation” (Ross 2011: 25). As we unmistakably see, biotechnology as a scientific enterprise is closely linked both to new circuits of valorisation and to new articulations of governmentality. Moreover, it involves knowledge in a very peculiar sense: mobilised by the need to inscribe profit-making in the very core of life and nature, informationalised science transforms the living in such a way that, instead of turning it into a solid background upon which it could find support, science makes it more and

more artificial, hence ready to be deployed along the competitive lines of contemporary value creation. As Cooper remarks, the molecularisation of scientific knowledge aims at “destandardising life” in order to make it further manipulable (Cooper 2008: 31). Here is where the notion of *biocapital* (Sunder Rajan 2006) shows all its analytical fruitfulness: by focusing on the intertwining of biological processes and financial mechanisms, it firmly grasps the increasingly porous borders between academy and enterprise and allows us to thematise the complex relations amongst biotechnology, economy, politics, culture and society. The construction of scientific facts and production of economic values are now so closely entangled that every attempt to understand their respective developments must preliminarily account for their co-extensiveness. It is not by chance that the concept of biocapital, before being employed in the field of social sciences, had been largely used – since the 1980s – in the realm of financial markets, where it referred to the most speculative investment options. Such a speculative character is pivotal: it represents the very core of biocapitalistic logic. Whereas the relevance of technoscience in the realm of production is undeniable and runs constantly through the course of the XX century, from the 1980s onwards a fundamental shift takes place. We can define such a shift as the “financialisation of scientific discovery” (Turrini 2010: 16), whereby its uncertainties, potentialities and unpredictable outcomes become the terrain of high-risk investments in small start-ups, whose only asset is innovative and patented scientific knowledge. In other words, the imploding fusion of science and finance – the two “speculative enterprises” *par excellence* (Sunder Rajan 2006: 281) – is the key element of biocapital. Furthermore, such a process of unification discloses a visionary logic completely projected towards a future to come. Through a careful analysis of the speculative logic which underpins

genomic markets, Michael Fortun (2001) aptly highlights the capability of *forward-looking statements* to attract investments and produce profits. In the same vein, Sheila Jasanoff notes that, despite a very low level of actual commercialisation of biotechnological products, “hopes for economic regeneration through biotechnology remain undimmed in states seeking to maintain positions of global dominance in a second, science-driven industrial revolution” (Jasanoff 2005: 34).

From this perspective, an ineludible starting point is 1980: in that year, the first biotechnological industry, Genetech, enters the stock market. Moreover, the United States Supreme Court, in the well-known *Diamond vs. Chakrabarty* case, authorised the first form of intellectual property on genetically modified life-forms and, in so doing, set in motion a process of transformation of patenting law aimed at including life itself within it. Finally, the United States Congress passed the Bayh-Dole act, whose main feature was the possibility for universities to patent and sell discoveries and inventions realised through public funds. Thus, we might say that, at least symbolically, 1980 represents the date of birth of the biotechnological era. A common originary point, however, does not entail a unitary historical development. In fact, we can subdivide at the very least two streams of genetic research, recognised in both industry and university laboratories: “red biotechnology,” which stands for biomedicine, and “green biotechnology,” which refers to agriculture and environment. The rest of the chapter will be dedicated to a brief discussion of an example of a red biotechnological product – Dolly the sheep – and an example of a green biotechnological product – Monsanto's Roundup Ready soybean.

3.3.1 - The developments of Dolly perfectly represent the general features of biocapital. She was a domestic female sheep, the first mammal to be cloned – in 1996 – from an adult somatic cell, using the technique of somatic cell nuclear transfer. For our purposes, more than the complex scientific procedures that made this cloning possible, what is interesting is the relationship between the “Dolly technique” and value production. As Mauro Turrini has brilliantly argued, “Dolly's cloning might be read as an advanced form of capital. Its promissory horizons in the field of healthcare have been immediately deployed onto the surface of financial markets” (Turrini 2010: 17). In fact, Dolly's biological constitution, although not commercialisable, has been able to realise an immediate economic value through a complex operation orchestrated by science, public research institution, biotechnological companies, juridical settings and public opinion. At first, the Roslin Institute, a public research centre, has created a subsidiary – Roslin Bio-Med – in order to profit from the cloning technique that produced Dolly's patenting and, at the same time, to attract private investments. In 1999, two years after the official announcement of Dolly's cloning, an American company involved in stem cell research, Geron, bought Roslin Bio-Med's patents in exchange for liquidity and a billion-dollar research project to be granted to Geron Bio-Med, an *ad hoc* company operating at the Roslin Institute under the supervision of Ian Wilmut, Dolly's “father”. As it is manifest, Dolly's *scientific value* (the possibility to produce new therapeutic treatments) is from the very beginning inextricable from its *financial value* (the effectiveness in attracting investments). Both of them consist in the capability to provide a potentially unlimited platform of cellular reconstruction, cultivation and propagation (Franklin 2007). Dolly's example shows how multiplicity is configured as the core of biocapital. In it, public

research and private interests, science and economy, present and future co-exist.

Moreover, biocapital presents a peculiar articulation of abstract and concrete: on the one hand, both appropriation and capitalisation of biological processes depend on their metaphorical transfiguration into informationalised – and open to patenting – technologies and procedures. On the other hand, however, the reference to biological materials and actual organisms – as well as to health and well being – is unavoidable. As Turrini concludes, “biological life is both the means and the end of biotechnology” (Turrini 2010: 24). It is interesting to note that the process of conversion of life itself into information is performed through the presentation of genetic sequences in three different levels of body's abstraction: *in vivo*, as a biological sample; *in vitro*, as a data code; and *in silico*, as a process of informational re-elaboration. From our perspective, however, what is crucial to underline is the fact that such processes cannot be entirely subsumed under the logic of commodification of the human body. What is at stake in biotechnologies belongs to a different level of (self-reflexive) abstraction: it is the *transmutation of life into surplus-value*. This shift from commodification to financialisation is materially exemplified by embryoid bodies (Cooper 2008), namely those biological entities which, being in a condition of permanent regeneration, can potentially originate any kind of tissue. Through patenting, thus, they transpose the biological promise of an infinite reproduction onto an endless source of economic surplus-value.

3.3.2 - The issue of Genetically Modified food is as complex as it is controversial. Its supporters claim that it possesses the far-reaching potential to: a) enhance food security and hence reduce poverty and hunger by means of increased agricultural productivity; b)

improve nutrition through bio-fortification of crops as allowed by biotechnological techniques; reduce environmental pollution by decreasing the use of pesticides; c) produce a positive economic output due to a reduction in inputs cost; d) address developing countries' specific agricultural needs and ecological conditions; and e) to increase stability of crop production through the development of drought-resistant, pest-resistant and insect-resistant seeds (Pence 2001; Winston 2002; Makinde 2004). Critics, on the other hand highlight the wide range of hazards GM food doubtlessly entail: a) bioprospecting (or, more evocatively, biopiracy) is considered to be a contemporary form of colonisation based on unjustified expropriation by means of intellectual property rights; b) the tendency to establish a monopolistic market (dominated by Monsanto) is seen as implying the ruling out of small-scale, sustainable farming; c) cross-pollination poses irreversible threats to biodiversity; d) scientific uncertainty about the effects on human health of a diet increasingly composed of GM foods is regarded as unacceptable; e) planetary malnourishment is said to result from an unjust distribution of what is really an oversupply of food rather than from a shortage of nutrients (Shiva 2001; Weber 2009; Robin 2010).

From our perspective, what is fundamental to underline with regard to the GM food issue is the contradiction between the private use and social character of knowledge (Bensaïd 2007). To elaborate on this distinction we can advance an epistemological reflection according to which GM organisms would fit with the definition Bruno Latour gives for objects of concern to political ecology. He designates them as “'hairy objects' that attach themselves in a risky way” (Latour 2004: 40). Such a formulation has three consequences: first, genetically engineered organisms have no clear-cut limits and no

well-defined essence. There is no sharp separation between their hard core and their environment. GM organisms are by kind *between* the species, transgressing species boundaries. Second, their producers are no longer invisible, but appear in the open embarrassed, controversial, complicated and implicated with all their instruments. Scientific production, with the sharing cooperation it implies, is an integral part of their definition. Third, they are “quasi-objects” defined more by side-effects than by rules (Latour 1993: 137). Nothing less than unexpected consequences are expected from them, consequences that belong to their uncertain, paradoxically anti-naturalistic nature. Although anthropogenic, they are alive; nevertheless, they cannot be said to be natural. They are objects that can no longer be naturalised and, as such, belong to the transformative capacity which fundamentally characterises contemporary – and essentially collective – socio-natural relations.

Beneath epistemology, however, lies a political kernel that involves, simultaneously, capitalist value creation and neoliberal governmentality. Such a political nucleus can be fully appreciated by referring to Monsanto's Roundup Ready soybean. Founded in 1901, Monsanto has been one of the most successful companies in the field of basic industrial chemicals. Following WWII, Monsanto championed the use of chemical pesticides in agriculture. Its main agrochemical products have included the herbicides 2,4,5-T, DDT, Lasso and Agent Orange, the latter of which was largely used as a defoliant by the U.S. Military during the Vietnam War and which was later shown to be highly carcinogenic. In particular, in 1973 Monsanto launched the weed-killer Roundup (active ingredient: glyphosate), which has been the number one selling herbicide worldwide since at least 1980. Recognising the first steps of an economical as well as

political revolution, in the late 1970s Monsanto shifted to biotechnology as its core business. As Melinda Cooper properly remarks:

The commercial calculus was straightforward – instead of profits from mass-produced chemical fertilisers and herbicides, the agricultural business would displace its claims to invention onto the actual generation of the plant, transforming biological production into a means for creating surplus-value. Moreover, it was predicted that biotechnology would expand the geological spaces open to commercial agriculture, making it possible to create plants that would survive on arid land or flourish in the degraded environments created by industrialised agriculture. Indeed, according to some prognoses, life itself would soon be put to work to remediate all kinds of industrial waste – from chemical pollution to nuclear fallout (Cooper 2008: 23).

Roundup Ready soybeans actually epitomise the attempt to transform “biological production into a means for creating *surplus*-value”. In 1996, Monsanto commercialised genetically modified Roundup Ready soybeans that were resistant to Roundup. The advantage of Roundup Ready crops is that they significantly improved farmers' ability to control weeds, since glyphosate could be sprayed in the fields without harming their crops.¹⁰² In 2004, over 90% of U.S. soybean fields were Roundup Ready soybeans, or other forms of glyphosate resistant plants. Roundup Ready soybeans are not grown and sold just in the U.S.: their cultivation is widespread also in Argentina and South Africa and, always in 2004, they were the most extensively planted transgenic crop worldwide, occupying as much as 109 million acres (Inouye 2004).

¹⁰² Monsanto's GM soybeans, however, do not actually result in higher yields than other non-genetically engineered varieties.

The application of biotechnology in agriculture thus shows its revolutionary potential: by claiming property rights onto seeds' seasonal creation, Monsanto literally *owns* the environmental as well as technological processes of *nature production*. What should belong to the socio-natural collectivity which is defined by the species' capability – as mediated by the general intellect – to transform itself, is instead privately appropriated. As we see, contemporary capitalistic circuits of exploitation *pass through* nature, rather than *act upon* it. How could this new articulation of value creation politically occur? Consistently with the neoliberal role played by social institutions, an intervention aimed at producing market-conditions was necessary. And this kind of intervention can be observed in the controversy concerning the notion of *substantial equivalence*. Here the paradox of biotechnological valorisation (and governance) is fully appreciable. To be quickly marketed (a crucial element in an economic landscape marked by ever-increasing competitive obsolescence), GM crops needed to avoid the stringent testing normally required for new food products. As a consequence, biotechnological lobbies focused all their attention in gaining support for the recognition and ratification of substantial equivalence between traditional and GM-based agricultural techniques from national and supra-national institutions such as FDA,¹⁰³ EPA,¹⁰⁴ FAO¹⁰⁵ and WHO¹⁰⁶. In other terms, insofar as a new GM product presents metabolic and proteinic profiles which fall within the same range of variation already exhibited by biochemical profiles of existing foods or crops, the two objects can be assumed as being substantially equivalent.

¹⁰³ U.S. Food and Drug Administration.

¹⁰⁴ U.S. Environmental Protection Agency.

¹⁰⁵ U.N. Food and Agriculture Organization.

¹⁰⁶ U.N. World Health Organization.

This definition, *per se* highly controversial, becomes even more complicated when considering the problems it raises in terms of intellectual property rights. In fact, granted the impossibility of patenting a living organism as it presents itself in nature, biotech companies required a new discursive apparatus to be able to translate their scientific innovations into the grammar of property rights. Here we see the irreversible blurring of the distinction between discovery and invention: once the general intellect becomes the main element of a hypothetical *tableau économique*, it is the social cooperation mediated by collective knowledge in all its hybrid forms that imposes itself as the immediate, and crucial, force of production (Hardt and Negri 2009). It is a force of production that breaks the boundaries between discovery and invention by endlessly re-assembling their interaction according to context-specific dynamics. In the last instance, it is political violence that is embodied in governmental *dispositifs* such as national and supra-national schemes of policy-regulation. This is particularly clear in the case of GM organisms since these institutions gave permission to biotech companies, and especially Monsanto, to simultaneously claim *substantial equivalence* to avoid testing and *sufficient difference* to allow patenting. It is, thus, more than evident how social knowledge embodied in the general intellect configures itself at the same time as a crucial productive force and as a fundamental stake of political governance.

CONCLUSION

Both “red” and “green” biotechnologies show a constitutive exposition to power (valorisation/exploitation + governmentality) as their essential feature. In more general terms, this unavoidable exposition to power is the very condition of possibility for the notion of environmental crisis to appear as a specific political issue: what distinguishes *environmental degradation* from *ecological crisis* is the fact that just biopolitical governmentality necessarily implies a modality of resource-use which describes a systemic tendency towards a constant managerial increase. Environmental degradation belongs to “nature idolatry”, to use Marx's words; ecological crisis, on the contrary, is a distinctively modern phenomenon. Moreover, we have analysed two distinct moments of biopolitical governmentality: in the first, the ecological crisis structures its field of visibility, so to speak, by expressing the tensive relations between capitalist accumulation and environmental limits. In the second moment, however, social knowledge shows itself as the primary means of production and inaugurates the era of the green economy, or the attempt to further internalise the environmental limit to turn it into an element of the valorisation process.

We contend that these shifts, logical as well as historical, meaningfully account for the inextricable difference between an ancient almond, such as the one described by Jared Diamond, and a Monsanto's Roundup Ready soybean. The first belongs to a socio-economic texture characterised by a reciprocal externality between nature and society, or life and politics. The second, on the contrary, is engrained in a paradigm that assumes the general intellect as a real abstraction which is able to enact a process of production in which nature itself becomes capitalised and exploited. Thus, whereas the ancient almond does not know the “metaphysical subtleties and theological niceties” of capitalist

valorisation, the Roundup Ready soybean is shaped in valorisation's most contemporary image. As a consequence, Diamond's account of knowledge as progressive and cumulative human enterprise must be completely rejected. In its historical vicissitudes, knowledge had surely experienced moments of quantitative augmentation, but more crucially it had lived through ruptures of qualitative shifting. The role of knowledge as it is configured in contemporary neoliberal capitalism is *not* commensurable – at least not in any analytical way – to its role in the epoch of hunters and gatherers. Moreover, as the application of knowledge to productive processes has changed, so has its function as a critical tool for social change. Let us use a distinctively Marxist terminology to draw our conclusion in the form of a provisional, even embryonic suggestion: as the critique of classical political economy intended to demystify the attempt of *naturalising capital*, of placing its specific relations of production outside historical becoming, so the critique of this new phase of the economic process should assume as its main goal the demystification of the attempt of *capitalising nature*, which is to say its total subsumption under the homogeneous (and so far destructive) grammar of the market.

The Carbon Trading Dogma

INTRODUCTION

In the previous chapter we have argued that primitive accumulation is not a one-time occurrence to be situated at the historical origin of the capitalist mode of production, but rather a permanent – if variant – correlative to capital's irrepressible drive to self-valorise. From this standpoint, we now propose an analysis of carbon trading as an example of new enclosure, as a concrete manifestation of the contemporary wave of primitive accumulation. Although the multifarious phenomenology of new enclosures does not allow us to assign carbon trading any particular privilege,¹⁰⁷ it might nonetheless be suggested that the *constitutive tension between abstraction and concreteness* it sets in motion makes such an issue the most suitable in order to analyse continuities and ruptures within the movements of old and new enclosures.

The object of traditional enclosures, those analysed by Marx and imposed in the course of the Seventeenth century, mainly concerned, in fact, what we can call *common land* in its threefold meaning: the section of territory beyond private property's borders, that poor people could use for sustenance; the allotment rural poor could grow without owning it; and the rights of use over certain resources (water, pastures, wood, etc.) within the private property's borders (Shiva 2005). In general terms, it was a matter of violently regulating

¹⁰⁷ It seems undeniable, however, that the climate crisis has recently become what While, Jonas and Gibbs refer to as “the new 'master concept' of environmental governance” (2009: 2).

the access to a materially scarce good. From this perspective, some of the new enclosures bear striking resemblance to the old: especially in what was once called the periphery of the world-system, the destruction of communal controls over the means of subsistence has been an all too frequent occurrence from the 1970s onwards. Similarly, roughly in the same period, Structural Adjustment Programs sponsored by the International Monetary Fund have inaugurated the infamous practice of seizing land for debt,¹⁰⁸ paving the way for what is today recognised as the trend of *land grabbing* in Africa. New enclosures, however, also show peculiar and unprecedented characters: the issue of intellectual property rights is a particularly fitting case in point here. Networked, intangible and digital commons, in fact, are tendentially non-rival and one's access to them not only does not limit any other's, but might be reasonably said to foster their further innovation and, thus, to be beneficial to the commons themselves (Boyle 2003). Therefore, although the enclosing violence is one and the same, the old enclosure targeted scarcity to produce putatively efficient allocation of the social product, whereas the new enclosure targets abundance to produce a scarcity that will, *ex post*, engender an equally putative efficient allocation of intellectual wealth.

Following this quite schematic distinction, Carla Ravaoli proposes to distinguish between “natural and material commons”, such as those linked to Empedocles' vital elements (fire, air, water, earth), and “immaterial and cultural commons”, such as

¹⁰⁸ As the radical Midnight Notes Collective appropriately comments: “Just as the Tudor court sold off a huge tracts of monastery and communal land to their creditors, so too modern African and Asian governments agree to capitalise and 'rationalise' agricultural land in order to satisfy IMF auditors who will only 'forgive' foreign loans under those conditions [...] The result now as then is enclosure: the internal and external destruction of traditional rights to subsistence. This is the secret hidden in the noise of the 'debt crisis' (1992: 321-322).

knowledge and art, but also local public services and welfare state programs (Ravaoli 2010: 15). Implied in this argumentative line is the idea that, whereas the first type of commons is today enclosed in the same way as it was four centuries ago, the second type of commons is subject to distinctively contemporary enclosing practices. Although interesting and to a certain degree accurate, such a description nevertheless depicts the profoundly complex issue of new enclosures in a too simplistic manner. Continuities and ruptures, in fact, should not be located in the objects to be enclosed, but rather in the capitalist gesture that actually establishes such objects. In other words, what does *not* change is the constitutive and utter violence of primitive accumulation. Instead, what *does* change are the multifarious modalities through which capital inscribes within the circuits of accumulation a “substance” which is already sealed by money's *imprimatur*. This is what differentiates contemporary commons from Sixteenth century English land: whereas the latter was coercively *capitalised*, the former is subject to a movement of self-reflexivity in which capital looks for value *within* itself. In other words, whereas in the case of land the commodity frontier is *extensive*, in the case of the general intellect such frontier is *intensive*.

This shift in the focus of analysis actually entails a serious questioning of the distinction between natural, material commons and cultural, immaterial ones. As far as knowledge becomes the organising principle of production, such a differentiation not only loses its heuristic value, but also runs the risk to prove politically disempowering. The analysis of climate change as a political issue might clarify this statement. In a recent and very significant book, entitled *A Vast Machine*, Paul Edwards compellingly shows how the

very visibility of climate change relies on complex, contested and always re-negotiable *knowledge infrastructures*. Such crucial notion is defined as follows:

Instead of thinking about knowledge as pure facts, theories, and ideas – mental things carried around in people’s heads, or written down in textbooks – an infrastructure perspective views knowledge as an enduring, widely shared socio-technical system. Here is a definition: knowledge infrastructures comprise robust networks of people, artifacts, and institutions that generate, share, and maintain specific knowledge about the human and natural worlds (2010: 17).

No one, thus, lives a planetary atmospheric experience without the support of climate science. To link a weather-related event – no matter how extreme it presents itself – to global warming, a massive mobilisation of the general intellect in its diverse forms (various knowledge-factories such as universities, think-tanks, activists' counter-narratives, etc.)¹⁰⁹ is invariably required. Obviously, this dependence on knowledge does not make climate change any less concrete or material, both in the individuation of its multiple causes and in the destructiveness of its heterogeneous effects. Rather, what the conception of the climate as a common subjected to enclosure entails is an entirely new way of enacting the tensive interaction between the abstract and the concrete. None of these two dimensions is, *per se*, sufficient to theoretically grasp and politically act upon climate change; to the contrary, both are necessary. The simultaneous co-presence of theory and practice, once formulated as a goal to be attained, is today – at least in the

¹⁰⁹ With specific reference to recently established university programmes, Timothy Luke comments as follows: “University training discourses comprehensively reframe 'the environment' as a highly complex domain far beyond the full comprehension of ordinary citizens or traditional naturalists: it instead becomes something to be managed by expert managerialists armed with coherent clusters of technical acumen and administrative practice” (1999: 4).

field of climate change – imposed as a pre-condition for any analysis whatsoever. Thus, not only use-value – as we argued in the previous chapter – but also sound science must wave good bye to its innocent stage. Similarly again, however, this loss does not amount to a disqualification of scientific knowledge; in sharp opposition to that, *more* science is needed to politically cope with climate change. Simply, such academic knowledge production cannot claim neutrality nor superiority to other forms of knowing.¹¹⁰ A climate change-related example might be useful to clarify this point. When asked whether official climate-mitigation science should be considered to be “contaminated” with politics, activist Larry Lohmann brilliantly replied:

No. To say the science is ‘contaminated’ would imply that it’s an abnormal situation for science to be enabled, constrained and motivated by politics. But it’s not abnormal. It’s unavoidable. No world can exist in which policy can be ‘science-led’ without science being ‘policy-led’ at the same time. Nor would such a world be desirable. Nor would it be desirable to live in a world in which people believed such a world was possible or desirable (2006: 38).

This is, we believe, a tough but fascinating task for climate justice activists: creating the conditions for a convergence amongst different epistemological constellations in order to effectively tackle climate change.

The basic argument we are going to try to sustain in this chapter can be summarised as follows: carbon commodities (cap-and-trade units [e.g. EUAs], offsets [e.g. CERs] and

¹¹⁰ In many cases, the putative superiority of Western scientific knowledge over indigenous cosmologies has been the tool to politically disempower, forcefully displace and violently dispossess local communities, most notably in the Global South. We shall discuss *epistemological colonialism* later in this chapter.

tradable carbon units in general) should be approached by taking into account their role in multifariously supporting the *carbon trading dogma*, which is to say an extremely cogent – albeit empirically undemonstrable – political assumption according to which although climate change must be considered a market failure, only markets can provide a viable solution to it. This dogma simultaneously presents governmental aspects, which we shall analyse from a Foucauldian perspective based on financial government through instability, and exploitative ones, which we shall address starting from a (post)Marxist account of the exploitation of the general intellect. Consistent with the framework of biopolitics as method, developed in the previous chapters, we shall conclude that carbon commodities should be conceived of as *second order abstractions* since, in them, the distinction between “natural distinctness” and “economic equivalence” (Marx 1993: 141) tends to blur and a decisive element of their exchange-value resides in the *ex ante* creation of capital-based use-values.

Before undertaking a more detailed analysis of carbon trading (section 1), of the specific commodities it deals with (section 2), and of the three supports of carbon trading dogma (section 3), we need to better specify two questions of primary interest from the perspective employed in our study. The first refers to the relationship between the capitalist mode of production and climate change as a political issue. On a different but closely linked ground, the second considers the multilevel role of resistance within the framework of problematisation that historically transformed the climate crisis from a relatively neglected set of complications to a permanent concern in contemporary global governance. As for the first question, it might be useful to make reference to a recent and extremely thought-provoking article published by Dipesh Chakrabarty under the title

“The Climate of History: Four Theses” (2009). Its main goal is to discuss the relevance of critiques of capitalism and globalisation to grasp the historical novelty represented by climate change. Chakrabarty proposes to critically consider four arguments, which in turn ultimately rest on two fundamental assumptions: 1) although under way since the Nineteenth century (Bolin 2007), climate change became publicly “visible” from the 1980s onwards, that is to say in the course of the neoliberal era; 2) despite the obvious fact that intensity and specific causes of climate change are widely debated among scientists, there is no need to be skeptical about the anthropogenic nature of the phenomenon (Oreskes 2007; Conway and Oreskes 2010). Keeping in mind that the first presupposition is consistent with our hypothesis regarding the neoliberal nature of environmental policy in general, let us also underline our substantial agreement with the second premise. Obviously, climate science should not be regarded as the guardian of an eternal and indisputable truth; rather, its history reveals the momentary and always reversible outcomes of differentiated controversies, simultaneously political and epistemological (Caserini 2008). However, scientific as well as experiential evidence supporting the human-induced nature of climate change is today so abundant that the process of problematisation refers more to its specific configurations than to its actual existence (Caserini 2009). Against this background, Chakrabarty elaborates his compelling four theses: the first argues for the collapse of the traditional distinction between natural and human history; the second advances the notion of Anthropocene¹¹¹ –

¹¹¹ Originally proposed by Nobel Prize-winning atmospheric chemist Paul Crutzen in 2002, this notion has been more recently defined as follows: “The term *Anthropocene*, proposed and increasingly employed to denote the current interval of anthropogenic global climate change, may be discussed on stratigraphic grounds. A case can be made for its consideration as a formal epoch in that, since the start of

which assumes that humans have become a geological force – as a fundamental tool to frame the relationship between Marxist critical thought and new theoretical horizons disclosed by the emergence of global warming; as an alleged logical necessity, the third thesis claims that global (and critical) histories of capital are no longer sufficient to deal with our present and should, therefore, be supplemented with a broader species-history of humans; the fourth, finally, calls for a “negative universal history” (Chakrabarty 2009: 222) that arises from a collective, species-shared and impending sense of a catastrophe.

From our perspective, Chakrabarty's position should be endorsed with regard to the first two theses and refused as for the second two theses. The logical leap between thesis 2 and 3, in fact, stands in sharp contrast with the basic assumption of biopolitics as method, namely that, starting from the second half of Eighteenth century, the accumulation of capital and the governmentality of species' population constitute a *differentiated unity* (both logically and historically). Such a multi-layered unity allows us – partly following Jason Moore – to read capitalism as a mode of production which is, in itself and simultaneously, an ecological regime as well. In other words, capitalism is nothing else than a system of value-production organised around a constitutive bundle of exploitative socio-natural relations: the two aspects cannot be interpreted separately, unless the political unfolding of the ecological crisis is to be understood as solely – and

the Industrial Revolution, Earth has endured changes sufficient to leave a global stratigraphic signature distinct from that of the Holocene or of previous Pleistocene interglacial phases, encompassing novel biotic, sedimentary, and geo-chemical change” (Zalasiewicz et al. 2008: 4).

For an interesting discussion of Anthropocene from the perspective of contemporary global governance, see Dalby (2007).

“spontaneously” – arising from the (untenable) industrial interface between Man and Nature. Actually, the absence of a biopolitical declination of capitalism from Chakrabarty's analysis is particularly surprising given his acceptance of the periodisation of Anthropocene proposed by Paul Crutzen: “[It] could be said to have started in the latter part of the Eighteenth century, when analyses of air trapped in polar ice showed the beginning of growing global concentrations of carbon dioxide and methane” (Crutzen 2002: 23). In Foucauldian terms, it is fair to state that Anthropocene is the geological name of the era of biopolitics; similarly, referring to Moore's words we might call Anthropocene the geological declination of the contemporary *oikeios* of capitalism as an ecological regime. It is, therefore, absolutely useful for us to accept Chakrabarty's suggestion and to count such a concept among the critical tools to be enacted through a methodology based on the notion of biopolitics. However, from a more general standpoint, here the issue concerns how to frame the new relationship between accumulation of capital and accumulation of men, which is to say: how do the circuits of capitalist exploitation/valorisation interact with the government of population as species? Assessing global warming in its contemporary form, in his third thesis the Indian postcolonial thinker poses such a problem as follows:

If anything, climate change may well end up accentuating all the inequalities of the capitalist world if the interests of the poor and vulnerable are neglected. Capitalist globalisation exists; so should its critiques. But these critiques do not give us an adequate hold on human history once we accept that the crisis of climate change is here with us and may exist as part of this planet for much longer than capitalism or long after capitalism has undergone many more historic mutations. The problematic of globalisation allows us to read climate change only as a crisis of capitalist management. While there is no denying that climate change has profoundly to do with the history of capital, a critique that is only a

critique of capital is not sufficient for addressing questions relating to human history once the crisis of climate change has been acknowledged and the Anthropocene has begun to loom on the horizon of our present. The geologic now of the Anthropocene has become entangled with the now of human history (Chakrabarty 2009: 212).

What Chakrabarty is missing in this passage is the moment of *unity* which links contemporary capitalism and climate change (as well as policy responses to it). Such a unity extends well beyond a linear causal connection: surely, climate change is *not* “only a crisis of capitalist management”. However, it is only through the social lenses provided by neoliberal anti-naturalism that climate change can be assessed as a crisis which simultaneously is *caused* by capital's past configuration and only by a further acceleration of capitalistic development can be *resolved*. This way of framing the issue does not intend to suggest a politically paralysing all-pervasiveness of capital; to the very contrary, its purpose is to emphasise capital's constitutive *ambivalence*. As we have discussed above, to “see” climate change as such a massive mobilisation of knowledge is required: this is why temporalities such as deep history – which refers to the distant past of human species – become fundamental, as Chakrabarty correctly points out. However, disconnecting the mobilisation of the general intellect from the process of climate change ever-expanding sources of knowledge means losing sight of the tight link that ties knowledge as crucial element of production and present-day circuits of capital's valorisation. Hence, global warming is not merely *caused* by capitalist management (moment of separation); it actually *exists* only in so far as contemporary capitalist relations enact the *neoliberal socio-nature* (moment of unity). By missing this internal

and uneven structuration of the dyad capitalism-climate change, Chakrabarty is forced to re-instate a sharp distinction between Man and Nature and, eventually, to revive that same old-fashioned humanism he wanted to get rid of: “Unfortunately, we [i.e. humans] have now ourselves become a geological agent disturbing these parametric conditions [i.e. temperature] needed for our own existence” (*Ibid.*: 218). Moreover, what such an analytical framework is unable to account for is the revolutionary potential of the general intellect as productive power: it can certainly give rise to the enlightened catastrophism suggested by the concept of “negative universal history”. However, this is not a necessitated scenario: opposite to this, the general intellect can exhibit its productivity by resisting the marketisation of global warming through a political praxis based on social struggle rather than a species-infused sense of “common” humanity created by fear of impending environmental collapses.

By raising the issue of resistance we can now engage with the second introductory remark – closely linked to the first – we referred to above. In short, the main question here concerns the historical configuration of that ontological primacy of struggle we discussed in chapter 1. How, then, is resistance entangled in the process of problematisation that progressively shaped climate change (and, more generally, the environmental crisis as a whole) as a fully political issue? Our answer is simple and straightforward: originating between the end of the 1960s and the beginning of 1970s, ecological resistance against capitalist circuits of exploitation/valorisation *created* the very conditions of possibility for climate change as a policy concern to emerge. Thus, the *political visibility* of global warming is due more to struggles as active agents of social transformation than to an objective and gradual unearthing of the ecologically destructive

basis of industrial capitalism. It is important to remark that this *constitutive and productive conception of resistance* is not particularly diffused with regard to environmental studies at large. Rather, the majority of scholars either do not assess at all the generative role of struggles (be they located in the 70s or nowadays), or relegate it to an after-the-fact protesting strategy, whose nature would be purely reactive (although not necessarily impotent). The former stream can be exemplified by authors such as Michel Callon and Bruno Latour or, more comprehensively, by the Actor Network Theory. Although analytically masterful and empirically sophisticated, the ANT constrains its hybrid subjects-objects and its complex assemblages to a flat political field, devoid of social conflict and dominated by an idealistic fetishisation of parliamentary democracy, by a quite naïve sense of peaceful dialogism (Latour 2002). On the one hand, when Latour provocatively declares that “[l]ike God, capitalism does not exist” (Latour 1988: 173), he understandably attempts to overcome an hypostatisation of the notion of capitalism, but nevertheless ends up uncritically accepting the ideological affinity between this latter and the democratic spirit.¹¹² Similar problems emerge with regard to Callon's brilliant framework based on *framing* and *overflowing* (1998). According to the French thinker, when creating a market social actors try to “frame” it, thus making it context-free and shielded from the outside world. However, Callon continues, frames will always leak or “overflow”. The very idea of the frame relies on the context from which it tries to free itself: if the internal substance of a frame was really to be cut off from its context, such substance would lose all legitimacy and efficiency. This is why overflows

¹¹² It is useful to stress that, as brilliantly demonstrated by Slavoj Žižek, such an affinity is not only ideological, but also less and less empirically tenable given the recent irresistible rise of “capitalism with Asian values” (2009: 77), marked by an essential coupling of political authoritarianism and market-driven free trade policies.

are the rule, rather than the exception: by registering the tensions between the market-frame and the market-context, overflowing ensures both external development and internal consistency. As we see, such a framework certainly accounts for conflictual frictions – it actually makes it one of its premises: there is no framing without overflowing – but does so by accepting the underlying assumption that only markets are involved in these practices. As a consequence, the political outcome of such a theoretical elaboration is the search for the *good market*.¹¹³

Analogously, the notion of conflict proposed by Callon is non-generative: antagonism is supposed to foster problem-solving activities which nonetheless never threaten to unhinge the overarching market framing. Thus, it comes as no surprise that, with regard to carbon trading, Callon proposes a *politics of market civilisation* as a viable solution to its poor ecological performance:

The challenge of climate change could be one of the first opportunities on a planetary scale to raise the question of how to better civilise markets [...] Not only do markets need to be civilised, that is, to be included in the multi-problematisation that is a living source of questions, research and the invention of satisfactory answers; but simply by participating in this movement they can act also as a civilising force in politics and science. Civilisation may be this never-ending effort to transform unsolvable issues into solvable problems (2009: 547).

¹¹³ Answering to the question: “what is a market that works correctly?”, Callon writes: “It is a market which welcome and recognise as one of its most central constituent elements all the actors who demand to be taken into account, including those who are considered as marginal or on the verge of exclusion, with their points of view, their matters of concern, their proposed tools, framings and models” (2009: 541). As it is evident, the violent nature of new enclosures is not only overlooked, but actually ignored. It might appear that the brutality of capital's command is absorbed into market framing/overflowing as a form of dialogism in which disagreement is solved through persuasion, in a rather social-democratic fashion. Even so, however, it must be emphasised that, as Ernesto Laclau (1996) has demonstrated in his masterful critique of Richard Rorty (1989), even persuasion is not immune to violence but, rather, founded on it.

A good example of the second line of thought can be found in a wide range of critical perspectives (ecologist, eco-feminist, post-structuralist, eco-Marxist, etc.) whose shared point refers to the idea that resistance *follows* capitalist changes and/or innovations. Particularly illustrative of this framework is Paul Hawken's definition of the “blessed unrest”, which is to say the sum total of a myriad of ever-growing small and medium organisations engaged on the terrain of social and environmental justice:

The massive growth of citizen-based organisations *responds* to threats that are new, and, in some cases, game-ending. These groups *defend* against corrupt politics and climate change, corporate predation and the death of oceans, governmental indifference and pandemic poverty, industrial forestry and farming, and depletion of soil and water. Five hundred years of ecological mayhem and social tyranny is a relatively short time for humanity to have learned its self-created patterns of systematic pillage. What has changed recently, and has offered evidence of that hope may be a rational act despite the onslaught of countervailing data, is the use of connectivity [...] The insanity of human destructiveness may be *matched* by an older grace and intelligence that is fastening us together in ways we have never before seen or imagined (Hawken 2007: 164-165. Our emphases).

As we see, resistance comes *after* “human destructiveness”, even if this does not mean it is necessarily powerless. Nonetheless, a deep ontological gap separates such a view and the one we propose here. In fact, we contend that *social struggles produced the environmental crisis (and, hence, climate change) in its political form*. Before a strong

and variegated movement had *imposed* environmental degradation as an issue to be considered, neither governments nor corporations were “seeing” any problem. A detailed history of the antagonistic, bottom-up creation of the ecological crisis as a social concern to be politically addressed is, to our knowledge, yet to be written. However, we can advance at least a contextualisation point and three different elements that might structure such a history. The general framework is provided by the failure of the so-called *Fordist pact* between social classes (Negri 2008). By this we mean that historical compromise – roughly, manageable conflict on the bourgeois side in exchange for social security on the working class side – which configured the boundaries of political experience, at least in the global North, during what French historians call *les trente glorieuses*, namely the period between 1946 and 1975, characterised by a strong economic growth coupled with an increase of working class' access (both direct and indirect) to social wealth. The crucial point here is to realise that the collapse of such a pact was *not* induced by capital's need to auto-innovate but, to the very contrary, by those struggles that were simultaneously its driving force and its unsurpassable limit (Boltanski and Chiapello 2005). Poignantly, referring to the progressive exhaustion of multifaceted components of the Fordist pact as capitalist development strategy, militant Midnight Notes Collective states: “We refuse to mourn them. For who first voided them but brother and sister proletarians around the planet who desired and demanded more, much more than what was settled for?” (1992: 319). Against this historical background, the political construction of the environmental crisis as a social battlefield can be analysed from at least three standpoints:

1) At the level of international relations, Harry Cleaver has convincingly shown how the often-celebrated Green Revolution¹¹⁴ is to be understood as a “post-war effort to contain social revolution and make the world safe for profits” (1972: 177). In short, Cleaver argues for a tight link between technology-led increases in food production and U.S. anti-Communist foreign policy: crops productivity became a strategic weapon to avoid the frightening spectre of revolutionary uprisings in Asia and Africa.

2) As for the capital-labour conflict in the global North, a new configuration of workplace health and safety demands took place in the course of the 1970s. Forced to face a new kind of industrial (and especially chemical) noxiousness, many workers claimed and eventually imposed the primacy of their health over corporate profit. A much stricter regulation was the outcome of such struggle, which Stafania Barca acutely suggests to name *workers' environmentalism*.¹¹⁵ Focussing on the Italian experience, she enumerates and discusses the modalities through which this kind of ecology-based antagonism conceived of “the workplace as an ecosystem whose specificities were best known to the working class” (2011: 103). Significantly from our perspective, workers' environmentalism is to be identified first and foremost as a conflict concerning *knowledge*: technical expertise, thus far exclusively managed by corporations, became to

¹¹⁴ Green Revolution regards a series of research, development and technological innovation which increased agricultural outputs especially in the so-called Third World. Such an increase begun most markedly in the late 1960s and was attained through a widespread use of pesticides, herbicides and fertilisers, as well as new breeds of high yield crops (Jain 2010).

¹¹⁵ In passing, let us note how the analysis of workers' environmentalism put directly into question the usual narrative concerning the separation and mutual-irreducibility between the workers' movement and environmentalism. Contrary to such a schematic and actually inaccurate narrative, these two movements share some of their fundamental roots. A genealogical cartography of frictions and convergencies would be of invaluable help but, to our knowledge, this kind of investigation has not yet been comprehensively undertaken.

be questioned on the very ground of its legitimacy. A class-based, partial counter-knowledge emerged as a political critique of the self-declared – and eventually unmasked – neutrality of technical expertise.

3) From the standpoint of social differentiation, the rise of the ecological movement proper – roughly at the end of the 1960s – represents the oppositional force whose pressures will eventually impose environmental issues on the agenda of governments and corporations alike. Although distant from the workers' movement in terms of class composition and (in some cases) political goals, the nascent ecological movement (especially the anti-nuclear one) showed at the same time new ways of mobilising revolutionary energies and new cracks in the industrial-capitalist mode of value production.

The ontological primacy of resistance over power is to be conceived as the red thread of the following analysis of carbon trading. However, before shifting our attention to such an issue, it is important to underline that resistance does not affect climate change as a political issue solely on the field of ontology. Rather, as Matthew Paterson has penetratingly pointed out, resistance acts as a productive force also at the empirical or ontic level of carbon markets' rule-making and, particularly, in terms of establishing best-practices within them, for example through voluntary certification schemes. According to Paterson, global struggles against carbon trading will not overcome it as capital's main policy response to climate change, but they “will shape the character of this market activity, potentially reduce its worst effects, and generate support for the policies and

social change which are essential and for which carbon markets may well be simply a distraction” (2009: 251). Clearly, such a claim raises fundamental problems with regards to the final goal of resistance to carbon markets (decommissioning or improving them?), but it nonetheless shed decisive light on how social struggles do not merely react to, but actually contribute to shape, the objects of their critique.

1 - CARBON TRADING: THEORY, PRACTICE AND CRITICAL IMPLICATIONS

In order to situate the critique of carbon trading in the context of our analytical framework, it is important to emphasise its links to two of the dynamics we discussed in the previous chapter. First, it can be argued that carbon trading is the specific climate change-related form assumed by the neoliberal *green economy* from the 1990s onwards. Such a communal ground can be closely observed in the preparatory document for Rio+20 issued by the United Nations Environmental Programme (UNEP) and entitled *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. According to the experts gathered by the UN, the climate crisis can be dubbed as a massive market failure,¹¹⁶ particularly due to the exclusive privilege mistakenly conceded to a single criteria: the maximisation of short term profitability for capital. Not surprisingly, however, such a market-induced deficiency can be solved by a market-based set of incentives: since it is assumed that markets have failed because of

¹¹⁶ This argument has been first – and famously – advanced by Sir Nicholas Stern (2007).

“imperfect information” (UNEP 2011: 16), it is supposed to logically follow that a better collection and elaboration of data will provide the competitive drive to monetarily internalise previously costless – albeit socially damaging – ecological externalities. From a global warming perspective, such internalisation requires the creation a new *ensemble* of commodities centred on the complex notion of “carbon” and, simultaneously, the establishment of dedicated markets to exchange them. UNEP has entirely and unproblematically endorsed such a process¹¹⁷ and, therefore, has exposed itself to activists' criticism. For instance Edgardo Lander, from the Transnational Institute, has aptly argued that the issue raised by the UNEP report

[i]s not a matter of questioning the fact that the fundamental decisions in society are made by 'the market', but of expanding the market's sphere of information and action to explicitly incorporate nature in its logic of values. This requires overcoming all obstacles to the full commercialisation of nature. For the good functioning of the markets, everything must have a price, opening up new spheres for speculation and capital value. It should therefore come as no surprise that they [UNEP experts] defend the fundamental role to be played by carbon markets and the market-based programme on Reducing Emissions from Deforestation and Forest Degradation (REDD+). In fact they do not even play lip service to the existence of critiques, disagreements and resistance to these flawed mechanisms (Lander 2011: 8).

¹¹⁷ After having lamented that carbon forest activities have been so far relegated to the voluntary carbon markets (namely those not regulated by the UNFCCC Kyoto Protocol), the UNEP report continues as follows: “[a]s the contribution of deforestation and forest degradation to green house gases (GHG) emissions has become recognised, this approach to mitigation has moved up the agenda in international climate negotiations, first as REDD (reducing emissions from deforestation and degradation) and more recently as REDD+, which adds conservation, sustainable management of forests and enhancement of forest carbon stocks to the list of eligible activities. REDD+ has been likened to a multi-layer PES [Payments for Environmental Services] scheme, with transfers of finance between industrialised countries and developing countries in exchange for emission reductions associated with improvements in forest protection and management, and further transfers from the national level to forest landowners and communities” (UNEP 2011: 167).

A second element we would like to stress is the consistency of the contemporary state of the art in environmental governance (of which climate policy – and hence carbon trading – is a crucial sub-section) with the Foucauldian hypothesis of neoliberal interventionism. Indeed, scholars such as Jamie Peck and Adam Tickell have highlighted how neoliberalism cannot be limited to the destructive moment of its *roll-back* (i.e. de-regulation); rather, it must also be analysed from the perspective of its *roll-out*, namely its constructive practice (i.e. re-regulation) (Peck and Tickell 2002). This new interventionism, however, is not solely performed by the state. On the contrary, to properly function neoliberalism requires a gradual process of de-nationalisation and privatisation of norm-making which eventually paves the way for the emergence of a highly complex form of multilevel governance (Sassen 2003; 2006). Such development is especially visible in the context of environmental governance, whose analysis can be carried forward by distinguishing three different spheres of intervention: the supra-national one, mostly linked to global multilateralism directed by formal international organisations such as the UNEP; the market-based one, focussed on private authority; the sub-national one, mainly composed by multi-scalar governance initiatives, including the fast growing relevance of Private-Public Partnerships (PPPs).

Thus, even in the field of environmental governance, “one governs *for* the market, not *because of* the market” (Foucault, 2008: 121). For example, according to Steven Bernstein and his colleagues, “[c]orporations, social and environmental organisations, private-public partnerships, sub-state governments, and even local communities have already begun to conceive and implement governance initiatives to address global

environmental problems” (Bernstein, Clapp and Hoffmann 2009: 6).¹¹⁸ This is notably true for carbon markets in every form they can assume: although a few trading systems have been wholly private (for example, the Chicago Climate Exchange [CCX], established in 2003 and decommissioned in 2010), the large majority of them mix public and private subjects whereby governments either impose a cap and distribute allowances or mandate emissions reductions, while private entities trade them to – allegedly – foster marginal cost abatements.¹¹⁹ Although devoid of any critical motive, the notion of an *ensuring state* proposed by Anthony Giddens neatly captures such developments. According to him, the ensuring state plays simultaneously the traditional role of a “top-down agency” and that of a facilitator to tie diverse groups of society together to achieve “bottom-up solutions” and safeguard that the desired results are effectively achieved (Giddens 2009: 69).

Having provided a practico-theoretical context for our analysis, we are now in the position to critically address the historical development and the governmental design of

¹¹⁸ On the fundamental role of transnational corporations in climate policy rule-making, see Schreuder (2009).

¹¹⁹ This multi-layered complexity of climate governance has produced the paradoxical outcome of making possible to support carbon trading even against the argumentative structure advanced by its main proponent, namely the UNFCCC-COP. For instance, after the disgraceful COP 15 held in Denmark in 2009, political analyst Radoslav Dimitrov asserted: “Paradoxically, climate policy developments are overall positive. Aggregate climate governance comprising regional, national, sub-national and local policies as well as non-state initiatives worldwide is thriving. The Copenhagen disaster should not obscure the bigger and brighter picture: today the vast majorities of countries with significant emissions have pledged fairly ambitious domestic targets, many backed with detailed policy implementation plans [...] While the UN process is moribund, multilevel policies are likely to continue to grow” (2010: 818-819).

carbon trading schemes.¹²⁰ Although the direct proportionality between the levels of carbon dioxide (CO₂) in the atmosphere and the surface temperature of the earth was discovered in 1896, when Svante Arrhenius, drawing on previous speculations by other scientists, gave full account of the greenhouse effect, the emergence of a collective awareness about the damaging potential of global warming can be individuated in the publication of the Brundtland Report (1987). In 1988 the UNEP, in turn founded as a result of the United Nations Conference on the Human Environment (Stockholm, 1972), and the World Meteorological Organisation established the Intergovernmental Panel on Climate Change (IPCC), a consultive body aimed at providing policy makers with accurate scientific knowledge concerning global warming and its social, economic and environmental impacts. The First Assessment Report of the IPCC, released in 1990, produced an intensification of the public debate around climate-related issues and, as a consequence, the United Nations Conference on Environment and Development (Rio de Janeiro, 1992) – also known as Earth Summit – released an international environmental treaty called United Nations Framework Convention on Climate Change (UNFCCC), whose objective is to stabilise GHG concentration in the atmosphere at a level that would prevent dangerous human-induced interference with the climatic system. Importantly, moreover, the Framework Convention recognises the principle according to which the goal of protecting the climate must be pursued through common but differentiated responsibilities between developed and developing countries. Since the treaty entered into

¹²⁰ The following descriptions are functional to the analytical focus we will develop in the next section (centred around the specificities of commodities traded in carbon markets) and, as a consequence, does not do justice to the complexities and intricacies that accompanied the history and successive designs of carbon trading devices. For a sympathetic systematic approach, see Yamin (2005) and Labatt and White (2007); for a critical approach, see Gilbertson and Reyes (2009) and Böhm and Dabhi (2009); for a general overview see Newell and Paterson (2010).

force in 1994, the signatory states (originally 189, 194 as of May 2011) have been meeting annually in Conferences of the Parties (COP) to assess progress in the field of global climate policy.

Of particular importance has been COP 3, held in Kyoto in 1997, in the course of which the parties agreed to sign a Protocol to the UNFCCC, known as the Kyoto Protocol (KP). The KP is the first legally binding agreement on climate change and provides that the 37 Annex I countries (so-called developed nations) commit themselves to a reduction of six GHGs¹²¹ (5.2% on average in the 2008-2012 period, using 1990 as a baseline year), and all member countries give general commitments. The KP is intended to achieve emissions reductions through a variety of approaches: intervening at the source by means of energy saving and energy efficiency strategies, as well as renewable energy developments; promoting international cooperation and substantial technology transfers; and accounting for emissions sequestration performed by natural carbon sinks, such as forests and oceanic phytoplankton, amongst others (Iacomelli 2005).

Although the KP has proved to be affected by innumerable flaws,¹²² from the perspective of carbon trading it still represents a sort of “official” date of birth. In fact, under the powerful political pressure exercised by the US delegation – led by then Vice-President Al Gore – the parties agreed to structure both the design and the

¹²¹ Actually, the KP targets four GHGs and two groups of gases produced by them. The GHG are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆). The two groups of gases are: hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

¹²² In their detailed review of climate change policy literature, Gupta et al. (2007) found that no credible assessments of the KP contended it had, or will have, any relevant impact in solving the global warming crisis. Even the World Bank (2010a) reported that the KP has only had a slight effect on curbing emissions increase. In the time-window separating the negotiation of the Protocol and its ratification (1997-2005), CO₂ emissions have grown 24%.

implementation of the KP around three market-led approaches called *flexibility mechanisms*. The basic economic rationale which frames such mechanisms is that trading on dedicated markets emissions permits and credits would simultaneously reduce the aggregate cost of meeting the targets, foster sustainable development in non-industrialised countries and create profitable opportunities for green business. In passing, let us note how such an assumption is consistent with the hypothesis according to which the environmental limit is turned by neoliberalism into an element of the process of valorisation.

The first of KP's flexible mechanism is *emissions trading* (ET). The idea of emissions trading first emerged in the late 1960s and was then theoretically developed in subsequent years by both academic economists and derivatives traders. After some experimentations, it became official policy in 1990 as the centrepiece of the US Acid Rain Program. In the 2000s, following the Kyoto Protocol's path, the European Union took the lead and developed what is today the world's largest carbon market, the EU Emissions Trading Scheme (EU ETS), initially implemented in 2005.¹²³ In theory, this system is supposed to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants. It works as follows: a governmental agency sets a maximum limit to the amount of pollutants that can be emitted. The limit or cap is then reduced to basic units (emissions credits: AAUs [Assigned Amount Units] under the KP, EUAs [European Union Allowances]), which are either sold to firms through auctioning

¹²³ It is curious to remark that the EU attitude towards emissions trading changed radically (before 2001 European negotiators used to support a carbon tax) due basically to a technical *impasse*. In fact, while the Commission had worked unsuccessfully for years for a unanimous vote of the Council on a proposal for a continental energy tax, emissions trading (as a non-fiscal measure) could be approved on the basis of a majority vote only (Voss 2007).

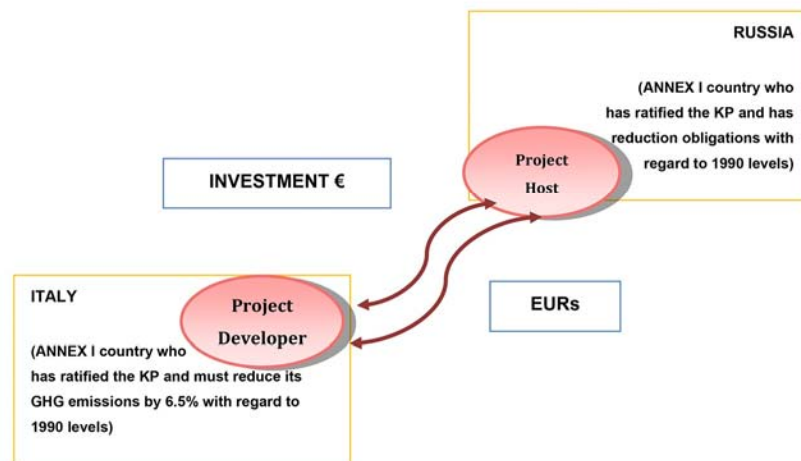
or gratuitously allocated (so-called “grandfathering”). Firms are required to hold a number of permits equivalent to their emissions. The total number of permits cannot exceed the cap, thus the amount of total emissions is limited to that level. Companies that produce more emissions than their permits would allow must buy more of them from those who have succeeded in reducing their environmental impact. The transfer of permits occurs through trade: the final outcome is that the buyer pays a charge for polluting, while the seller is rewarded for having reduced emissions. Thus, the theory concludes, those who find it cheap to reduce emissions will do so, finally achieving pollution reduction in the most cost-effective way. Let us note, in passing, that cap-and-trade, as a regulatory tool, is marked by hybridity: in fact, the cap is set by the state, whereas the eventual allocation of permits is organised as a trade. Moreover, it is possible to appreciate how simplistically an environmental issue (an excessive amount of carbon released in the atmosphere) is translated into the economic grammar of the market through the implementation of constitutively neoliberal policies.

The second and third of KP's flexible mechanisms are the *joint implementation* (JI) and the *clean development mechanism* (CDM). Their common underlying economic assumption is that it is often more cost-effective to save emissions not at source, which is to say where they are actually produced, but elsewhere through technology transfers or various investments in renewable energy.¹²⁴ Significantly, for such a rationale to be politically meaningful an environmental premise must be unproblematically assumed: namely, that reductions made (or, more realistically, planned) in a given place are

¹²⁴ This is why such reductions are labelled “carbon offsets”.

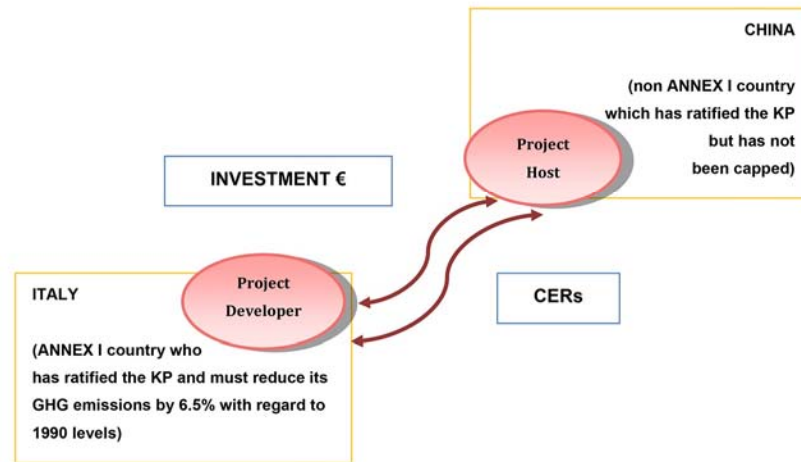
ecologically equivalent to reductions made or planned in any other place. In other words, it is presupposed that it makes no difference whatsoever where CO₂, or any other GHG, is saved. In this context, JI releases credits (ERUs [Emission Reduction Units]) and allows emissions exchange among Annex I countries (mainly European economies in transition from the former Eastern Bloc have been concerned to date), whereas CDM is designed to stimulate Kyoto-capped countries to include the global South (non-Annex I) in the effort to reduce GHG emissions (Figure 1).

Figure 2. Visualised example of a Joint Implementation project according to the KP.



While the amount of JI projects is relatively small, CDM proposals have exploded since Russia ratified the Protocol in 2004. As for ET, the two pillars of the mechanisms are economic flexibility and cost-effectiveness. In theory, the CDM system works as follows: an Annex I country (or a company) invests in projects to reduce GHG emissions in a non-Annex I country in exchange for emissions credits (CERs [Certified Emissions Reductions]) that can be used to comply to its KP target (Figure 2).

Figure 1. Visualised example of a Clean Development Mechanism project according to the KP.



In theory, a number of conditions must be met in order for the project to be approved by the Executive Board set up for the CDM: first of all, the project must be compatible with the overall goal of sustainable development of the host country; second, it must provide evidence of *additionality*, which is to say its impact is environmentally more performing than the international aid equivalent to business as usual (BAU); third, the project must demonstrate that it was not already registered for funding in the host country's development plan; fourth, it must meet the complementarity requirement with regard to the investing country's GHG reduction strategy, meaning that the CDM cannot represent more than a small fraction of the the general approach to the KP's targets (in other words, emissions reductions are supposed to be mainly saved at home).

Although not contemplated in the KP, another programme is of particular interest from our perspective: REDD+ (Reducing Emissions from Deforestation and Degradation, plus conserving and enhancing forest carbon stocks and sustainably managing forests in

developing countries). Although REDD+ projects are not yet part of KP-based carbon markets, the trend toward an inclusion of such projects in the mechanisms of carbon trading seems unstoppable and already powerfully under way. Actually, a significant quota of REDD+-generated credits are already being sold in voluntary carbon markets, clearly showing how such a scheme is “becoming one of the key pillars of a post-2012 international climate regime, particularly regarding developing countries mitigation efforts” (Corbera et al. 2011: 89). The environmental rationale of REDD+ projects relies on the twofold fact that, on the one hand, deforestation and forest degradation account for between 10-20% of GHG emissions, while on the other forests are conceived of as terrestrial sinks, particularly useful for their *carbon sequestration* capability. As such, carbon forestry is rightfully considered to be key to any kind of mitigation strategy. As for the CDM, the political process of marketisation of REDD+ is justified by its putative faculty to allow flexibility and cost-effectiveness: a corporation with compliance obligations, or simply desiring to engage in corporate social responsibility practices, can buy credits produced by REDD+ projects (usually located in low- or middle-income developing areas) to offset the lack of emissions reduction at source. In a sort of triumph of the *green economy* mantra, REDD+ is understood to give rise to a win-win-win situation: “financial incentive for forest conservation, a least-cost measure for climate change mitigation and a source of alternative livelihood for forest communities” (Pearse 2012: 183). This system was first envisaged in 2000 when an IPCC report on LULUCF (Land Use, Land Use Change and Forestry) outlined how carbon credits could be generated by carbon sinks. In 2003, carbon sinks entered the CDM system but were confined to A/R (Afforestation and Reforestation) activities. In 2007, however, COP 13

in Bali restored the notion of forestry offsets and included REDD+ in the final document, known as Bali Action Plan. As of 2012, the UN's REDD+ text, originally proposed in 2009, is still unfinished and several fundamental issues remain unsolved. However, as Joanna Cabello and Tamra Gilbertson insightfully argue, “[a]lthough not yet explicitly connected to UN-backed carbon markets, even those REDD+ initiatives currently being supported by public money are generally designed to help jump-start forest carbon markets” (2012: 167).

In terms of market value assessed by the World Bank (2007; 2008; 2009; 2010b; 2011; 2012), carbon trading in its entirety – compliance and voluntary markets, as well as primary and secondary markets¹²⁵ – was worth approximately US \$10 billion in 2005, just to triple in 2006 to \$30 billion. In 2007 it reached \$63 billion to then double again in 2008 to \$126 billion. Despite the global economic crisis, carbon trading grew again in 2009 by 8%, with a total amount of trade volume worth \$143 billion. In 2010, however, the effects of the financial crisis manifested themselves also in the realm of carbon economy, causing it to slightly drop to \$142 billion. Surprisingly enough, notwithstanding the deepening of the economic downturn, 2011 (the latest figures available as of this writing) saw a robust increase in transaction volumes (establishing a

¹²⁵ From the perspective of biopolitics as method, it is crucial to underline that the very idea of carbon trading originated from the private sector. In fact, as Newell and Paterson appropriately remark: “Promoters of the voluntary carbon offset markets never tire of pointing out they precede the regulatory markets. The first such transaction was in 1989 when AES, a US electricity company, invested in a forestry plantation (of pine and eucalyptus) in Guatemala to offset the emissions from its new coal-fired power plant in Connecticut” (2010: 109).

record high 10.3 billions tCO₂e)¹²⁶ and achieved an astounding aggregate value of \$176 billion. Within the carbon market, the EU ETS represents by a large margin the most relevant carbon trading mechanism at present. In 2005 it mobilised nearly US \$8 billion which became \$49 billion in 2008 to spike in 2011, when its value reached nearly \$148 billion. Growth in CDM followed a similar trend in the 2005-2008 time window (from \$2.5 billion to \$33 billion), but then registered a sudden stop in 2009 (just over \$20 billion) due to the “complexity and changing nature of regulations, inefficiencies in the regulatory chain and capacity bottlenecks” (World Bank 2010b:2). After having almost imperceptibly decreased in 2010, the CDM market grew by 10% in 2011, totalling more than \$22 billion. Interestingly, the largest share (over 25%) of the CDM market is represented by hydroelectric projects, which are generally – albeit very problematically – considered a kind of “green”, renewable energy production with no GHG emissions (Fletcher 2010). As for carbon forestry, its total value in 2010 was approximately US \$133 million, while its present volume has more than doubled with regard to 2008. Such circumstance is presently propelling the wave of enthusiasm for REDD+ offsets. REDD+ has expanded from 30.1 million tCO₂e exchanged in primary and secondary markets in 2009 to 74.7 million tCO₂e in 2010, in particular from voluntary markets transactions (Ecosystem Marketplace 2011). Moreover, REDD+'s interest for traders extends beyond narrow economic considerations: the significance of these projects, in fact, lies in the fact that they are penetrating in rural areas to profoundly alter the modalities through which communities and landowners manage and value land and, more generally, natural

¹²⁶ A tonne of carbon dioxide equivalent (tCO₂e) is the measurement unit of carbon in the dedicated markets.

resources. As Esteve Corbera and Charlotte Friedli appropriately note: “Community forests are discursively becoming reservoirs of a tradable, yet invisible, commodity, and land used for grazing can be, temporarily at least, reorganised as forest plantations or agro-forestry systems for carbon trading purposes” (2012: 210). Finally, in terms of future perspectives, carbon trading is supposed to expand even more steadily in the next few years. Referring to three different estimates, Robert Fletcher reports that aggregate carbon trading is predicted to reach a value of US \$2-3 trillion by 2020 and eventually an impressive \$10 trillion (2012).¹²⁷

Carbon trading's theoretical design, as well the World Bank's enthusiastic figures regarding its constant expansion, seem to suggest a very healthy state of global carbon markets. As many critics have convincingly shown, however, the reality of actually existing carbon markets has never been even close to this idyllic theoretical elaboration.¹²⁸ In general terms, as an excellent empirical study conducted by Michael Dorsey and Gerardo Gambirazzio unmistakably reveals, what was conceived of as a perfectly competitive market aimed at producing price-based incentives to invest in low-carbon technologies and productive processes as turned out to be nothing else than an *oligonomy*, namely “a combination of an oligopoly in which there are only a few sellers,

¹²⁷ Of course, the overall economic size of carbon trading represents just a small fraction of derivatives market as a whole, whose value has been estimated in over US \$700 trillion (Burne 2011). However, it is important to stress that, in proportional terms, the weight of carbon trading is predicted to rapidly increase.

¹²⁸ Again, the following exposition of carbon trading's flaws does not pretend to be exhaustive; rather, it is functional to the specific purposes of our analysis, which mainly concerns the peculiar features of the commodities traded in carbon markets.

and an oligopsony in which there are only a few buyers” (2012: 27). As a consequence, regardless of the multifarious sources of project-financing (private funds, public money, institutional investors), carbon trading enacts, in the last instance, a type of market which is “remarkably small and controlled by a small number of players with little competition among them to be found” (*Ibid.*: 32). With specific regard to the EU ETS, we can refer to at least six flaws: the first refers to the over-allocation of permits due to industrial lobbying. The consequence of such lobbying has been the collapse of permit prices as early as 2006. In other words, the cap established by governmental agencies is too high (Ellerman, Buchner and Carraro 2007). The second problem concerns the so-called “windfall profits” for the most polluting sectors, since the allocation of permits is determined according to past levels of emissions, so that the more a company polluted the more permits it receives (Gullì 2008). The third complication is the possibility of complying to the EU ETS cap by purchasing offsets from projects in the global South, where it is more difficult to verify compliance. Accountability is an obvious difficulty, and corruption has been widespread so far (Lohmann 2011a). The fourth inconvenience relates to incentives for the transition to a low-carbon economy, which is to say the very goal of carbon markets. Given the collapse of permit prices (which also occurred in 2008 and 2011), those incentives not only never materialised, but ended up being re-directed to massive fossil-based activities (Bond 2012a). The fifth issue regards the so-called “hot air”: as we saw, the EU ETS provided highly polluting companies with more permits than they needed; in addition, such permits can be banked and used any time in the future, granting big emitters the right to postpone emissions cuts at least until 2016. Moreover, member countries can also trade permits with Eastern European states and Russia, which

possess an enormous excess of allowances because of the collapse of industrial production following the meltdown of the Soviet Union: the KP baseline year being 1990, these countries benefit from allocation actually higher than their current emission patterns (Open Europe 2007). The sixth flaw is essentially political: the exclusive preference for carbon markets has made it impossible to envisage and implement alternative ways of reducing GHG emissions (Childs 2012).

Many of these EU ETS flaws affect the CDM as well. This latter, however, presents at the very least three distinctive weaknesses – different from one another but tightly interrelated – that have been repeatedly demonstrated and criticised by climate justice activists. The first concerns the issue of *double counting*: as we saw, in the context of the KP Annex I countries agreed to reduce their GHG emissions with regard to the 1990 as baseline-year, whereas non-Annex I countries, although not legally forced to cut emissions, agreed to attempt a reduction with regard to their Business As Usual trajectories. Carbon trading – and especially CDM-projects – is supposed to help both sets of actors to meet their targets in the most cost-efficient way. However, carbon offsets being a very particular kind of commodity – constitutively intangible and dependent on abstract calculations – such convergence between developed and developing countries' needs has been largely attained by simultaneously accounting alleged CDM-induced emissions reductions both in the proponent state *and* in the hosting nation. It is important to underline that the spectre of double counting is *not* merely a technical problem susceptible of quick design-fixes; rather, it is configured as an intrinsic risk pertaining to carbon offsets as abstract commodities. As James Kohm, associate director of enforcement at the US Federal Trade Commission's bureau of consumer protection,

recently remarked: “Offsets are not like products that you can touch or feel. I might sell you an offset for planting a tree, but how do you know that I have not also sold that offset to someone else?” (Kohm quoted in Schmidt 2009: 65). Thus, it can be argued that, since double counting suits very well the economic interests of both buyers and sellers, its diffusion has been impressively wide so far. A second crucial flaw of the CDM refers to the unavoidable complexity of calculating (and, hence, meeting) the *additionality requirements*. It is nowadays commonly accepted, even by supporters of CDM projects, that in terms of emissions reductions such a scheme is, at best, neutral. In other words, the CDM might, indirectly – through its impacts in the EU ETS – and in the long run, facilitate investments in renewable energies; however, in itself this flexible mechanism does not curb carbon emissions. Moreover, recent and detailed studies have authoritatively confirmed the CDM's inherent vulnerability to climate fraud and manifest conflict of interest (Drew and Drew 2010). A few brief examples will provide a clearer idea of such a predisposition to artificial subterfuge:

- a) In order to be accepted by the CDM Executive Board, every proponent must first elaborate a Project Design Document (PDD), whose highly convoluted technicalities are often outsourced to professional consultants, usually companies. The largest of those companies is Ecosecurities, which has developed over 300 CDM projects successfully registered by 2009. Interestingly enough, Ecosecurities is at the same time “the largest single purchaser of CDM credits, since its interests lie mainly in trading the credits rather than in the projects themselves” (Gilbertson and Reyes 2009: 64);
- b) Carbon credits accredited for the substitution of HFCs from refrigeration factories (especially in China) are usually invoked to prove that CDM projects can properly work

when properly designed. Such a claim, however, ignores the disturbing reality that, since HFC presents a much higher Global Warming Potential (GWP)¹²⁹ than carbon dioxide, its elimination creates an extraordinary amount of credits and, as a consequence, it has recently attracted conspicuous investments. Therefore, as paradoxical as it may sound, Mike Childs has suggested that “some factories have been built specifically to create the pollution to make money from then curbing it” (2012: 16);

c) Many of the officially accepted CDM projects would have been developed in any case, attesting that they cannot be said to be additional in any meaningful way whatsoever. Information about such failures is today abundant and easily accessible, but the July 2008 cable sent by the American Consulate in Mumbai to the Secretary of State and released by Wikileaks in August 2011 remains particularly instructive. The cable is a summary of a meeting that the Consulate's Office and the US Governmental Accountability Office (GAO) had with Indian industrialists regarding their views and experience with the CDM. The way corporate as well as governmental actors discuss additionality-related issues show unmistakably how these latter are considered irritating bureaucratic technicalities to be avoided through fraud and false accounting rather than legitimate conditions of project-feasibility. As climate and energy specialist Payal Parekh commented on her blog:

The cable is a gold mine – it provides clear evidence that non-additional projects (those that do not provide real emission reductions) are being supported. And even better, the statements come directly from the horses' mouths – project

¹²⁹

A more detailed analysis of this concept shall be provided in the next section.

developers, a former head of the CDM Executive Board, project auditors, financiers and CEOs of major Indian industrial companies (Parekh 2011).

A third problem related to the CDM is what has been defined *carbon colonialism*. It refers to the long-standing power unevenness that defines international relations. To simplify a little, this critical argument runs as follows: after having historically over-used the atmospheric carbon dump, the global North is currently postponing its emissions reductions by outsourcing them in the global South through the CDM (Lohmann 2005). In practical terms, the putative cuts resulting from the difference between a counterfactual baseline centred around a BAU projection and the actual trajectory of carbon emissions (which should in theory benefit from clean technology transfers) ends up being ascribed to Northern states or companies, even though it is released in the Southern share of the planetary carbon dump. Heidi Bachram strongly criticises such practices in the following terms:

The dynamics of carbon trading, whereby powerful actors benefit at the expense of disempowered communities in both North and South, is a modern incarnation of a dark colonial past. European colonialism extracted natural resources as well as people from the colonised world. In the 20th century, international financial institutions took on the role of economic coloniser in the form of Structural Adjustment Policies (SAPs) for the “Third World”. Now an ecological crisis created by the old colonisers is being reinvented as another market opportunity. This new market brings with it all the built-in inequities that other commodity markets thrive upon. From the pumping of pollution into communities of colour in Los Angeles to the land grabbing for carbon “sinks” in South America, emissions trading continues this age-old colonial tradition (Bachram 2004: 16).

A different, but equally dramatic form of contemporary colonialism is at play in the context of REDD+ projects. The reference here is to what can be labelled as *epistemological colonialism*. A market-based account of nature – in turn reliant on Western scientific modes of thinking – is given indisputable privilege over indigenous cosmovisions whose relationships with landscapes and environments are irreducible to the mediative function of money as a general equivalent.¹³⁰ Furthermore, with regard to the role played by the general intellect in contemporary productive processes, it is crucial to note that REDD+ is also being used to plant in the South Genetically Modified Trees (GMT), which is to say trees that are specifically engineered to be transformed into liquid fuels (agro-fuels), electricity, plastic or various chemicals. All of these are supposed to be key elements in combating climate change through carbon trading. The rationale for planting GMTs is, once again, maximisation of profit through minimisation of land used: biotech lobbyists argue that GMT plantations would protect forests by allowing for “more wood on less land” (Petermann 2011). However, knowledge-related colonialism is but one aspect of a more general colonial rule imposed by carbon trading and, in particular, by REDD+ projects. Such a rule is neatly synthesised and deeply criticised by The International Forum of Indigenous Peoples On Climate Change in its first statement to the United Nations on REDD, released in the course of the COP 13 in Bali, Indonesia:

REDD will not benefit Indigenous Peoples, but, in fact, it will result in more violations of Indigenous Peoples' Rights. It will increase the violation of our

¹³⁰ On a different but intertwined level, it is important not to forget the multifarious attempts to commodify traditional indigenous knowledge through various modalities of bioprospecting (i.e. the process of discovery and commercialisation of new products based in biological resources, typically in the global South). For an instructive case study, see Ratuva (2009); for the centrality of indigenous knowledge in resisting market expansionism, see Walsh (2002); for the link between REDD+ and bioprospecting, see Lohmann (2008).

Human Rights , our rights to our lands, territories and resources, steal our land, cause forced evictions, prevent access and threatens indigenous agriculture practices, destroy biodiversity and culture diversity and cause social conflicts. Under REDD, States and Carbon Traders will take more control over our forests (reported in Boas 2011: 60).

After this very brief overview, it is not difficult to conclude that, in terms of reducing emissions, carbon markets do not work.¹³¹ Better still: there is a manifest short-circuit between the *environmental goal* and the *economical means* of carbon trading. In fact, although no ecological improvement has been made, a huge amount of value has been created and then transferred to fossil fuel-intensive companies through the production of what can be called *climate rent*. As Larry Lohmann aptly points out: “The fact that governments are both suppliers and regulators of emissions commodities has encouraged rampant rent-seeking and complicated allocation schemes that profit, rather than penalise, heavy polluters” (quoted in Reyes 2011: 6). Probably, rather than claiming that carbon trading does not work, it is better to argue for its environmental irrelevance; on the other hand, its economical impacts have been significant even if not consistent through time (frequent carbon price collapses have repeatedly undermined the markets' credibility even on their own terms). Borrowing Lohmann's brilliant paraphrasing of

¹³¹ Ironically, where the multilateral environmental policy failed, the global financial crisis succeeded: in 2009, Annex I CO₂ emissions decreased by 6.5% (although, not by chance, non Annex I emissions rose by 3.3%). As the latest International Energy Agency report states: “Energy consumption in 2009 was affected by the global financial crisis and some of the CO₂ emissions trends seen may be deceptive [...] In the medium term, Annex I CO₂ emissions are expected to rebound when economic conditions pick up” (IEA 2011: 8).

Foucault's famous statement about the prison system, it is possible to conclude that carbon trading “has always been offered as its own remedy: the reactivation of its techniques as the only means of overcoming its perpetual failure [...] the supposed failure is part of its functioning” (Foucault quoted in Lohmann 2011b: 102).

2 - CARBON COMMODITIES AS SECOND ORDER ABSTRACTIONS

The critiques we have briefly reviewed show the profoundly violent character of the carbon-related wave of new enclosures¹³² and provide the line of continuity between those and the old ones. It is now time to analyse in greater detail the historical novelty represented by carbon commodities, and specifically EUAs and CERs. As for the investigation conducted in the previous chapter, our main references – or, better: points of departure – are provided by a Marxist reading of the climate crisis and a Foucauldian approach to accounting (in our case, carbon accounting) as not merely a technical, supposedly faithful translation of physical entities into financial ones, but rather as a productive governmental *dispositif* whose implementation sets in motion a political constellation of meaningful practices. After having theoretically situated our reflection,

¹³² A report issued in 2009 by former UN secretary general Kofi Annan's Global Humanitarian Forum, entitled *The Anatomy of a Silent Crisis*, acknowledges that – due to a lack of effective policy response – “an estimated 325 million people are seriously affected by climate change every year. This estimate is derived by attributing a 40% proportion of the increase in the number of weather-related disasters from 1980 to the present to climate change and a 4 % proportion of the total seriously affected by environmental degradation based on negative health outcomes [...] Application of this proportion projects that *more than 300,000 die due to climate change every year* – roughly equivalent to having an Indian Ocean tsunami annually” (Global Humanitarian Forum quoted in Sharife and Bond 2012a: 1).

we will address three interrelated issues: a) the production of unprecedented use-values by means of a massive and constitutive mobilisation/exploitation of the general intellect, with specific regard to forestry as conceived of under REDD+ projects; b) the ambivalent, fluid and contested legal nature of EUAs, which make such commodities not only *actually existing* (as opposed to *fictitious*), but also particularly fitting to the neoliberal mantra of government through financial instability; c) the financial nature and knowledge-based character of CERs – in particular with regard to the issue of additionality – as well as their problematic but governmentally efficient interface with uncertainty as a crucial element of carbon trading.

A particularly relevant Marxist understanding of the climate crisis, and the mainstream solution to it – i.e. carbon markets – is provided by Patrick Bond's recent volume entitled *Politics of Climate Justice* (2012a). Bond makes explicit reference to David Harvey's theory of capitalist development centred around the pivotal notion of *crisis*. Elaborating on Marx's analysis, Harvey sees the tendency to over-accumulate until a critical threshold is crossed as the main character of capitalism as a mode of production. A capitalist crisis can be defined as “a condition in which *surplus* production and reinvestment are blocked. Growth then stops and there appears to be an excess over-accumulation of capital relative to the opportunities to use capital profitably” (Harvey 2010: 45). If growth does not rapidly recover, as it has clearly been the case with the recent financial meltdown, we witness both a significant devaluation of capital and diversified attempts to displace the crisis, to “move” it along spatial as well as temporal lines in the eventually impossible hope of seeing it disappear. The analysis of *spatial-fixes* and *temporal-fixes* as

displacement strategies has been carried out by Harvey three decades ago in his seminal *The Limits to Capital* (1982), but has been remarkably updated (Harvey 2003) to fit our neoliberal present through the addition of a third dislocation tactic, namely *accumulation by dispossession*. Such an expedient allows capital to impose its dominance over non-yet-capitalist terrains of social and natural life and to internalise them in its valorising mechanisms. In other words, accumulation by dispossession is a form of forced redistribution of wealth from the already poor to the already rich by means of the privatisation of the commons, financialisation of the entire economy, management and manipulation of crises in the interest of the private sector (e.g. Structural Adjustment Programs) and the implementation of savage cuts to social programmes and the welfare state (e.g. current spending reviews and austerity policies in the EU).

With specific regard to the neoliberal era, Harvey puts his tripartite scheme to work and explains how capital has been able to displace its over-accumulation crisis (rooted in the 1970s) through: a) a spatial dispersion of critical issues based on the process of *globalisation*; b) a temporal capacity to defuse social tensions by means of *financialisation*; c) a violent act of plunder and colonisation of “virgin” territories centred around accumulation by dispossession, which is to say a new form of *imperialism* (Harvey 2005). Patrick Bond names this three-fold displacement procedure as “shifting, stalling and stealing”, and proposes to critically address carbon trading from this perspective. As he argues:

Carbon markets offer useful vehicles for shifting, stalling and stealing, since from the standpoint of space, they move the challenge of emissions cuts to the South (hence preventing industrialisation). From the standpoint of time, they permit a financialised futures-market approach – no matter how fanciful – to the supposed

prevention of planet threatening climate change. And from the standpoint of accumulation by dispossession, by 'privatising the air' (through carving up the atmosphere to sell as carbon credits) the maintenance of an exploitative relationship between capital and non-capitalist spheres is also crucial (Bond 2012a: 74).

The practico-theoretical merits of Bond's analysis are multiple: first, it rightly frames carbon trading as a neoliberal attempt to manage the global warming crisis; second, it precisely locates its financial origins and provides insightful ground to assess the impending risk of a “subprime carbon shock” (Chan 2009: 3); third, it places a market-based solution to climate change in the context of the perennial, capital-induced power unbalance between the global North and the global South. Thus, to a significant degree, such an analysis should be considered valid and accurate. From our perspective, however, an important element of the contemporary circuits of valorisation is being overlooked. We refer to the location of exploitation only in the “relationship between capital and non-capitalist spheres”. According to Bond, the new commodities traded in carbon markets should be conceived of merely as new substance, extracted from non-(yet)-capitalist territories, for the immutable commodity-form, namely the very *locus* of capital as a social relation. Although, as we said, such a process is undoubtedly under way, we contend that it does not exhaust the complexity of the privatisation of the atmosphere. Rather, consistent with the hypothesis of nature as an element of valorisation, we argue that exploitation is directly at play in the very process of creating carbon commodities in a (partially) new form. Our goal is to show how the (potentially sclerotic) self-reflexivity of financial valorisation transposes the commodity frontier within itself and, in so doing,

make it *intensive* (second order abstraction) rather than *extensive* (first order abstraction). This means that the interplay between use-value and exchange-value can no longer be exclusively understood as a translation from “natural distinctness” to “economic equivalence” (Marx 1993: 141). On the contrary, a decisive element of carbon commodities as exchange-values resides in the *ex-ante* creation of capital-based use-values. In brief, we would like to supplement an analysis of carbon trading as a displacement strategy (mostly based on accumulation by dispossession) with an account of it structured on what Sandro Mezzadra (2012) has termed *accumulation by exploitation*.¹³³ From the perspective of a political critique of carbon trading, the notion of accumulation by exploitation is most fruitfully articulated by connecting it, on the one hand, to the mobilisation of the general intellect as the organising principle of contemporary common production and, on the other hand, to the self-reflexive creation of new use values *within* capitalist circuits of valorisation. Thus, we propose to refer to it as *accumulation by second order abstractions*.

In this context, one of the main theoretical premises of Bond's study, namely the reciprocal externality between neoliberal capital and the planetary climate, must be put into question and constructively problematised. In an important passage, the author writes:

If the Earth's atmosphere – specifically, climate and weather patterns that are viable for human life and capital accumulation – is considered to be an element of

¹³³ In his notable review of the Italian edition of a collection of David Harvey's essays (amongst them is *The Right to the City*, 2008), Mezzadra argues that in the most recent developments of Harvey's thought, albeit embryonically, a convergence between accumulation by dispossession and accumulation by exploitation might be detected.

'non-capitalist organisation', *as it should be*, then the commodification of the air itself, via the carbon markets, is a way for capital to accumulate on the one hand. Yet on the other hand, at the same time, it is a way for capital to contribute to the 'continuous and progressive disintegration' of a liveable climate, because as we again must point out, carbon markets are a false solution to the climate crisis (Bond 2012a: 71. Our emphasis).

Leaving aside the controversial issue of whether or not capitalism is, in the long run, compatible with life-sustaining atmospheric conditions,¹³⁴ are we really sure that climate and weather patterns should be considered as elements of non-capitalist organisation? At a first sight, this separation might appear as an indisputable matter of fact. At a closer look, however, such an issue proves to be all but trivial: as we anticipated following the lines of research traced by Paul Edwards, the linkage between extreme weather events and global warming is *not* immediate. For such a correlation to make sense – which is to say, to be open to scientific investigation as well as governmental management – the filter-function performed by differentiated knowledge infrastructures is decisive and unavoidable. As we will argue in more detail with regard to forestry and REDD+ projects, *the use-value of carbon commodities* – namely the primal hold on which their exchange-value develops its indifference – *is not natural*. In other words, in the context of carbon trading the Marxian relationship between “natural distinctness” and “economic equivalence” has to be rethought in light of the tremendous mobilisation of the general intellect which is incorporated in the knowledge infrastructures and, as such, it implies what we have called in the previous chapter an *abstraction leap*. Ingmar Lippert

¹³⁴ We shall return to this issue in the Conclusion.

compellingly proposes the term *extended carbon cognition* to refer to the multifarious assemblages of heterogeneous entities which constitute the contested notion of GHG emissions; as he states, “carbon emissions came into existence through a socio-technical network [...] based on a cultural setting that configured humans and non-humans in a specific [corporate-driven] way” (2011: 7). Let us note, in passing, that such a putting to work of the general intellect is never neutral: on the contrary, it is always marked by *exploitation as impression*. Otherwise stated, money (exchange-value) does no longer act as the (first order) abstract counterpart of a putative external nature (use-value); rather, money becomes the unsurpassable limit, as well as the original seal, of the knowledge-based process by means of which new use-values are created to conform to neoliberal capital's needs (hence the characterisation of carbon commodities as second order abstractions). This underlying tension between the moment of *informational heterogeneity* (differentiated knowledge-sources organised by the general intellect) and the moment of *monetary equivalence* (situated both at the beginning of the process – capital's need to self-valorise – and at the end of the process – realisation through verification) is at the very heart of the act of governing through financial instability. We must stress once more that the problem it represents is entirely political: the argument according to which carbon trading can be improved by means of creating more and better information hides the bare fact that knowledge production is today the very battlefield upon which the antagonism between capital and labour (in the form of the general intellect) takes place.¹³⁵ As a consequence, “more and better information” means nothing

¹³⁵ Since *repetita juvant*, let us stress once again that this argument is context-specific and grounds its (obviously disputable) validity on its application to the case of carbon trading. Extending this argument to

else than a temporary outcome of the struggle: capital is winning. However, such an outcome, as we shall see in the next chapter – dedicated to climate justice movements – is far from being secured once and for all. The instability-induced crises are in fact proliferating at an unprecedented pace and carbon markets become progressively problematic even on their own terms.

As we highlighted in the previous chapter, these new features of exploitation do not occur in a political vacuum but, rather, in the stratified context of a governmentality whose best definition is, following Foucault, neoliberal rationality. Against this background, it is possible to propose an analysis of carbon accounting as a specific governmental *dispositif* which, by theoretically designing and politically implementing a regime of truth based on market competitiveness, translates the *visibility* of the climate crisis (which progressively arose as a by-product of the liberal phase of governmentality) into its *manageability* (which is the main character of the contemporary, neoliberal phase of governmentality). This analytical framework allows us to overcome a long-standing bias of the Marxist tradition which, according to Larry Lohmann, while stressing “the priority of exchange to commensuration, has perhaps neglected exploring the ways categories created by new commensurations help make possible new forms of exploitation and value” (2009: 502). Carbon accounting, in fact, represents a fundamental element of the climate-related form

contemporary global production as a whole would require an immensely more complex analysis than the one provided here.

of financial government of the general intellect through the production of a perpetual state of instability. Capitalist valorisation/exploitation and governmental management are but two sides of the same coin and, in the context of global warming as a planetary crisis, carbon accounting embodies their entanglements through the production – via political categorisation and non-neutral establishment of comparability – of notably *governable objects* (tCO₂e, EUAs, CERs, etc.) as well as eminently *governable subjects* (green consumers, carbon neutral corporations, carbon traders, etc.).

Referring to the governmental role of accounting practices in general, the Foucauldian-inspired field of *governmentality studies*¹³⁶ has produced a series of important inquiries, which are of great relevance for our purposes.¹³⁷ In general terms, such inquiries aim at showing and unpacking the complex link between governmental practices and calculative infrastructures: by rendering numerically comparable what is essentially incomparable – for example in the form of a single financial figure which contains and enacts irreducible kinds or classes of different entities – accounting assembles into one category the multifarious heterogeneity of the world and, as such, configures itself as profoundly political. To qualify such a process, Neil Fliegstein has aptly advanced the label of “politics of quantification” (1998). Moreover, as proposed by Stephen Collier, accounting could be located in the list of *topologies of power*, namely “patterns of correlation in which heterogeneous elements – techniques, material forms, institutional structures and technologies of power – are configured and transformed”

¹³⁶ Four important volumes, amongst many, belonging to this tradition are: Burchell, Gordon and Miller (1991); Barry, Osborne and Rose (1996); Dean (1999); Miller and Rose (2008). For a critical discussion of this general topic, see Ciccarelli (2008).

¹³⁷ For a meritorious critical review, see Mennicken and Miller (2012).

(2009: 78). In a similar vein, Nikolas Rose has emphasised the performative function of numerical production:

Numbers do not merely inscribe a pre-existing reality. They constitute it [...] The collection and aggregation of numbers participate in the fabrication of a 'clearing' within which thought and action can occur. Numbers here help to delineate 'irreal spaces' for the operation of government, and to make them out by a grid of norms allowing evaluation and judgement (Rose 1999: 212).

In short, calculability enacts governmentality but, at the same time, governmentality provides the numbers which compose calculability with their context-specific meanings. The link between these two aspects is constitutive and ineluctable. This does not mean, however, that such a relationship can be configured a-historically. On the contrary, accounting as a politically invested social practice has performed more than one function. In the Fordist epoch, for example, accounting played a disciplinary role both by reinforcing the principles of scientific management and by forcing workers' subjectivities to conform to the rhythms of the factory system (Lambert and Pezet 2012). In carbon accounting, however, such a disciplinary feature is coupled with a more proactive function aimed at literally shaping the climate crisis in such a way that it (putatively) suits competitive markets. In other words, carbon accounting simultaneously activates *and* is framed by the neoliberal regime of truth which conceives of the environment (in this case, the climate) as an element of the process of valorisation to be inserted as smoothly as possible within the mechanisms of profit-making. In the context of potentially catastrophic global warming, such a regime of truth, which finds in the market its principle of veridiction, gives rise to a dogmatic equation – as indisputable as it is

undemonstrable at the empirical level – that, elaborating on the recent work of Larry Lohmann (2011c), we might define as follows:

$$\textit{climatic stability} = \textit{reductions in CO2 emissions} = \textit{carbon trading} = \textit{sustainable} \\ \textit{economic growth}$$

The cogency of this dogma is demonstrated not only by the insistence with which the UNFCCC has invested in carbon markets notwithstanding their irrelevant – if not negative – ecological impacts, but also by the increasing difficulties encountered by market actors in justifying the narratives of green economy and sustainable growth. For instance, commenting on some interviews with carbon trading participants collected at Carbon Expo 2010 (the “Global Carbon Market Fair & Conference”), Philippe Descheneau and Matthew Paterson conclude that the tension between increasing economic profits and non-existent emissions reductions can be expected to “play a role in how carbon actors construct markets on a daily basis. There are limits to the *cognitive dissonance* which would be produced by entirely ignoring the goal of emissions reductions while constantly telling a story about such reductions” (2011: 676. Our emphasis).¹³⁸ On a more technical level, this *carbon trading dogma* is enacted by three

¹³⁸ This cognitive dissonance is, we believe, particularly compelling when analysed in the framework of exploitation through impression. In fact, the incitement to a very specific kind of freedom (or self-government, or autonomy) which is from the outset bound to its eventual translatability into the grammar of money, should be assumed to act as a multiplier of frictions between the potential infinity of autonomous practices (heterogeneity) and the exclusionary nature of the only possible outcome (money-making).

supports: *informational* (production of market-based carbon knowledge)¹³⁹; *legal* (enforcement of a regulation framework aimed at implementing government through instability)¹⁴⁰; *calculative/promissory* (de-politicisation of the future by means of its market-led prefiguration).¹⁴¹

To further substantiate this theoretical argument, it might be useful to refer to an important article recently published by Francisco Ascuri and Heather Lovell, titled “As Frames Collide: Making Sense of Carbon Accounting” (2011). The starting point of the authors is compelling: carbon accounting is shown in its different meanings to different subjects. For example, to scientists carbon accounting refers to the practice of making experiment-proof measurements of GHG emissions; to governmental negotiators, it is linked to the set of rules that establishes comparability between emissions and removals as reported with commitments at the national level; to CDM practitioners, it implies “the measurement of reductions in emissions relative to a hypothetical baseline, and other processes associated with the subsequent creation of a new tradable commodity: a carbon credit” (2011: 978); to the International Accounting Standards Board, “it concerns the accounting of tradable emissions rights and obligations arising under emissions trading schemes” (*Ivi*: 979); finally, to corporations involved in reporting to various disclosure programs (such as the Carbon Disclosure Project¹⁴² or the Climate Registry), it requires

¹³⁹ See section 2.2 below.

¹⁴⁰ See section 2.3 below.

¹⁴¹ See section 2.4 below.

¹⁴² The Carbon Disclosure Project was introduced in 2002 (guided by the telling aphorism: “what gets measured can be managed”) and has since then proven to be fairly effective in mobilising institutional investors: by 2008, the CDP was backed by US \$57 trillion worth of assets from over 3000 financial institutions (Newell and Paterson 2010). Its greater achievement, however, is that it showed with extreme

numerical quantification and ensuing publication of GHG emissions for which companies may accept varying degrees of responsibility. Notwithstanding the multilayered complexity of carbon accounting, Ascui and Lovell also provide an excellent general definition of it (Figure 3).

Figure 1. Source: Ascui and Lovell (2011: 980).

Estimation			Emissions to the atmosphere		Global			Research
Calculation			Removals from the atmosphere		National			Compliance
Measurement		Carbon	Emissions Rights		Sub-national			Reporting
Monitoring			Emissions Obligation		Regional			Disclosure
Reporting		Carbon dioxide	Emissions Reductions		Organisational		Mandatory	Benchmarking
Validation	of		Legal or financial instruments linked to the above	at	Corporate	level,		Auditing
			Trades/transactions of any of the above		Project	for		Information
			Impacts on climate change		Installation		Voluntary	
		GHGs			Event			
					Production			
					Supply chain			

clarity the elevation of climate change as a critical shareholder value issue for investors, hence its elective affinity with financial markets.

Verification			Impacts from climate change					Marketing
Auditing								or other

For our purposes, this overview of the internal articulations of the notion of carbon accounting is crucial since it sheds analytical light on the heterogeneous assemblages produced by the general intellect in its diverse forms. What emerges from this examination of the various meanings of carbon accounting is a shared need to produce *information as measure*, coupled with a necessity to find multiple sources for it.

Although the authors claim that increasing harmonisation amongst divergent perspectives would amount to a general improvement in accounting practices,¹⁴³ we find Donald MacKenzie's take on the issue to be more convincing: "The most detailed rulebook will on its own be insufficient to determine the practice of bookkeeping and accounting" (MacKenzie 2009a: 120). Similarly, Larry Lohmann underlines how "full cost accounting is an ever-receding mirage" (Lohmann 2009: 502). This constitutive incompleteness is all the more understandable when situated within the hypothesis according to which carbon accounting is a governmental *dispositif* aimed at enabling government through instability. In fact, Dimitar Zvezdov has accurately indicated that "accountants need to be involved

¹⁴³ "Unacknowledged and unresolved tensions in carbon accounting can undermine confidence in climate science, policies, markets and reporting, thereby ultimately discouraging action to mitigate climate change: making sense of carbon accounting presents an opportunity to make a positive contribution to find practical solutions" (2011: 991).

in corporate sustainability accounting” not so much because of their professional expertise – no matter how masterful that might be – but rather because of their privileged position as “information gatekeepers” (2011: 601).

In other words, it is not the ability to translate physical knowledge into financial reporting that counts the most; on the contrary, it is the possibility of accountants to be exposed to multiple sources of carbon-related information that makes their contributions relevant to companies. Actually, the knowledge filter-function proves to be fundamental, especially since the crucial task involved in creating value out of knowledge is *selection* rather than *further production*. Once again, however, we have to stress the political nature of such a selective process: deciding which knowledge agencies are to be considered truth-producers – and about what – is one of the main contemporary features of exploitative capitalist command. Keeping this point in mind, the issue of knowledge selection is neatly captured by the notion of *valorimeters* advanced by Koray Çalişkan and Michel Callon:

We suggest the term 'valorimeters' to denote the various tools, procedures, machines, instruments or, more generally, devices effecting this controversial translation of values into figures and, more precisely, into monetary amounts. Calculative agencies which are able to achieve the imposition of their valorimeters, that is, their numeric calculation tools and algorithms, with their calculatory modes have a good chance of simultaneously being able to impose prices that those tools make it possible to calculate; they become positioned to transform their own valuation into an obligatory passage point and can spread the definitions of value that are more closely aligned with their interests (Çalişkan and Callon 2010: 17).

Moreover, Ascui and Lovell article is of great interest to us for another reason: originally drawing on Callon's methodology of framing and overflowing (1998), the authors argue that the contemporary debate on carbon accounting can be seen as a collision of five different frames: *physical* (measurement, estimation and calculation of chemical and geological attributions of GHG flows through the biophysical environment); *political* (national, hybrid units of measure – which are neither purely political nor plainly scientific – as embodied by the work of the IPCC); *market-enabling* (quantification and commensuration of intangible entities such as GHG emission permits/credits in order to turn them into new commodities); *financial* (establishment of economic-driven comparability in order to inscribe new liabilities, assets and value flows into corporate bookkeeping); *social/environmental* (creating assessable carbon for corporate reporting and disclosure, for example through product life cycle analysis [LCA]).

Ascui and Lovell's analysis of the collision between these frames is grounded on a historical understanding that assumes the first three categories (physical, political and market-enabling carbon accounting) as flatly successive since relevant literatures about them appeared in chronological sequence. Therefore, physical investigations dating back to Arrhenius would have provided the raw material for political considerations emerged in the 1990s, which in turn would represent the basis for a market-enabling approach to be developed and implemented in the 2000s. Finally, after carbon trading was established as a functioning system, both financial concerns and socio-environmental issues could be internalised in the realm of carbon accounting. From a simply chronological perspective, this linear trajectory appears to be natural as well as indisputable: as a first step we find science and a close-to-perfection adequacy of real entities to objects of thought; then, as

soon as the matter enters the political arena, things get complicated and require value-based judgements, which compete to impose their interpretations of facts; finally, once a solution has been agreed upon (carbon trading as climate saviour), interpretations multiply and prescriptions about which economic tool is the more suitable collide, creating wide debates about operational implementation.

However, from the standpoint of a critical genealogy based on biopolitics as method, such a representation incurs a number of shortcomings. Firstly, physical accounting itself should not be considered as unproblematically objective: authoritative scholarship has by now come to the fairly common conclusion that Western science is but one way – absolutely not “innocent” – of making sense of the natural environment (Jonas 1974). Furthermore, what is central to a genealogical exploration is not so much the actual contents of knowledge, but rather the governmental rationality that sets them in motion. As a consequence, while it is true that “with the exception of financial carbon accounting, all of the other framings look to physical carbon accounting for fundamental principles” (Ascui and Lovell 2011: 984), it is false that those principles are enacted in a politically homogeneous manner.

What the authors fail to recognise is the shift from liberal capitalism to neoliberal capitalism, and especially the new way nature is subsumed under valorisation. Thus, the point of view of a critical genealogy of carbon accounting completely reverses the chronological line of succession: it is the need to turn the climate crisis into a profitable opportunity for business which drives the political elite to assess the issue from a market-

led perspective, which in turn mobilises pre-existing knowledge to suit its purposes.¹⁴⁴ Such a “recuperation” is not a mere act of “bringing back”: to make “old” science convenient for “new” needs a multiplication of knowledge-based activity must take place. In fact, *the creation of physical carbon information is not a neutral, context-less process*. As Ingmar Lippert has warned with regard to the Environmental Management System (EMS)¹⁴⁵, the classificatory practices which underlie carbon accounting should be addressed suspiciously: information is in itself a procedure prone to political selection. Appropriately, Lippert notes: “in the process of information being classified, some parts of the original set of data are disregarded and not made transparent”. Moreover, as he continues: “If we zoom into a category and question the relations stabilising its inside we are confronted with ontological politics. It is a politics about what kind of carbon is constructed and, eventually, emitted into social and economic reality” (Lippert 2012: 139). This is why carbon accounting is intrinsically hybrid: within its borders, physics and atmospheric chemistry melt into politics and social science fired by the meta-framing provided by *market competitiveness*.

Thus, carbon commodities – as (partially) produced by carbon accounting – can be understood as a specifically *governable objects*: their production is performed by the exploitation of the general intellect as governed by the valorising self-reflexivity typical of neoliberal financial markets. This *knowledge-based productivity* which fundamentally

¹⁴⁴ Larry Lohmann seems to be perfectly aware of this genealogical inversion when he writes: “The requirements of commodity creation – accounting, ownership, the possibility of capital accumulation – lead to the framing of the climate problem, and ‘climate services’, in terms of flows of molecules, especially of CO₂ molecules” (2011b: 91).

¹⁴⁵ EMS is “an organisational structure which supposedly helps the organisation to move onto a trajectory of change towards incremental greening” (Lippert 2012: 144).

shapes carbon commodities is recognised by Ascui and Lovell, despite their disputable genealogical reconstruction as well as the lack of an in-depth analysis of exploitative practices occurring in this specific kind of innovative activity. In fact, the following quote nicely captures the essential and extensive mobilisation of the general intellect as the material base of carbon commodities production:

Carbon has been difficult to classify in part because accountants and accounting standard-setters lack a full appreciation of the 'production process' of carbon credits: the science, politics and market-enabling rules involved in turning greenhouse gas emissions, and emissions reductions, into tradable commodities. A lack of knowledge and experience can be expected to reduce over time, but a more fundamental challenge is the way in which types of knowledge and information are framed by accountants as relevant to their decision-making (Ascui and Lovell 2011: 988-989).

Before delving in a more detailed way into the three operational supports of the carbon trading dogma, let us briefly consider the processes of shaping subjectivity which are disclosed by the marketisation of the climate crisis (Leonardi 2010b). Actually, it is from this standpoint that exploitation through impression, conceived of as a biopolitical *dispositif* aimed at selecting subjective trajectories potentially functional to capitalist valorisation, reveals itself in the clearest manner. A first form of exploitative production of *climate subjectivity* is provided by green consumerism, which is to say the translation at the level of individuals of a global crisis. Patiently constructed by marketing agencies (Grant 2007) to be coupled to the distorted idea of climate change being solvable through isolated, personal purchasing models, green consumerism represents nowadays a reliable market sector known as LOHAS (Lifestyles of Health and Sustainability), estimated

globally at US \$500 billion and covering almost 20% of the population in OECD countries (Ross 2011). Interestingly, calculability and classificatory practices are also fundamental in enacting this market-led relationship to global warming. As Andrew Ross brilliantly states:

The most everyday manifestation of this new [climate related] calculus is the growing habit of assessing the carbon footprint of every product and every personal movement, including acts of labour. Indeed, quantifying the world's energy throughput on the micro-level of personal conduct is becoming a pseudo-political obsession. In some ways, it is a perverse spin on the statistical tyranny of the GDP, reducing our actions and our use of material things to a data-set, the outcome of which is a moral assessment of our thermodynamic performance. Carbon-Neutral Man is the goal, a model of ascetic behaviour that is the obverse of the wasteful hyper-consumer (Ross 2011: 21).

Another fitting example of a way of channelling the amount of liberty necessarily granted to the general intellect towards the marketisation of carbon – let us not forget that, as the notion of impression entails, “freedom in the marketplace” invariably implies elaborate practices of governmental management and self-monitoring – is provided by the mobilisation of carbon traders' desires.

Descheneau and Paterson, in their analysis of Carbon Expo 2010, emphasise the significant role of practitioners' affects and cultural values in making and sustaining carbon markets. At the heart of those processes, the authors detect a subjective orientation “which is not simply motivated by calculations of profit and risk, but is mobilised by a sort of liminal energy channelling through the boosters of these markets. It is definitely the 'romance, not the finance', which makes carbon markets go round” (2011: 667). It

must be highlighted that the modalities through which such genuine ecological enthusiasm is impressed by competitive markets are central to the production of value proper to carbon trading. For example, notwithstanding a certain anxiety due to the growing recognition that carbon markets' environmental performance is dramatically poor, the mantra of simultaneous environmental beneficence and commercial promise of carbon trading is compulsively repeated in the process of *network creation* which is fundamental to put different actors, techniques and products together so that value gets manufactured in various ways. Moreover, significant is the cynicism through which such enthusiastic environmentalists tap into a certain sense of general public's *guilt* about carbon emissions to channel it towards new, profitable visions of “healthy consumption” (e.g. Low-carbon diet), which are motivated by an extreme precision of calculation (carbon and carbs) and a profound level of self-control based on a market-framed interrelation between desire, debt, denial and “treat” (Harrington 2008).¹⁴⁶

There are several other examples of *individual subjectivity* formation through a market-driven interiorisation of the climate crisis – practices which articulate individuals as agents managing their own carbon behaviours in relation to a complex global goal of minimising climate change: Carbon Rationing Action Groups (CRAGS), schemes based on Personal Carbon Allowances – but it is crucial not to forget that the creation of eminently *governable subjects* does not concern exclusively, and probably not even primarily, individuals. Rather, such creation heavily impacts the collective spheres in all

¹⁴⁶ There are clearly many similarities between this sense of guilt about carbon emissions and the European Union elites' attempt to represent the debt crisis as caused by dissipative and senseless credit-induced lifestyles on the part of the lower classes. The passive interiorisation or active refusal of such *debt guilt* is today a fundamental political stake in European crisis management practices (and, of course, for the forces which oppose them). For an excellent analysis of this issue, see Dominijanni and Marazzi (2012).

of its forms: at a corporate level, through the progressive “greening” of Corporate Social Responsibility; at a state level, by means of the multiplication of ecological educational campaigns and governmental reforms aimed at sharpening environmental performances; finally, on a civil society dimension, we witness an expansion of large environmentalist NGOs (such as Greenpeace, the WWF, or 350.org) to the point in which global climate policy includes them as fundamental actors.¹⁴⁷ Therefore, as Matthew Paterson and Johannes Strippel correctly remark, this peculiar kind of *climate governmentality* – that entails a sort of “conduct of carbon conduct”, to elaborate on a famous Foucauldian phrasing – “is enabled through calculative practices that simultaneously totalise (aggregating social practices, overall GHGs emissions) and individualise (producing reflexive subjects actively managing their GHGs practices)” (2010: 359).¹⁴⁸

3 - USE-VALUE LOSS OF INNOCENCE: THE THREE SUPPORTS OF CARBON TRADING DOGMA

In an extremely thought-provoking article published in 2008 and titled “Accumulation By Decarbonisation and the Governance of Carbon Offsets”, Adam Bumpus and Diana

¹⁴⁷ This is, once again, an ambivalent process: on the one hand, it is a positive development that parts of civil society are involved in global policy making. On the other hand, however, their involvement is to a great extent due to their being impressed by capital. As Larry Lohmann pointedly note: “350.org embodies the CO2 fetish in its very name, referring to '350 parts per million' atmospheric concentration of CO2 target” (2011b: 106).

¹⁴⁸ Interestingly, Paterson and Strippel propose to approach climate governmentality through the metaphor of Myspace “because of the similarities between the sorts of communicative rationality involved in carbon markets and software like My Space or Facebook” (2010: 343).

Liverman provide insightful ground to theoretically establish a fruitful convergence between the notions of accumulation by dispossession and accumulation by second order abstractions. The authors coined the term accumulation by decarbonisation to show how capital's accumulation in the context of climate governance is based both on violent episodes of evictions and colonialism and on the unprecedented – albeit problematic – creation of considerable opportunities to reduce concentrations of GHGs, to foster sustainable development through carbon offsets and to make profit out of emission trading. Whereas the reference to the analytical tool articulated by David Harvey is explicit – “the international climate regime may be seen to follow the pattern of accumulation by dispossession” (142) – the creative side of carbon trading is frequently evoked but eventually left rather undertheorised. Consider for instance the following passage:

The institutions that govern carbon reductions (from market structuring to creating material projects to the marketing and selling of reductions) *define* the value placed on a tonne of carbon [equivalent] that is reduced. However, in this case the economic value of the environment is not simply for the resources it provides, but for the protection of the biosphere through a reduction of the *risk* of climate change as a whole. This broader implication *reworks* the value of an environmental resource that contributes to wider environmental protection (Bumpus and Liverman 2008: 147. Our emphases).

The emphases we added are intended to show how the authors are aware of crucial issues such as classificatory practices, constitutive uncertainty/instability in governing the climate and production of new values out of the environment. However, this awareness does not amount to a full clarification about how exactly does accumulation by second

order abstractions take place in the realm of carbon trading. We suggest to approach such an issue from the perspective of the continuing unfolding of the tension between exchange-value and use-value in carbon markets. As it is widely recognised in climate governance scholarship, this tension appears to be quite distinct from its traditional shape. For instance, Adam Bumpus states:

Carbon offsets have some very specific attributes associated with their commodification that contrast them to commodification in other 'natures'. The most important of which is that, in contrast to commodifying a unit of nature in order to govern its existence, like timber, carbon offsets create a commodity and value out of a piece of nature – carbon dioxide in the atmosphere – that, if achieved properly, *does not exist* (Bumpus 2011: 616).

Similarly, Descheneau and Paterson locate the difference between Carbon Expo and other momentous market fairs in the irreducible non-comparability between the products being sold:

While new products such as the iPad are clearly hyped enormously, the hype has some relationship to the (purported) use-value of the object. By contrast, *the products in the carbon market have no use-value*. The tonne of carbon refers to a tangible unit of measure, but demands for the right to emit it arise purely out of government regulatory activity. The tonne of carbon has thus to be abstracted to something more tangible for market actors, i.e. financial or monetary products. Thus, what is being sold is not the tonne per se but rather the financial or discursive representations of it (Descheneau and Paterson 2011: 667-668. Our emphasis).

On their part, Tamra Gilbertson and Oscar Reyes elaborates on this problematic by referring to the arbitrariness of carbon pricing: “The commodity traded as 'carbon' does not actually exist outside the numbers flashed up on trading schemes or the registries held by administrators [...] This makes putting a price on carbon largely an arbitrary exercise” (2009: 12-13). Analogously, the TransNational Institute's Carbon Trade Watch remarks: “These [carbon trading's] failings are not caused by teething problems, but are symptomatic of the extreme difficulties of assessing the value of 'carbon', which is a commodity which bears little relation to any single real world object” (quoted in Sharife and Bond 2012a: 15).

The global picture that emerges from these quotations is a rather confused one: on what basis can we make sense of a use-value that would be, successively, contained in its own future non-existence, defined by its absence, composed by numerical calculations and resembling an *unreal* world object? A promising line of research is provided by conceiving of carbon commodities' use-value as *information*. As such, this kind of use-value transcends (while still maintaining a relationship with it) the interplay between “natural distinctness” and “economic equivalence” as reciprocally indifferent. In fact, what makes carbon information useful? To answer this question we need to connect the production of relevant carbon information to the carbon trading dogma which links climate stability to market creation by means of a financial government through instability. Against this background, *carbon commodities' use-value is nothing else than the dogmatic assumption according to which climate markets will make the transition to a low carbon society more cost-effective than any other political strategy*. If this is true, if carbon information possesses a use-value only in so far as it conforms to the carbon

trading dogma, then we cannot assume it as “naturally distinct” by its exchange-value. The regime of truth that affirms the manageability of the climate crisis only by means of (allegedly) competitive financial markets ends up establishing a paradoxical *self-indifference* between a use-value which originates directly from capitalist circuits of valorisation and an exchange-value whose status is irremediably split: on the one hand, to perform its monetary function, it must be indifferent to its use-value; on the other hand, however, it receives its very meaning by the same regime of truth which created its use-value, making the two aspects indissociable. On the top of the *extensive* tension between “natural distinctness” and “economic equivalence” (which is still active, albeit not exclusively: after all, a tonne of carbon dioxide *exists* beyond carbon information), it occurs an *intensive* division within the field of “economic equivalence” in a way that perfectly mirrors the self-reflexivity typical of finance as a mode of capital accumulation. Thus, from the perspective of carbon trading, the most significant process of valorisation takes place in the internal stratification of carbon as a commodity: in order for value to be created, various sources of collective knowledge must be put to work so that a permanent state of uncertainty allows climate markets to re-instate their indisputable sovereignty over the management of global warming even in front of their blatant environmental failure.¹⁴⁹ To conclude this elaboration, we find it useful to refer to a compelling analysis proposed by Jerome Whittington, which perfectly expresses what we mean by carbon commodities as second order abstractions:

¹⁴⁹ In passing, let us note that the elective affinity between financial and ecological crisis finds in the *use-value loss of innocence* a fundamental point of articulation.

'Carbon' is not a physical commodity even if it includes certain physical parameters. 'It' is an assemblage of agreements, conventional practices, durable artifacts and rules held among people who operate in very different contexts around the world. Permits are a system of monetised rights. Credits or offsets are a quantified, incentivised change in behaviour. Both take their literalised form as data entries in online government registries. Understanding the contingencies of the assemblage is central to understanding the uncertainties at the core of the market [...] The clearest demonstration that carbon dioxide is not a physical commodity is that lots of different GHGs are traded as equivalent based on units of 'carbon dioxide equivalence' (CO₂e), expressed in tons, which is actually an equilibration of the gases' effect on the warming of the atmosphere. *It is the gases' warming effect that has value*, whether operationalised as a permit or a reduction (Whittington 2012: 118-119. Our emphasis).

Whittington formulation is relevant to us since it clearly points out that it is not measurement through tonnes of molecules of CO₂ (e.g. "physical" accounting) which engages in valorisation, but rather its subordination to other scientific standards, whose uncertain nature is broadly acknowledged by both scientists and traders. For example, as Donald MacKenzie (2009b) has prominently unveiled, the notion of Global Warming Potential (GWP) – which governs the "equilibration of the gases' effect on the warming of the atmosphere" – firstly sprung up as contested within the IPCC and, secondly, has been scientifically modified but kept politically stable. Similarly, the individuation of a *maximal* quantity of CO₂ emissions to be released in the atmosphere ultimately rests on the establishment of a stable threshold-figure which has been known as climatic carrying

capacity (or climate-cycling capacity).¹⁵⁰ As Nathan Sayre has convincingly shown, however, the very concept of carrying capacity is extremely problematic and reluctant to be contained in a well-defined set of borders: “If carrying capacity is conceived as static, it is theoretically elegant but empirically vacuous; but if it is conceived as variable, it is theoretically incoherent or at best question-begging” (2008: 131). As we see, what represents a fundamental element of carbon valorisation is not so much the content of singular knowledge-procedures, but rather the internally stratified mobilisation of the general intellect. The aim of such a mobilisation, in neoliberal capitalism, is to produce commodities which fit a competitiveness-driven world.¹⁵¹ This is why, on the one hand, financial markets and carbon markets are structurally identical¹⁵² and, on the other hand, those latter cannot but constantly manifest a sclerotic short-circuit between the *environmental rationale* which initially fostered them (reduction of GHGs emissions to slow down global warming) and the *economic rationale* which assumed and imposed that only profit-oriented activity could efficiently reach that ecologic goal.¹⁵³

¹⁵⁰ The same process of assuming the stability of climatic carrying capacity also refers to any attempt (often endorsed by large NGOs) to establish an *optimal* quantity of CO₂ emissions levels.

¹⁵¹ Here we can appreciate the discrepancy between the *power* of the general intellect as a productive force and the *corruption* which is forced upon it by the finality of production being entirely subsumed and impressed by the market logic. We will analyse in more detail this issue – with specific regard to the ways out to this discrepancy created by resistance practices – in the next chapter.

¹⁵² As Arthur Mol precisely articulates: “Abstract carbon markets increasingly become subject to and partly dominated by instruments, practices and products of creative investors, banks, traders, brokers, and speculators who see the GHG emission rights and offsets just as financial products, as a means of profit making. Thus we see a further diversification and specialisation in carbon market networks, where specific actors become expert in specific market actions. In the EU ETS, for instance, manufacturers with carbon emissions have hardly been involved in trading yet, whereas energy generators and financial institutions have been quick to set up carbon trading departments in their companies and developed strategies to increase profits by commodity price differences in spot and future markets” (2012: 18).

¹⁵³ As Larry Lohmann effectively expresses: “A commodity approach abstracts from where, how, when and by whom the cuts are made, disembedding climate solutions from history and technology and re-embedding them in neoclassical economic theory, trade treaties, property laws, risk management and so

3.1 - Carbon forestry, or: the informational support of carbon trading dogma

In order to more precisely specify what we have termed *use-value loss of innocence*, we will use forestry – and, in the context of REDD+ projects, carbon forestry – as an example to articulate our analytical toolbox. Within a capitalist economic horizon, forests can be generally said to possess three use-values: communal sustenance, raw material for industry (especially constructions and paper production) and recreational attractiveness. In classical Marxist terms, as we have seen in the previous chapter, forests' exchange value is a product of the double movement of enclosures and labour as real abstraction: communal sustenance (tendentially) disappears under the violence of private property,¹⁵⁴

forth. For example, carbon trading gives emissions-reduction technologies that are likely to result in unquantifiable but important 'spillovers' leading to radically-lessened long-term dependence on fossil fuel equal weight with technologies lacking such effects, as long as both achieve the same numerical emissions reduction over the short term in a particular locality. While carbon trading encourages ingenuity in inventing measurable 'equivalences' between emissions of different types in different places, it does not select for innovations that can initiate or sustain a historical trajectory away from fossil fuels (the effectiveness of which is less easy to measure). Indeed, once the carbon commodity has been defined, merely to weigh different long-range social and technological trajectories or evaluate and 'back-cast' from distant goals is to threaten the market-efficiency imperative” (2010a: 81).

¹⁵⁴ The young Marx, commenting in 1842 on a proposal to make the law prohibiting collection of wood even more stringent, writes in the *Rheinische Zeitung*: “If the law applies the term theft to an action that is scarcely even a violation of forest regulations, then the law *lies*, and the poor are sacrificed to a legal lie [...] The Assembly [Rhenish parliament] repudiates the difference between gathering fallen wood, infringement of forest regulations, and theft of wood. It repudiates the difference between these actions, refusing to regard it as determining the character of the action, when it is a question of the interests of the infringers of forest regulation but it recognises this difference when it a question of the interests of the forest owners” (1975: 227-228).

industrial wood becomes a standardised, fungible and mobile commodity¹⁵⁵ to be exchanged on the basis of the quantity of labour time embodied in its production, forest landscapes and wilderness are turned into touristic objects, until recently an almost exclusive bourgeois prerogative as a sign class of distinction. In the first case we see forestry in its irreducible “natural distinctness”, whereas in the second case we have the results of the process of commodification, namely forestry as “economic equivalence”. As Marx repeatedly asserted, the capitalist mode of production establishes a relationship of mutual indifference between use-value and exchange-value: only the latter counts as crystallisation of abstract labour time, while the singular properties of the former are economically disregarded. In other words, capital does not create forests' use-values; on the contrary, it builds upon them an exchange-value produced by means of its mechanisms of abstract valorisation.

Obviously, the actual modality of this transition from “natural distinctness” to “economic equivalence” greatly varies according to spatial and temporal contexts. Moreover, it is highly influenced by class struggle since this directly determines the social means by which surplus-value is distributed. This point can be better articulated by assuming the recent developments of forest-management in the Canadian province of British Columbia (BC) as a reference point. In the mid-1930s, as Michael Ekers (2008) minutely reports, a variety of forestry projects were pursued by governments (both at the federal and the

¹⁵⁵ Larry Lohmann qualifies wood as a commodity in a very useful way: “Modern wood product manufacture tends to rely on ‘framing’ large tracts of land for maximum, relatively short-term, commercial production of uniform timber or pulpwood. Land is surveyed, examples of desirable species tagged, their ‘fit’ with existing machinery assessed, and return per hectare of various types estimated. Stands are thinned and biodiversity and human habitation that is ‘extraneous’ to the varieties selected is reduced or eliminated. Ultimately, serried, factory-friendly monocrops of species can be planted” (2010b: 235).

provincial level) and businesses to modernise the forest industry. In an attempt to make the transition from use-value to exchange-value smoother and faster (in Marxist terminology: increasing the relevance of relative surplus-value with regard to absolute surplus-value, which is to say augmenting labour productivity), those projects “improved communications and transportation networks”, fostered “reforestation as well as intensive wood production”, and envisaged a refined, “broad multi-use forestry policy targeted at the burgeoning tourist industry” (2008: 310). Moreover, Ekers' most recent research (2012) insightfully proposes to jointly assess the issues of unemployment, relief camps and production of forestscape in Depression-era BC as important elements to understand the future development of Canadian forestry.

In the post-WWII period, forestry became a crucial element of BC context-specific declination of the Fordist compromise between social classes. In a fascinating article, Scott Prudham (2007) cleverly links the emergence and wide acceptance of industrial sustained-yield forest regulation to the rise and progressive hegemony of so-called Gompers' style or non-partisan unionism. Sustained-yield management can be referred to as a process of *normalisation of forests*, namely the creation of a forested landscape with varying and predictable age structures geared towards permanent crop rotation. The normal forest, or *Normalbaum* – as it was originally called in German – emanates at the intersection between the Western tradition of scientific forestry and capital's needs for forests' valorisation. Thus, drawing on managerial literature from the 1950s, Prudham proposes the following definition: “An *ideally constituted forest* with such volumes of trees of various ages so distributed and growing in such a way that they produce equal annual volumes of *produce* which can be removed continually without detrimental

impacts to future production” (Brasnett quoted in Prudham 2007: 264). The introduction of sustained-yield management in BC was not a technical issue, but rather a deeply political one. In fact, the main left-wing party at the time, the Co-operative Commonwealth Federation (CCF) – precursor of the current New Democratic Party (NDP) – advocated a radical agenda of forest nationalisation motivated and legitimated, according to Prudham, by a “distinct set of use-values akin to an agrarian stewardship ethic that would govern the mutual transformation of nature and society” (*Ibid.*: 262). However, the main woodworkers unions in the province – the International Woodworkers of America (IWA) – endorsed the version of the sustained-yield regulation proposed by the government-backed Sloan Commission, merely proposing a few adjustments to make it milder in its social effects. Eventually, in order to gain political support from the IWA, the CCF abandoned its radical positions on forestry. As Prudham explains:

The demise of the CCF's nationalisation agenda and the IWAs prosaic stance on the politics of forest production and regulation reflected and reinforced a shift from radical to reform socialism [...] and the consolidation of a North American class compromise and labour peace that would help to define Fordism. As the trade-union movement drifted toward bread-and-butter 'Gomper's style unionism', the CCF moved in parallel toward reform socialism, propelled by the conjoined objectives of aligning itself with the trade-union movement in Canada and of retaining political relevance in provincial and federal legislatures [...] This increasing focus on industry-specific and workplace-specific issues [was] characterised as an ideological and material division of labour between *conception* (for the bourgeoisie) and *execution* (for the workers) (Prudham 2007: 277).

The main point we derive from this discussion is that, although the relationship between forestry use-value and exchange-value has changed over time and has been influenced by the vicissitudes of class struggle in different spatio-temporal settings (in BC, the *normal forest* is the exemplification of such relationship), the poles of that relation maintained a relatively stable position.¹⁵⁶ The use-value of forests kept being principally linked to the provision of raw material for industry, while the exchange-value of forests followed the convulsions of the capitalist mode of production as a whole but never ceased to be the monetary expression of crystallised abstract labour time.

It is our conviction, however, that the rise of carbon forestry in the context of REDD+ projects profoundly modifies this state of affairs. REDD+ is nothing else than a system of incentives for developing countries to protect and better manage their forest resources, essentially based on the political creation and accounting recognition of a financial value for the additional carbon stored in trees or not emitted to the atmosphere (Corbera and Schroeder 2011). Two points are of primary importance from our perspective: first, *this* use-value of forests is not comparable with those we discussed above. It is now their capacity to absorb, sequester or sink CO₂ that makes them useful from a climate change mitigation standpoint. However, we have seen with Jason Moore that global warming *is* (as part of the planetary ecological crisis) the expression of the contemporary *oeikos*, namely of the bundle of socio-natural relations which structures the neoliberal phase of

¹⁵⁶ It might be useful to recall that this was not a necessary historical outcome: as Prudham suggests, the implementation of the CCF's forest nationalisation project might have completely bouldersed this scenario. Although it is disputable whether or not nationalisation *per se* should be seen as a sufficient condition for anti-capitalism, it seems clear to us that Prudham's indication referred to communism as production of use-values. In general terms, a revolutionary process as destruction not only of the link between use-value and exchange-value, but also of exchange-value itself, should always be conceived of as a historical possibility.

capitalism. From this descends the conclusion that *carbon forestry possesses a use-value only in so far as the climate crisis (as embodied in neoliberal capitalism) is recognised as a political issue whose solution is contained in the principle of veridiction of its regime of truth: competitive-based markets*. There is no “natural distinctness” at play in carbon forestry: its use-value is from the very beginning subordinated to the self-valorising needs of capital. This non-naturality leads us directly to second aspect we would like to highlight: *carbon forestry use-value is intrinsically informational*. To be created as a unit of measure to be valorised through market exchange, “forest carbon” must undertake a highly complex process of creation-through-calculation. At the most basic level, as demonstrated by Larry Lohmann, the production of carbon forestry offsets requires the general acceptance of the following, extremely controversial equation:

“a molecule of CO₂ of fossil origins = a molecule of CO₂ of biotic origin” (2011c: 197).

The problematicity of such an equation in terms of forest carbon accounting has been known and assessed as early as the publication of the LULUCF-report (2000). For instance, Joanna Cabello and Tamra Gilbertson report two of those inconsistencies: a) “While LULUCF activities can remove carbon dioxide from the atmosphere (referred to, in the climate jargon, as *removals by sinks*), this removal can be reversed and result in emissions, i.e. by fires. This is refereed as non-permanence”; b) “Forestry emissions and removals may still occur many years after a project or intervention happens, while emissions from fossil fuels occur immediately when the fuel is burnt” (2012: 165-166).

More generally, the constitutive uncertainty of REDD+ carbon accounting derives from a very controversial definition of what a forest actually is. As Tom Goldtooth, from the Indigenous Environmental Network, acutely points out:

Adding to the likelihood of REDD+ money flowing to the worst forest destroyers is the definition of 'forest' used by the UNFCCC, which includes monoculture tree plantations and clear-cuts (euphemistically referred to as 'temporarily unstocked areas'). Under this definition, the Brazilian government's plans to replace part of the Amazonian forest with oil palm plantations would not count as deforestation. Industrial loggers could also benefit from REDD+ by claiming to be practising 'sustainable forest management', while criminalising indigenous agricultural and forest practices (Goldtooth 2011: 20).

Moreover, with regard to the equivalence of fossil and biotic origins of CO₂ molecules, Lohmann is absolutely right in pointing out its often overlooked consequence, and precisely that this imposed correspondence, “by ignoring the difference between the two carbons in terms of climate history, also intensifies *climate class struggle*, providing 'scientific' and economic sanction for extensive land grabs from the poor, who are likely to be displaced at high human cost (not included in the calculations)” (Lohmann 2011c: 197). This is the other side of the climate class struggle that takes place at the level of the general intellect: while the conditions for the common production of the plenty for all (*potentiality of use-value creation*) are in place and ready to be communistically mobilised, the violence of the market forcefully impresses the process of knowledge-production with the seal of market competitiveness (*corruption of the common through exchange-value imposition*). Both sides of this peculiar terrain of class struggle should be taken into account. With regard to carbon forestry, by comparing it to the Fordist

governmental *dispositif* of the “normal forest”, we propose to label the REDD+-based system of governance as *post-normal forest*. This term clearly makes reference to the epistemological debate launched in 1993 by Silvio Funtowicz and Jerome Ravetz with their article *Science for the Post-Normal Age*. Elaborating on Thomas Kuhn's (1962) characterisation of a paradigm as a “normal” situation in which the large majority of the scientific community shares the basic assumptions of research procedures – epistemological revolutions, on the contrary, being “abnormal” ruptures through which the paradigm develops itself by being questioned from a variety of perspectives – Funtowicz and Ravetz argue that, in late-modernity, “normal” epistemological situations are less and less frequent. This is why, in the context of what they call “post-normal age”, “typically facts are uncertain, values in dispute, stakes high, and decisions urgent” (2003: 1). In essence, post-normal science reflects an epistemological framework in which the boundaries between “normal” paradigms and “abnormal” scientific revolutions tend to blur, making the constant questioning of assumptions through unavoidable accounting for uncertainty an everyday condition. Hence the adjective “post-normal” to refer to a process of knowledge creation in which “normality” and “abnormality” tend to melt into each other. This situation, epitomised by the constitutive role played by uncertainty in contemporary politico-epistemological practices, perfectly mirrors that of REDD+ carbon forestry. In fact, the assessment of trees' sinking capacity, as well as the definitory process through which carbon emerges in the form of a new commodity (offsets, i.e. second order abstractions), essentially depend on the *impossibility to establish a fully standardised system of measurement*. Such an impossibility can be fully appreciated by

reporting a passage from the introduction of a peer-reviewed and widely cited article on Above Ground Biomass (AGB) allometric models of calculation:

In this study we evaluate the uncertainties in the estimation of AGB density [...] We developed local multi-species models using 244 trees from 26 locally abundant species and assessed four sources of uncertainties in AGB estimates: (i) uncertainty in AGB estimates bound to the number of trees to build allometric models; (ii) the bias introduced when aggregating species in a single multi-species allometric model; (iii) the uncertainty on the choice of the allometric model, and in particular whether locally developed models AGB estimates are more accurate than estimates of 'foreign' models. Finally (iv), we assessed the sampling variability when estimating the AGB at landscape level, using different numbers of plots and allometric models (van Breugel et al. 2011: 1649).

Significantly, the conclusion of the study shows how the political selection of calculating methodologies is the only guarantee of the results' validity (no matter how uncertain):

“Allometric models vary strongly in their prediction of stand and landscape AGB, making model choice an important source of uncertainty” (*Ibid.*: 1655).

To summarise: far from being configured as a deficit of the system, the instability induced by accounting uncertainties is what makes the post-normal forest produced by market-driven REDD+ projects eminently governable and, as a consequence, a fitting example of the informational support of the carbon trading dogma. Moreover, it deeply concerns the issue of class struggle at the level of second order abstractions: in fact, it shows how ineluctably the general intellect must be granted a sufficient space of *manoeuvre* to produce value but, at the same time and in an equally ineluctable way, it

also shows how violently such creative autonomy ends up being corrupted by its forced translation into the homogeneous grammar of markets.

3.2 - The contested nature of EUAs, or: the legal support of carbon trading dogma

In some long-standing, acute streams of the Marxist tradition, the theoretical interpretation of the rule of law rests on its duplicity, or intrinsic ambivalence: litmus paper of force relations between classes at a given moment, on the one hand; battlefield upon which those same classes struggle to modify that balance of forces, on the other one (Negri 2010). The process of emancipation of the oppressed requires a direct engagement with rule of law but can not extinguish its afflatus in the limited horizon disclosed by its codes and prescriptions: a productive logic of *inside and against* is supposed to regulate not only a revolutionary strategy, but also the very mode of development of the system of rights and regulations. In the context of carbon trading, such ambivalence of the law is even more pronounced given the hybrid nature of cap-and-trade schemes such as the EU ETS: as we discussed above, while the cap is set and enforced by governmental agencies, the trade is mainly performed by private actors (or, in any case, following private law norms). From this hybridity emerges the necessity of a legal support for the carbon trading dogma which operates in two main ways: a) by replacing the alleged clarity of the law with a constitutive uncertainty that produces the conditions of instability on which contemporary financial governmentality relies; b) by affecting the very nature of the new commodities created to be traded in carbon markets.

The instability produced by the contested legal nature of EUAs can be exactly appreciated through another reference to carbon accounting: in fact, as soon as the European Union actually created the new commodity, a vociferous debate concerning its legal *status* took place amongst actors as diverse as local, national and regional public agencies, private corporations, NGOs, accounting professional organisations, unions and academics. In fact, as trivial as it might seem at a first sight, the question “what is a EUA?” is all but simple to be answered. EUAs were established in 2003 by the EU Emission Trading Directive, which defines them as follows: “EUA means an allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this directive” (Council Directive 2003/87, art. 3 [a]). This very large definition, which essentially copes less with what the new tradable unit *is* than with what it entitles the holder to *do*, has four elements: a) the right to emit; b) a specified substance; c) of a certain quantity; d) over a defined period of time. As it is evident, many accounting standards¹⁵⁷ could fit such a definition. At this

¹⁵⁷ However important accounting practices may be in assessing the contested legal nature of EUAs, it is important to remark that they do not exhaust this field of research. For instance, in terms of establishing an isomorphic relationship between allowances and derivative contracts – hence enforcing their facilitated tradability in secondary markets, more speculation-prone than compliance or primary markets – the Council Directive 2004/39 (Annex I, Section C, art. 10) is particularly instructive. By assuming that carbon market participation will be driven not only by compliance, but also by speculation, the Directive includes allowances in the “List of Financial Instruments” in the following way: “*Options, futures, swaps, forward rate agreements and any other derivative contracts relating to climatic variables, freight rates, emission allowances or inflation rates or other official economic statistics that must be settled in cash or may be settled in cash at the option of one of the parties (otherwise than by reason of a default or other termination event), as well as any other derivative contracts relating to assets, rights, obligations, indices and measures not otherwise mentioned in this Section, which have the characteristics of other derivative financial instruments*, having regard to whether, inter alia, they are traded on a regulated market or a Multilateral Trading Facility (MTF), are cleared and settled through recognised clearing houses or are

point, the problem for the EU became that of clarifying the legal character of the EUAs. For this reason, the International Accounting Standards Board (IASB) was urged to develop mandatory guidance for the financial reporting of the emission permits and, in view of the specialised, unprecedented and fundamental nature of the subject, the IASB asked its International Financial Reporting Interpretations Committee (IFRIC) to undertake the task. The first draft of such effort was published in May 2003 and, after two rounds of discussion and revision, the *IFRIC Interpretation 3: Emission Rights* (known as IFRIC-3) was finally issued in December 2004, just a few days before the official start of the EU ETS. In brief, the IFRIC-3 recommendations designed a mixed measurement model that can be summarised in three main points: a) EUAs should be considered as *intangible assets* (no matter if freely issued by governments, publicly auctioned or purchased on the market) and therefore fall under International Accounting Standard (IAS) 38. Moreover, these assets should be configured as tradable independently from the liabilities; b) EUAs that are allocated for less than fair value (i.e. market value), should be initially measured at their fair value, and the difference between the actual expense and fair value should be classified as a *government grant* and therefore accounted for under IAS 20 (Government Grants and Disclosure of Government Assistance). This peculiar grant should be at first regarded as deferred income in the balance sheet, and subsequently registered as income over the compliance period; c) EUAs liabilities should be considered once emissions are actually made, and that should

be internalised as a *provision*, therefore falling under IAS 37 (Provisions, Contingent Liabilities and Contingent Assets). Moreover, the liability should be measured at fair value, which is to say the best estimate of the amount of money required to settle the current obligation at the balance sheet day (Casamento 2005).

Although the technicalities of such specialistic recommendations are of utter importance – for instance, point a) articulates the tension between environmental and economic goals, whereas point b) accounts for the creation of windfall profits – from our standpoint the wild reactions to IFRIC-3 are even more telling since they unmistakably reveal the need for uncertainty to “properly” govern carbon trading. As Allan Cook recalls:

The result [of IFRIC-3 publication] was a public outcry. Companies complained that application of the interpretation would force them into showing a completely distorted picture of their performance in their annual and interim financial statements. The IASB, while recognising that the IFRIC had made a valid interpretation of the relevant IASs, accepted that the end result was confusing in certain respects. Perhaps fortunately, the expected market for Emission Rights was slow to develop and IASB took the opportunity to withdraw the interpretation in June 2005, only six months after it had been issued (Cook 2009: 457).

Since the IFRIC-3 withdrawal, there has been no international guidance on how to account for EUAs and a diversity of practices, often irreducible to one another, have emerged (McGready 2008). From the perspective of the large majority of social sciences' studies of carbon accounting, such an absence of standardisation – whose outcome is the total arbitrariness of financial classificatory practices – is regarded as a sort of youthful

sin to be overcome in due time as the field progresses towards a more shared and harmonic common accounting language. Heather Lovell and Donald MacKenzie, for example, propose to distinguish two stages in the history of accountants' relation to climate change: stage one – “reluctant engagement” – starts in the late 1990s and ends in 2005 with the withdrawal of IFRIC-3, while stage two – “strategic engagement” – covers the second half of the past decade and arrives up until now and is marked by a new interest emerged amongst accountancy standard setters in 2008, whose materialisation was the joint IASB/IASF (Financial Accounting Standards Board) project. According to the authors:

The IFRIC-3 launch and then withdrawal (stage one) highlights how there is likely to be conflict in these technical accounting discussions when corporations feel strongly about an issue, typically when it affects their profit. It is interesting that with the re-launch of the IASB/FASB Emissions Trading Schemes project conflict seems less evident. Indeed, recent interviews with accountants at major EU ETS companies have suggested a readiness for clear guidance from the standard setters (along the lines of IFRIC-3) because of a strong desire to make carbon accounting easier (reducing choice, thereby eliminating the current necessity of following a range of different national, international and corporate guidelines), and so that companies can be fairly compared with their competitors, creating a level playing field (Lovell and MacKenzie 2011: 726-727).

Whether this “strong desire” reflected a true conviction or mere wishful thinking, it irremediably crashed on June 29th 2011, when the International Financial Reporting Standards (IFRS) Foundation posted on its website the following note: “Discussions in the Emissions Trading Schemes project were deferred in November 2010 when the IASB and the FASB decided to amend the timetable of some projects. As a result of the pause in work of this project, the IASB will consider whether the project will remain on the

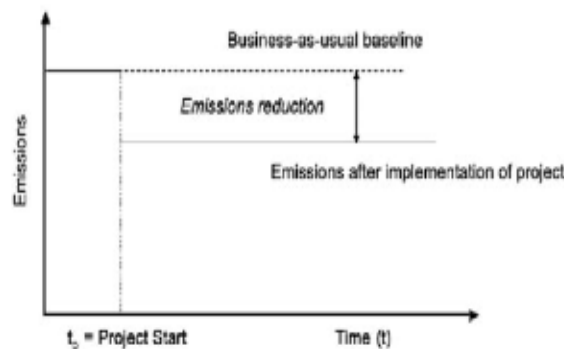
agenda consultation process” (IFRS Foundation 2011). This outcome, hardly surprising from the perspective of government through instability, shows one more time how carbon trading is grounded in an enacting, constitutive and unavoidable uncertainty. Let us stress, in passing, that uncertainty does not equal confusion, but rather indeterminacy: at this regard, Luigi Pellizzoni proposes to distinguish between “constraining *non-determinability*” and “enabling *non-determination*” (2011: 797). While the former conceives of contingent openness from the perspective of the lack of control over unknowable causal chains by social actors, the latter institutes a sense of liberty built around an idea of causal chains as impossible to predetermine but at the same time susceptible of management in such a way that social actors can handle and orient them in the desired direction.

3.3 - *The CDM additionality issue, or: the calculative/promissory support of carbon trading dogma*

The centrality of calculative practices as forms of politics of quantification has been analysed above, but we think it can be fruitfully approached also from the perspective provided by the problematic issues linked to CDM additionality. In this case, in fact, the calculative dimension of the carbon trading dogma finds itself inextricably linked to its promissory character and, as consequence, presents interesting social dynamics with regard to the interplay between climate politics and governmental orientations towards the future.

As we anticipated above, additionality can be defined as the difference between a certain course of action linked to carbon markets and a counterfactual scenario built on the hypothetical continuity of past industrial behaviours. A precise graphic rendition of such a concept can be found in figure 4.

Figure 3. Source: Bumpus (2011: 615).



Although apparently simple and straightforward, at a closer sight the notion of additionality shows a significant number of critical aspects, both at a technical and at a conceptual level. Before discussing them, however, let us stress once again the two particular conditions of possibility for such a notion to actually emerge. First of all, CERs – the monetary expression of additionality – as well as contabilised emissions reductions – the environmental form of additionality – exist only by virtue of extensive mobilisation of the general intellect as expressed in multifarious knowledge-based processes. Secondly, this mobilisation occurs in, and is channelled by, new market-driven institutional settings, such as the CDM Executive Board (EB), the Project Design

Document (PDD) or the Designated National Authority (DNA). According to the UNFCCC:

The PDD must qualify through a rigorous and public registration and issuance process designed to ensure real, measurable and verifiable emission reductions that are additional to what would have occurred without the project. The mechanism is overseen by the CDM EB, answerable ultimately to the countries that have ratified the Kyoto Protocol. In order to be considered for registration, a project must first be approved by the DNA (quoted in Drew and Drew 2010: 4).

As we can see, the technical intricacies which characterise a PDD (figure 5) are supposed to perform a quality-filter function, ensuring just viable projects get financed.

Figure 4. Source: Drew and Drew (2010: 6).

Section	Disclosure Required
A. General description of project activity	A.1. Title of the project activity A.2. Description of the project activity A.3. Project participants A.4. Technical description of the project activity A.4.1. Location of the project activity A.4.1.1. Host Party(ies) A.4.1.2. Region/State/Province etc. A.4.1.3. City/Town/Community etc. A.4.1.4. Details of physical location A.4.2. Category(ies) of project activity A.4.3. Technology to be employed by the project activity A.4.4. Estimated amount of emission reductions over the chosen crediting period A.4.5. Public funding of the project activity
B. Application of a baseline and monitoring methodology	B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity B.2. Justification of the choice of the methodology and why it is applicable to the project activity B.3. Description of the sources and gases included in the project boundary B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality) B.6. Emission reductions B.6.1. Explanation of methodological choices B.6.2. Data and parameters that are available at validation (to include: Data/Parameter; Data unit; Description; Source of data used; Value applied; and, Justification of the choice of data or description of measurement methods and procedures actually applied) B.7. Application of the monitoring methodology and description of the plan B.7.1. Data and parameters monitored B.7.2. Description of the monitoring plan B.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies):
C. Duration of the project activity / crediting period	C.1. Duration of the project activity C.1.1. Starting date of the project activity C.1.2. Expected operational lifetime of the project activity C.2. Choice of the crediting period and related information C.2.1. Renewable crediting period C.2.1.1. Starting date of the first crediting period C.2.1.2. Length of the first crediting period C.2.2. Fixed crediting period C.2.2.1. Starting date C.2.2.2. Length
D. Environmental impacts	D.1. Documentation on the analysis of the environmental impacts, including trans-boundary impacts D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party
E. Stakeholders' comments	E.1. Brief description how comments by local stakeholders have been invited and compiled: E.2. Summary of the comments received: E.3. Report on how due account was taken of any comments received:
Annexes	Contact information on participants in the project activity Information regarding public funding Baseline information 4. Monitoring plan

However, here resides the main technical fallacy of additionality: as further evidence of the impossibility to establish a fully standardised accounting methodology, carbon consultants and their employer rapidly turned to their advantage the PDD templates to increase profitability with regard to credit production through uniform procedures that, while deepening in an extreme way PDD's length and technicality, invariably excluded “discussion of issues such as local regulatory politics, corporate reliability, non-linearity, economic uncertainty and climatological unknowns” (Lohmann 2009: 506). Once more, the politics of quantification shows itself as all but neutral: the full mobilisation of the general intellect is unmistakable (consider for instance points A.4.2, B.2, B.5, C.2, D.1

and E.3), but its aim is not to share or redistribute the value created; rather, the goal is to foster governmentally enacting instability. As an analyst caustically pointed out, CDM credits are an “imaginary commodity created by deducting what you hope happens from what you guess would have happened” (quoted in Lohmann 2009: 511).

There are, however, other shortcomings which affect CDM additionality at an even more profound, conceptual level. To properly assess them, we have to introduce the distinction between *financial* and *environmental* additionality. The former refers to whether a given project investment would have taken place in the absence of the credit-gaining CDM provisions. In principle, for a CDM project to be approved carbon financing must be the decisive financial factor. Nonetheless, this means that another short-circuit between economic and environmental rationales cannot but take place: be them private or institutional, lenders follows market rules and tend to orient themselves towards projects which are profitable on their own, even without the CDM. Analogously to what we observed with regard to biotechnologies – GM companies arguing for their crops' *substantial equivalence* to natural ones when talking to the FDA, and for their crops' *sufficient difference* when attempting to patent them – CDM traders find themselves in a paradoxical position: when facing their financial bankers, they need to emphasise the high profitability of the projects; when discussing with the CDM EB, by contrast, they need to claim the same projects would not be financially viable without carbon funds. This is, we argue, just another proof of how instability (and potential sclerosis) is at the core of contemporary climate governmentality.

Environmental additionality is even more problematic than its financial counterpart and allows us to reflect on the specific *sequestration of the future* enacted by

the CDM. Determining environmental additionality requires: a) a project baseline, or reference case, that estimates what would have happened in the absence of the CDM project methodologies for estimating a project's actual GHG emissions reduction; b) a quantitative comparison of actual emissions to baseline projections. The difference between the baseline and actual emissions (i.e. the amount of GHGs abated) is the amount of environmental additionality achieved by the project. In other terms, CDM environmental additionality requires the mobilisation of both a *calculative* and a *promissory* apparatus that, joined together, represent the third support of the carbon trading dogma.¹⁵⁸ This support works first and foremost by means of an ideological *de-politicisation of decision-making*. In order to create a common plane of comparability between the (hopeful) future prescribed by the CDM project and the (catastrophic) future designated by the counterfactual baseline, a radical presupposition have to be unproblematically assumed: *the CDM is the only alternative to the hypothetical BAU scenario*. As a reciprocal corollary to this assumption, *the BAU future course of action must be one and is dependent on calculations conducted in the present*. To synthesise, the dark future promised by planetary global warming can be avoided *only* by the intervention of the CDM. Larry Lohmann poignantly elaborates on such an ideological articulation of *market freedom* and *historical determinism* as follows:

For accounting to be possible and carbon credits to be saleable, each project must be framed as generating a determinate number of credits. That becomes possible only if the counterfactual scenario of the 'baseline' world is framed as singular,

¹⁵⁸ It must be stressed once again, however, that the financial and environmental dimensions of additionality are not independent from one another. On the contrary, they configure themselves as the two sides of the same coin.

that is, separated out from a large number of other theoretically possible without-project scenarios. [...] To disentangle a single baseline necessitates framing the political question of what would have happened without projects as a matter of technical prediction in a deterministic system about which near-perfect knowledge is in principle possible. Social conditionalities that do not easily lend themselves to prediction (socio-economic development, demographic trends, future land use practices, international policy making, etc.) are reduced to technical and methodological uncertainties. Project proponents, by contrast, must be framed non-deterministically, as free decision-makers, if their carbon project initiatives are to be seen as 'making a difference' (Lohmann 2009: 511).

Here we can appreciate in its full deployment the cogency of the carbon trading dogma: either the future is imaginable as brought about by redeeming market competitiveness, or humanity is doomed to face the catastrophic effects of anthropogenic climate change. Political alternatives to the CDM are, to put it in the simplest way, *unthinkable*. To borrow one last time Lohmann's apt words, we can surely state that “the claim that alternative low-carbon or non-carbon futures do not exist becomes a way of dumping carbon in those futures” (Lohmann 2006: 209).

Thus, the calculative/promissory support of carbon trading dogma establishes a perverse interface between *salvation* and *catastrophe* which strongly resonates with what Jean-Pierre Dupuy (2002) has called “enlightened doomsaying” [*catastrophisme éclairé*]. In fact, such a notion proposes a curious inversion of the present-future relationship by means of which a contemporary assessed worst-case scenario is assumed to be already verified in order for its actual future verification to be avoided. Paradoxically, then, the future ends up being thought as simultaneously deterministically defined *and* caused by societies' political decisions. As Dupuy puts it, the future is “counterfactually

independent from the present” (2002: 107). Such independence, however – at least with regard to carbon trading – is predicated on the putatively indisputable assumption that *only* the market can eventually disrupt the apocalyptic consequences implied in the unfolding of climate change. Here resides the main strength of the carbon trading dogma: by enacting a regime of truth through which the market is envisaged as the sole saviour in front of the impending ecological collapse – notwithstanding its role in bringing about the issue of global warming in the first place – political alternatives and social oppositions are dubbed not only as useless, but actually as damaging since their implementation would cause unforgivable delay in a situation characterised by ineluctable urgency. In a compelling series of studies, Frédéric Neyrat (2006; 2008) has argued that such an enlightened doomsaying is not only compatible with the Foucauldian biopolitical hypothesis, but veritably represents its contemporary configuration in the form of a *biopolitique of catastrophes*. Neyrat appropriately states that “the biopolitics of catastrophes occludes a proper eco-politics. The political management of the possible future is actually its digestion [*la gestion politique du possible est la digestion du possible*] and makes another politics impossible” (2006: 115).

Let us note that such a formulation of biopolitics of catastrophes closely recalls our hypothesis of *impression* as a crucial contemporary feature of capitalist exploitation. In chapter 2, we defined impression as a dynamic regime of superimpositions in which at the beginning, *ex ante*, the establishment of a limit or threshold takes place. This limit concerns the future translatability of labour outcomes into the grammar of money. Such translatability, although imposed at the beginning of the process, cannot but manifest itself *ex post*, when the value produced by the general intellect is actually captured. In the

case of CDM, the *ex ante threshold* is represented by the counterfactual baseline, while its *ex post validation* is configured as the putative – albeit indisputable in the carbon trading dogma framework – emissions reduction which is supposed to take place in the future. Between the two moments, carbon traders and governmental agencies are free to explore as many possible ways to bring about the desired outcome out as they want, as long as those modalities are consistent with the basic imposition of impression: the end-product must be monetarily shaped. In a sense, they are “free” to (partially) emend the PDD and to evaluate market possibilities to mould their strategy in the most profitable way. What they cannot do, however, is to question the *ex ante imperative* (we must change or the world will collapse) and the *ex post imposition* (the change will have to be market-driven and, hence, eventually profitable).

Before concluding this section, let us stress that the carbon trading dogma is not an unassailable fortress; on the contrary, even its internal consistency shows signs of decay (not to mention all the oppositions it has received from social movements). As we argued in chapter 2, although impressed, a process of individuation always remains partially indeterminate (since, by definition, it proceeds through the activation of unactualised potentials, whose transparent measurement or complete management is simply impossible). This is the crucial terrain upon which political ecology (and climate justice, with specific regard to the purposes of this work) should engage its battle: framing resistance as the catalyst of political instances which are irreducible to a governmental rationality based solely on the market logic. Antagonism, then, would become the vehicle of translation of those instances into the institutional language of environmental policy, not only as it is currently conceived, but also as it could be

envisaged after the incorporation of new political horizons. In other words, its task is the disarticulation from within of the truth-games upon which environmental governmentality is founded.¹⁵⁹

CONCLUSION

In order to bring to a close the discussion we have articulated in this chapter, it could be useful to more directly inscribe the specificities of carbon commodities into a broader history of commodification. As we exposed, such history is marked by both continuities and ruptures. Larry Lohmann has provided the best elaboration of the former with regard to the two great historians of commodification: Karl Marx and Karl Polanyi (2001).

Consider for instance the two following quotes:

Just as the creation and quantification of the working day was a major site and instrument of class struggle in early capitalism, so the assemblage of equations that go into the creation of climate commodity are major sites and instruments of class struggle in today's nascent carbon markets (Lohmann 2011c: 196).

Just as objectified, abstracted 'land' and 'labour' had emerged with the early modern European transformation of agriculture and gathering, so an objectified, abstracted, commodified [carbon] 'risk' emerged as a new reality as well as a new term of economic and financial art (Lohmann 2010b: 227).

¹⁵⁹ We shall analyse in more detail this issue in the next chapter.

Our contribution to the contemporary debate about carbon trading units has been to show how, besides these accurate and undeniable continuities, also ruptures are detectable and should be taken into account. Such ruptures depend on the new, neoliberal rationality based on the formal privilege accorded to competition (government through instability), as well as on the unprecedented characters of capital's valorisation (financial self-reflexivity) and exploitation (impression). It must be clearly acknowledged, however, that our analysis does not amount to a portrait of capital's self-valorisation as independent from labour, as it would be in the financial dream of money growing on money (M-M'). In other words, no matter how peculiar and novel carbon tradable units are, as second order abstractions they still remains commodities. *Although internalised within capitalist circuits of expansion, the relationship between commodities and money still presents itself as mediated by labour in the form of the general intellect.*

This point can be better articulated by making yet another reference to the debates which have accompanied the failed attempts to define what a EUA essentially is. Such debates are important to us because they shed insightful light on the unprecedented “metaphysical subtleties and theological niceties” which affect the commodity form of carbon tradable units. In fact, as Jerome Whittington has brilliantly put it: “Strictly speaking, carbon credits [i.e. CERs] and permits [i.e. EUAs] are not commodities but novel assets whose characteristics depend on the intricacies of how they are created, what they are meant to represent, how they are traded and what they can be used for” (2012: 118). Although this distinction between *commodities* and *assets* is grounded on accounting practice controversies, we contend that its relevance largely transcend its technical-specialistic origins. Actually, it provides a new framework, in a mutated

context, for the Marxist problem of the relation between money and commodities we just evoked. In fact, EUAs are not to be considered property rights:¹⁶⁰ their informational nature, as well as the fact they are issued by governmental agencies, makes them *not exclusionary* – at least not in the way ordinary private property is – and *not permanent* – they might be revoked at any time by the same governmental agencies. For this reason, and also because of the lack of clear guidance from existing regulation, it has fallen to traders to carry out the task of conceptualising the proprietary nature of EUAs.

Particularly interesting, in this context, is the proposal formulated by Jillian Button in a compelling article published in 2008 and entitled “Carbon: Commodity or Currency?.” Her starting point is straightforward: although the commodity-model is the most widespread thus far, it has not been the only one under discussion. Quoting conservation biologist Jon Rosales, Button remarks that “even if entitlements to the new commodity are distributed to all parties' satisfaction and the fabricated market accepted, in many cases it is not clear what is being bought and sold. Increasingly vague commodities are being crafted to fit the necessities of a market system” (Rosales quoted in Button 2008: 582). Far from retaining the critical stance that motivated Rosales' words, Button ends up reaching his same conclusion but for the exact opposite reason: since carbon trading has

¹⁶⁰ Unsurprisingly again, this issue is highly contested: while the Kyoto Protocol (1997), the Marrakesh Accords (2001) and the EU Emission Trading Directive (2003) are silent on the matter, the Regional Greenhouse Gas Initiative Model Rule (RGGI), which includes several states and provinces in the North-Eastern U.S. and Eastern Canada, openly posits that “No provision of this regulation shall be construed to limit the authority of the Regulatory Agency to terminate or limit such authorisation to emit. This limited authorisation does not constitute a property right” (quoted in Button 2008: 574). Differently, other schemes, such as the New Zealand's Individual Transferable Quotas in Fisheries, purport to create property rights. Beyond the usual role played by uncertainty, what is at stake in the issue can be clarified by directly quoting Jillian Button: “The question of whether an emission right is a property or a quasi-property right is an interesting one, and is particularly pertinent to the relationship between the unit-holder and the government. Legislative drafters who carefully preclude any property rights are likely attempting to prevent future claims against the government by permit-holders arising from government action which devalues that person's carbon units, for example by changing the regulatory system” (*Ibid.*).

been conceiving of its commercialisable units exclusively as commodities, it has not realised its full potential yet. Button justifies her somewhat hyper-neoliberal claim by arguing that a commodity-model for carbon permits necessarily implies a system of equivalences based on the comparability between different GHGs – through the unit of measure of tCO₂e. According to her, such need for measurement – which would treat permits as corn or soybeans, no matter how artificially – is due to the fact that, kept in the tension between the environmental and economical goals of Emissions Trading Schemes, traders have to date privileged the former: “To protect environmental certainty, a sacrifice is made because diverse and potentially valid and geographically appropriate economic strategies are left unexplored and unexploited” (*Ibid*: 586). To solve this problem – curiously named “equivalence *impasse*” – Button proposes to consider carbon units as *sui generis*, essentially synthetic assets which simultaneously exhibit features of commodities and characters of currencies. This is by far the best definition of EUAs we can envisage. However, by exclusively stressing the currency-like side, Button continues her reflection affirming that non-equivalent emissions permits would be traded exactly as non-equivalent currencies and would consequently ensure a constant liquidity for carbon markets. The conclusion of the argument, in all its strictest logical consistency, is startling:

Under the currency-model, otherwise unproductive incompatibilities amongst carbon units would be avoided by recognising these incompatibilities. The fiction that all carbon units should be or could ever be equivalent is removed, and the *environmental value of a unit is expressed in terms of its exchange value*. Interest groups would be less motivated to pressure governments to exclude weaker units from the market, because they would not drive down the overall standard of the market (*Ibid*.: 588. Our emphasis).

In these fascinating lines the neoliberal paradigm of nature (the environment as element of valorisation) encounters the eternal dream of capital, namely the possibility to create value out of itself without passing through the mediation of labour. Although this position is minoritarian in the context of carbon trading debates, it is somehow exemplary in that it shows the perfect capitalistic solution to the tension between economic and environmental goals of Emissions Trading programmes: *environmental value being directly expressed in terms of exchange-value*. Here we are even beyond the lost innocence of use-value: we witness to a veritable – if inapplicable from a policy perspective – *becoming exchange-value of use-value*.

As extreme as it certainly is, this argument is very instructive in that allows us to better understand the role of money in governing through instability the mobilisation of the general intellect in the context of financial-environmental markets. David McNally (2011), as we discussed in the previous chapter, suggests that after the collapse of Bretton Woods we saw the emergence of a de-commodified money, which is to say a kind of money independent from past labour embodied in it. Through a Marxian-Foucauldian approach, we have attempted to show how, in carbon trading, exploitation and valorisation are governed by money in its financial form: this money finds its measure not in past labour, but rather in the act of commanding the labour process in its (current as well as future) making. Very differently, in Button's capitalist utopia we see money creating more money (dare we say *environmental money*?) out of itself: the tension between ecological and commercial goals of carbon trading is recognised as non-existent since the former is already expressed in the latter.

Button's elaboration, however, is more relevant than its outcome since it shows its material inconsistency: through a sort of *reduction ad absurdum*, this God-like affirmation of exchange-value shows in its unavoidability the capitalist need for an external source of productive energy. Exchange value will never multiply by itself: in the case of carbon trading, it emerges by the imposed management and violent exploitation of the general intellect. This is why the capital created in carbon markets is not and cannot be exclusively labelled as “fictitious”: on the contrary, it is derived from the contemporary forms of exploitation and accumulation. As suggested by Luigi Pellizzoni, the neoliberalisation of nature has little to do with the production of fictitious capital: “What is at stake is the crafting of entities that did not exist beforehand, like the patented gene with its organic-informational ambivalence or the variably embodied in the GWP [Global Warming Potential]. There is nothing fictitious in these commodities: they *are* commodities, their reality is nothing else than this” (2011: 799). Rather than fictitious, thus, carbon commodities are better qualified as characterised by a *twofold materiality*. On the one hand, their creation entails a massive mobilisation, management and exploitation of labour in the form of general intellect. On the other hand, as Adam Bumpus (2011) has convincingly argued, the informational nature of carbon tradable units requires to be enacted through a necessarily context-specific set of socio-natural-technical operations which regulates the actual interaction between financial markets and local social processes or specific interactions between given technologies and the atmosphere. We contend that the recognition of this double materiality of carbon commodities is crucial not only in understanding the productive processes which *create them*, but also in politically establishing an *effective practice of resistance against them*.

Carbon Profanations and Multi-scale Resistances at Durban's COP17

INTRODUCTION

In the previous chapter we argued that social struggles have been central both in transforming climate change (and the environmental crisis in general) into a properly political issue and in driving the operational development of carbon trading. In this chapter, however, our main focus will be the role of multiscale resistances in potentially overthrowing carbon markets from their dominant position as governmental agents of global warming. More specifically, we are interested in analysing some variants of the transnational climate justice movement from a perspective in which the critique of carbon trading does not only aim at decommissioning financial-environmental markets, but also at re-appropriating the productive force from which they originate. In other terms, we will attempt to emphasise those elements of contemporary climate struggles which gesture towards a *re-directioning* of the mobilisation of the general intellect, rather than those – and there are many – which praise for a return to pre-industrial levels of CO₂ emissions by means of *re-instituting* pre-capitalist patterns of behaviour.

We propose to analyse these aspects of the climate justice claims through a theoretical framework based on the notion of *profanation*. The concept has been recently revived by Giorgio Agamben (2007a), but the way we intend to use it rests on further elaboration and, especially, on its connection with Michel Foucault's understanding of the process of subjectivation. In his account, the French philosopher goes back to the original ambiguity

of the term “subject”, which has a double Latin etymology: the neuter *subjectum*, that refers to the idea of sovereign actor, and the masculine *subjectus*, whose meaning is linked to the semantic field of subjugation. This constitutive ambivalence allows Foucault to show how subjectivity is from the very beginning and endlessly kept in a becoming composed by both *reactive forces*, that push it towards subjection, and *affirmative forces*, that strive to fully activate their potential of autonomous subjectivation. The link between this elaboration and our attempt to forge profanation as a valuable tool to interpret climate justice demands is to be found in the essay titled “The Subject and Power” (2000), originally published in 1982, in which Foucault proposes to subdivide social conflicts into three categories that, albeit neither mutually exclusive nor evolutionarily successive, differentiate historical epochs according to their relative, tendential hegemony. The first category is represented by the resistance against various forms of *domination* (moral, political, religious); the second is configured as opposition to *exploitation*, conceived of in economic terms as violent separation between the producer and the product of her labour; finally, the third refers to the attempts made by social actors to subtract themselves from *subjection*, which is to say the set of practices that ties individuals to a fixed identity and, in so doing, favour their submission to others. In positive terms, this third category can be defined as *struggles for subjectivation*.

According to Foucault, our contemporaneity is marked by the progressive prevailing of the third kind of struggle, in which at stake are the *processes of subjectivation*. These processes are conceived of as both *resistance* against normalization and active *engagement* in new, non-constrained identitarian articulations. These processes involve a specific *transversality* with regard to traditional definitions of working class struggle,

usually considered to be centred around the exclusive interests of the proletariat. Furthermore, the object against which they are exercised is not power *per se*, but the material, local effects of power. Finally, and crucially, what is at stake in these processes is *knowledge* (its sources, its usages, its production). As Foucault writes:

they [struggles for subjectivation] are an opposition to the effects of power linked with knowledge, competence and qualification – struggles against the privileges of knowledge. But they are also an opposition to secrecy, deformation, and mystifying representations imposed on people. There is nothing 'scientistic' in this (that is, a dogmatic belief in the value of scientific knowledge), but neither is it a skeptical or relativistic refusal of all verified truth. What is questioned is the way in which knowledge circulates and functions, its relation to power. In short, its regime of truth (2000: 330-331).

As we see, the fundamental goal of struggles for subjectivation is the disarticulation of normalizing regimes of truth. The critique of knowledge-apparatuses through which subjection is imposed on people is configured as appropriation and then inversion of their mechanisms. Moreover, this focus on knowledge can be read, we suggest, in accordance with our hypothesis of nature as an element of the process of capitalist valorisation through the exploitation of the general intellect. Consequently, the effectiveness of profanations should be measured according to their capability to read the specific tendency of contemporary social development and then to disarticulate the capitalist regime of truth (in our specific case the carbon trading dogma) upon which it rests.

As we anticipated, Giorgio Agamben has recently proposed an illuminating investigation of the Roman Law, according to which *sacred* are objects or procedures that exclusively

belong to the Gods, and that consequently result interdicted to men's free usage. On the contrary, *profane* are those same objects or procedures once they have been subtracted from the religious dimension and returned to men's common use. From this perspective, *sacrifice*, the very act of consecration, presents itself as the religious power's device *par excellence*, the one that takes upon itself the responsibility to affix the seal of separation to the free interplay of differences. Upon this separation, subsequently, the same religious power builds up a hierarchical order whose functional aim is its mere reproduction. In the same framework, *profanation* configures itself as the perfect antithesis of sacrifice, since it is conceived of as “the counter-dispositif that returns to the common use of men what the sacrifice had separated and divided” (2009b: 21). Two points have to be stressed here. First, the analytical grid established by Agamben does not apply merely to religion, but rather to all power systems. In fact, every order or authority necessarily needs an original separation to provide a solid frontier between what is *true/right* and what is *false/wrong*. In other words, every system of power needs a clearly defined regime of truth. This necessity is even more pronounced in contemporary capitalism, whose spectacular nature aims to enact a pure form of separation or, as Agamben puts it, “something absolutely unprofanable”. Secondly, profanation does not simply *criticise* the *status quo* and the separation upon which it is established, but also provides concrete alternatives, albeit often in embryonic forms, by *creatively* shaping new modes of being, new behaviours, new and previously inconceivable battlefields. Appropriately connecting these two levels, and importantly recalling the nature of capital as an antagonistic social relation, Agamben states:

It is possible that the unprofanable, on which the capitalist religion is founded, is not truly such, and that today there are still effective forms of profanation. For this reason, we must recall that profanation does not simply restore something like a natural use that existed before being separated into the religious, economic, or juridical sphere. This operation is more cunning and complex than that and is not limited to abolishing the form of separation in order to regain an uncontaminated use that lies either beyond or before it. Even in nature there are profanations (2007a: 81).

Let us underline once again the twofold nature of *profanations*: immanent critique of the present state of affairs *and* material prefiguration of a new possible social structure. In temporal terms, the reference to a desirable future enacts already existing critical potentials in such a way that an opposition to the *status quo* immediately activates the construction of a new form of social organization, previously unimaginable. Thus, we contend that contemporary climate struggles can be read as *disarticulations of the carbon trading dogma* which simultaneously undermine its functioning and prefigure alternative solutions to the challenges of global warming.¹⁶¹ The goal of the following sections, and particularly those concerned with an analysis of the different levels of the multiscale politics of climate justice, will be to understand and specify in some details how this process of *prefigurative disarticulation* opened up by what we might call *carbon*

¹⁶¹ Prefigurative politics is one of the main features of eco-socialism as envisaged by Joel Kovel: “The prefigurative praxes that are to overcome capital in an ecosocialist way are at once very remote and exactly at hand. They are remote insofar as the entire regime of capital stands in the way of their realization; and they are at hand insofar as a movement toward the future exists embedded in every point of the social organism where a need arises [...] If everything has a prefigurative potential, then prefiguration will be scattered over the entire, disorderly surface of the world [...] This is a blessing, because it signifies that there is no privileged agent of ecosocialist transformation, but it also imposes a great responsibility. For as they now exist, instances of ecocentric production are scattered and mainly entrapped like irritants in the pores of capital. The task is to free them and connect them, so that their inherent potential may be realized” (2002: 240-241).

profanations already affects the carbon trading dogma, and which anti-capitalist scenarios it problematically discloses.

However, it is necessary to clearly state the *ambivalent nature* of profanations. In fact, there is nothing in them which is emancipatory in principle. Profanations have always been part of the history of the oppressed and of their struggle, and often ended up being turned into yet another driver of capital's accumulation by means of violent recuperation or subtle co-optation. After all, capital has been so far the profaning machine *par excellence*: as Marx and Engels pointed out in *The Communist Manifesto*, the compulsion to overcome limits is exactly what is unavoidable for capitalism to maintain its power, its ability to “constantly revolutionise the means of production”, to “melt all that is solid into air”, and to “profane all that is holy” (1978: 476). So, in light of this historical evidence that profanation has been constantly absorbed by capital, why should we stick to the concept – albeit revisited through Foucauldian and Agambenian lines of reasoning? The reason is that the ambivalent nature of profanation is not only crucial to understand capitalist development, but also to envisage a non-capitalist future. Avoiding to consider the lines of tension that at the same time link and separate struggles and circuits of valorisation does not make them any less real: it just distances the observers' gaze from the actual terrain of struggle (Leonardi 2010c). We contend that ambivalence should not be *averted*, but, rather, *widened*. A framework based on the notion of carbon profanation can potentially shed new light on how to force the frictions exposed by climate struggles to heights which are beyond the carbon trading dogma's system of compatibilities. This is, in a nutshell, the wager of activist inquiry: organising political lines of tension while simultaneously analysing their unfolding.

Although the research scheme centred around the concept of carbon profanation is rather theoretical, the materials upon which the following analysis is grounded are to a significant extent empirical: we spent nearly two months in Durban (from October 27th to December 17th 2011), gathering various types of information about the COP 17 and the struggles it would have been surrounded by. Therefore, a brief explanation of the techniques of data collection and classification we used is required to properly grasp the next sections. First of all, our intention is not to objectively “verify” the two-fold hypothesis entailed by profanations (i.e. climate justices disarticulates the carbon trading dogma + climate justice prefigures alternative ways of managing global warming as a planetary crisis), but rather to forge an interpretative tool which is able to qualitatively expand the possible meanings of the object of study. More specifically, we would like to show how connecting the political management of the climate crisis to other social aspects of contemporary capitalist crises potentially brings the system of compatibilities upon which the carbon trading dogma is grounded to a point of *ungovernability*. In fact, one of the key issues the notion of profanation brings to light is that of *organising convergences*, namely the political process of unification through conflict which can potentially deactivate the putatively indisputable valorising imperatives the carbon trading dogma is constrained to endlessly replicate. As a consequence, our empirical research shall explore such problematic by means of multiscale perspective: in section 2 of this chapter (transnational level), this connection refers to the global North's historical responsibilities in producing climate change; in section 3 (national level), it regards unemployment as an endemic problematicity in South Africa's political scenario; in

section 4 (local level), it concerns environmental racism and massive people's displacements as a result of a CDM project which privileges big polluters' interests against population needs in the Durban area.

As an analytical caution, let us note in passing that the spatial scales utilised in our research are selected for heuristic purposes and do not constitute fixed and immutable entities: rather, our investigation aims at showing how their various interconnections ceaselessly modify their mutual constitution. Our approach, in other words, intends to shed light on the modalities through which their juxtapositions represent crucial elements in the process of organising convergences between different climate-related conflicts.

The empirical methodology we opted for is linked to *multisited ethnography*, a socio-anthropological elaboration originally proposed by George Marcus and Michael Fisher (1986): according to them, it is necessary to build up a *conceptual topology* (in our case centred around the notion of profanation), which is to say a different way of thinking about field sites in relation to analytic and theoretical questions about the world we live in. Kaushik Sunder Rajan, who has successfully employed such approach in his masterful *Biocapital*, multisited ethnography “necessitates reconfigurations of the spatial boundaries of ethnographic practice to map onto the spatial reconfigurations of the relationship between 'local' and 'global' brought about by global capitalism” (Sunder Rajan 2006: 30). It is precisely this new articulation of local and global aspect, their intertwining as well as the different standpoints they disclose, that makes a conceptual topology particularly useful. A conceptual topology, in fact, establishes a specific link between the local and the global such that the former does not “confirm” the latter but, rather, their interplay increases both the understanding of a given situation and the

possibility to politically act upon it. As Sunder Rajan continues, “if capitalism is always-already multiple and mutable, then the challenge is less one of creating a grand unified theory of capitalism than one of contributing to a proliferation of thick, multiple, locally grounded analyses of technoscientific market regimes and practices” (*Ibid.*: 31). Thus, our goal is to empirically enrich our analysis of the modes of abstraction that underlie the co-emergence of carbon commodities and carbon markets.

This solution allows social research to reach cogent results both at the explanatory and transformative level, and – at the same time – to avoid the trap of all-embracing generalization. As we argued in chapter 1, we intend to maintain as open as possible the tension between our hypothesis regarding the main features of the contemporary tendency of capitalist development and the multifarious forms they assume at different geographical scales and and temporal configurations. In other words, we use multisited ethnography to avoid the risk of a “voluntaristic projection” of a desired state of affairs onto the empirical reality of the situation we are going to analyse. Furthermore, the positionality of the observer is important at this regard (Gobo 2001): we argue that her partial gaze (we belong to the climate justice movement and have been – and still are – engaged in the processes we shall analyse below) is the very source of the scientific relevance of the study. Obviously, we do not claim objective validity for our results: on the contrary, we consider them open to discussion and actually hope they will be disputed and questioned by the scientific community as well as by the activist circles. However, we refuse to conceive of our partiality as an element of anti-scientificity. From this perspective, our methodology is consistent with the workerist tradition of co-research (Alquati 1993; 1994). As Emiliana Armano and Raffaele Sciortino pointedly argue:

Co-research, which emerged in the early 1960s as militant fieldwork with workers at FIAT Mirafiori and other factories in Piedmont (Olivetti, Lancia), is both an activity of enquiry and a knowledge process, entailing a reciprocal transformation in the identity of the researcher and what began to be called workers' subjectivity. As a practice of intervention, it placed the militant researcher on the same level as the subject of the enquiry, annulling the separate figure of the 'vanguard', so dear to the logic of the traditional Left. In doing so, it reformulated horizontally the relationship between theory, praxis and organisation. It was a practice that could not be formalised in a method, one that made it possible to read, even in periods of passivity, signs of impending conflict, informal organisational forms and constituent ambivalences that lay in the gap between the class' technical composition (the objective articulation of labour-power) and its political composition. Not by chance, these enquiries played an active role in the Italian cycle of working class conflict that opened in Turin with the revolt of Piazza Statuto (July 1962), anticipating in turn Italy's decade-long '1968' (Armano and Sciortino 2010).

This nullification of any superiority whatsoever to be accorded to the researcher, with regard to her interviewees or textual as well as dialogical sources, has played an important role in our empirical study and, hopefully, has helped us respecting that *proportion* between the figure of the researcher and that of the activist we argued for in chapter 1.

In the economy of the following empirical research, we have found useful to subdivide our ethnographic sources into four *dossiers*, to be constantly understood against the general background provided by the academic as well as popular literature about global warming and climate-related conflicts we took into account in the previous chapters and

will continue to consider in the remaining part of the dissertation. The four *dossiers* are structured as follows:

dossier A: it is composed by eleven semi-structured interviews, whose length varied from a minimum of 15 to a maximum of 90 minutes, with significant exponents of the transnational climate justice movements. These interviews were aimed at further elaborating the main issues emerged by the analysis of the background literature. In particular, the interviews entailed both the clarification of a number of complex topics and the recognition of recurrent disputed points in climate justice debates. As said, the interviews were semi-structured, which means that they all originated from the same general framework – composed by five broad themes¹⁶² – but allowed new questions to be brought up during the interview as a result of the interviewees' elaboration with regard to specific issues. All the interviewees were aware of our role as researchers and agreed to be mentioned in this study as members of their climate justice organisations.¹⁶³

¹⁶² The general framework of the semi-structured interviews was composed by the following broad themes: a) a brief activist biography with particular regard to climate justice; b) views on ecological debt and, more generally, on issues concerning the idea of global North and global South sharing “common but differentiated responsibilities”; c) views on the One Million Climate Jobs campaign and, more generally, on South African climate/environmental policy; d) views on the Bisasar Road landfill in South Durban and, more generally, on Durban's municipality (eThekweni) climate/environmental policy; e) views on the climate justice movement future perspectives.

¹⁶³ Here is the list of interviewees: Bond, Patrick (director of the Centre for Civil Society, University of KwaZulu-Natal, Durban, South Africa); D'Sa, Desmond (South Durban Community Environmental Alliance, Durban, South Africa); Di Pierri, Marica (A Sud & Italian Network for Environmental and Social Justice [RIGAS], Rome, Italy); Firpo Porto, Marcelo (National School of Public Health, Rio de Janeiro, Brazil); Hallows, David (independent researcher, Durban, South Africa); Kovel, Joel and Saul, Quincy (Ecosocialist Horizon, New York, United States); Mnguni, Thomas (Greater Middelburg Residential Association, Mpumalanga, South Africa); Murphy, Alan (Coordinator of Ecopeace Party, Durban, South Africa); Peek, Bobby (GroundWork, Durban, South Africa); Yanez, Yvonne (Acción Ecológica and Oil Trade Watch, Quito, Ecuador); Yuen, Eddie (editorial board of *Capitalism, Nature, Socialism*, New York, United States).

dossier B: it is composed by ethnographic notes drafted in the course of the several assemblies, meetings, seminars, public discussions, fund raisers, socials, book launches, protest concerts, direct actions and rallies we have taken part of. It also includes casual conversations with local people not necessarily involved in the struggles against COP 17. The methodological perspective through which such notes have been collected and classified can be called “observative” (Gobo 2001: 133): the interpretation has been limited as much as possible in an attempt to “register” the conversations “in their essential factuality” (*Ibid.*: 134). This *dossier* is particularly important because it has allowed us to acknowledge the wide internal variety of the climate justice movement in its multifarious manifestations.

dossier C: it is composed by the informative material produced by the organisations belonging to the climate justice movement and includes pamphlets, leaflets, songs, documentaries, the COP 17 special issues of South African radical monthly magazine *Amandla!* [Power!], and non-violent bimonthly magazine *Satyagraha: In Pursuit of Truth*. It also includes personal photographic material and the following climate activists' websites:

[http://conferenceofpolluters.wordpress.com/;](http://conferenceofpolluters.wordpress.com/)

<http://durbanclimatejustice.wordpress.com/;>

<http://cop17insouthafrica.wordpress.com/tag/occupy-cop-17/;>

<http://durbanknights.wordpress.com/;>

[http://www.climate-justice-now.org/.](http://www.climate-justice-now.org/)

dossier D: it is composed by an extensive coverage of Durban's local newspaper *The Mercury* and South African prominent weekly magazine *Mail&Guardian* (from October 29th to December 15th 2011). It also includes excerpts as well as images from local publications concerning the COP 17 but not necessarily linked to the climate justice movement (e.g. the catalogue of the art exhibition *DON'T/PANIC*, held from November 23rd 2011 to February 19th 2012 at the Durban Art Gallery, or the advertisement distributed by companies within the International Conference Centre – where the COP 17 took physically place).

The crucial relevance of these four *dossiers* for our research is not going to be fully represented by the direct references we will make to them in the following sections. However, their fundamental role in shaping both our theoretical elaborations and our analytical toolbox cannot be underestimated. The constant engagement with the material they contain – from the very first days of collecting to their provisional classification, from their comparison with the literature background to the final revision of their collocation within this chapter – has been a continuous source of critical feedbacks and unexpected openings in the process of writing this dissertation. As such, their value for the current project is inestimable.

1 - DURBAN'S COP 17: SITUATING THE 'CONFERENCE OF POLLUTERS'

December 11th 2011, early morning: the sun is slowly rising over Durban when UNFCCC COP 17 President, Maite Nkoana-Mashabane¹⁶⁴, officially closes the longest climate negotiations in history – over 36 hours of “injury time”. Somehow surprisingly, given the thick skepticism which constantly surrounded the whole process, she proudly announced the reaching of an agreement: the *Durban Platform*. As an experienced diplomat, Nkoana-Mashabane explained that, although not all participants could be satisfied by the final outcome, it nonetheless represented “a clear turning point and a testament to what is achievable when Parties work together”.¹⁶⁵

¹⁶⁴ South African Minister of International Relations and Co-operation.

¹⁶⁵ This and the following quotes are taken from *dossier D*.

Figure 1. COP 17 logo. Source: *Dossier D.*



A more precise idea of such a “clear turning point” can be attained by comparing Todd Stern's (chief USA negotiator) and Claudia Salerno's (chief Venezuela official) reactions to the *Durban Platform*. Whereas for the former we are confronted with a “very significant package”, for the latter we face a “very bad agreement”. As usual in such circumstances, the cacophonous overlapping of diametrically opposed voices immediately started. At least three typologies are detectable: the *sad-but-optimistic* (e.g. Tosi Mpanu-Mpanu, head of the Africa Group: “It's a middle ground, we meet mid-way. Of course we are not completely happy about the outcome, it lacks balance, but we believe it is starting to go into the right direction”, or Selwin Hart, chief negotiator on finance for the Coalition of Small Island States: “I would have wanted to get more, but at least we have something to work with. All is not lost yet”); the *exultant* (e.g. Christiana Figueres, UNFCCC's chief: “In honour of Mandela: It always seems impossible until it is done. And it is done!”), or Cohris Huhne, UK Energy and Climate Secretary “This is a great success for European diplomacy. We've managed to bring the major emitters like the US, India and China into a roadmap which will secure an overarching global deal”);

and the *angry* (e.g. Nimmo Bassey, chair of the Friends of the Earth International: “Delaying real action until 2020 is a crime of global proportions. Increase in global temperatures of 4 degrees Celsius, permitted under this plan, is a death sentence for Africa, Small Island States and the poor and vulnerable worldwide”,¹⁶⁶ or Climate Justice Now! press release: “the agreement is creating a climate apartheid where the richest 1% of the world have decided that it is acceptable to sacrifice the 99%. It constitutes a crime against humanity”).

As it seems clear, the main problem raised by the *Durban Platform*, whose main features will be discussed below, is its vagueness, its constitutive openness to partial interpretations, its manifest incapability to clearly indicate a line of conduct. In short, its *uncertain nature*. It would be a mistake, however, to read such uncertainty as an unintended shortcoming of subsequent rounds of negotiations. On the very contrary, it represents the privileged terrain upon which the problematic interplay between environmental protection and economic growth has deployed itself. In fact, the trajectory of global environmental governance as designed by the UNFCCC is nothing else than the attempt to translate the multifarious phenomenology of climate change (and of the ecological crisis in general) into the homogeneous grammar of competitive markets.

This section aims at contextualising this direction of environmental governance, whose apex has been reached in Durban, in two main ways: in the one hand (section 1.1), we will situate the *Durban Platform* within the context of recent carbon trading developments. On the other hand (section 1.2), we will briefly trace an activist history of

¹⁶⁶ This and the following quotes are taken from *dossier C*.

the principal opposition to such an orientation, namely the transnational climate justice movement.

1.1 - *The Durban Platform: post-Kyoto carbon trading and the Green Climate Fund*

By the time the Durban COP 17 was getting organised, a significant part of civil society hopes in the multilateral negotiating process were already buried. Nothing to be compared with COP 15 in 2009: as Marica di Pierri remembers, “in Copenhagen there was a big attention on the part of governments and media. Gordon Brown talked about the absence of a Plan B. The expectations on Obama, epitomised by the Nobel Peace Prize he received just a few days before the COP 15, were huge. And yet, no agreement was reached in Copenhagen”.¹⁶⁷ COP 16 in Cancún marked a step ahead, since an agreement was actually reached (albeit Bolivia refused to sign), but surely that was not what activists and in general the public opinion were striving for. Actually, Patrick Bond dubbed the Cancún outcome as “market revivalism”,¹⁶⁸ since it simply provided carbon trading palliatives: they do not aim at actually reducing CO2 emissions, but limit themselves to rhetorically justify profit-making activities.

Given these premises, just a naive observer would have expected Durban's COP17 to decidedly change direction. In fact, nothing of that sort occurred. Actually, as

¹⁶⁷ *Dossier A.*

¹⁶⁸ *Dossier A.*

Larry Lohmann has acutely pointed out with regard to it, the overarching question being dealt with in Durban was “how to keep the carbon markets going without targets” (Lohmann and Böhm 2012: 85). More specifically, two were the main issues to be discussed at the International Convention Centre in downtown Durban: the future of the Kyoto Protocol (whose first period ends in 2012) and the financial architecture of the Green Climate Fund, politically advanced but not institutionally defined during the 2009 COP15 in Copenhagen and the 2010 COP16 in Cancún. As for the Kyoto Protocol, it received what can be termed extreme therapeutic obstinacy; in other words, it is artificially kept alive. As Oscar Reyes appropriately explains:

Although Kyoto did not die in Durban, an agreement was made that reduces the Protocol to a Zombie-like state. The current industrialized countries reduction targets expire in 2012, with no guarantee that new targets will be legally adopted at the subsequent COP in Qatar. The Durban's agreements kept Kyoto's carbon trading mechanisms alive – a 'remarkable and unexpectedly positive outcome', according to lobbyists from the International Emissions Trading Associations (IETA) – although they did little to revive the ailing markets themselves, which crashed to their lowest ever levels at the start of the talks and look like to remain on life support as the next phase of the financial crisis unfolds (2012: 22).

The second matter of concern for Durban's COP17 was the Green Climate Fund.¹⁶⁹ In theory, it is a mechanism to transfer money from the developed to the developing world,

¹⁶⁹ The GCF has been a constant target of activists' criticism. One of the most effective forms such criticism assumed was that of artistic/cultural mocking. As an example of this trend, we report here the lyrics of the song *CEE* (Climate Economic Empowerment, a clear ironic/subversive reference to one of the post-apartheid most controversial South African policies, which is to say the *BEE* – Black Economic Empowerment) by Zimbabwean MC Comrade Fatso: “[chorus] Look, the dirty laundry's all gone green/Someone threw some money into the washing machine/Coz climate is the new blings/The new

in order to assist the developing countries in both adapting to climate change effects and mitigate its causes. According to the UNFCCC, “The Green Climate Fund will support projects, programmes, policies and other activities in developing country Parties using thematic funding windows”.¹⁷⁰ Its objective, highly ambitious and at the moment far from being guaranteed, is to raise \$100 billion a year by 2020. As articulated in Durban, however, the GCF has assumed the shape of a financial tool intended to “scale up” carbon markets through their direct involvement in internationally financing climate change adaptation and mitigation practices. In other words, the GCF constitutes the attempt to further increase the role of the private sector within the framework of global environmental governance. Again in the apt elaboration by Oscar Reyes:

The common denominator of all the carbon market measures announced at Durban was the continued expansion of trading mechanisms [...] Scaled up carbon markets are also proposed with the aim of pushing an increasing proportion of climate financing through the carbon market [...] Durban saw a renewed push for the extension of the existing carbon markets alongside an increased emphasis on the private sector in climate finance (2012: 26-29).

diamonds, the new shiny, spangly thing /// Comrades: I'm sure you've heard of the crisis in the world today/Floods in France, disappearing islands and droughts in Zimbabwe/How do we deal with all our carbon emissions rising/With global warming, increased instability and insane petrol pricing/Comrades: I would like to announce my brand new policy/I call this policy CEE/It's simply entitled Climate Economic Empowerment/How to make money from mother nature and from the environment/Coz climate is the new blings/The new diamonds, the new shiny, spangly thing/We've run out of ways to make money for a living/But, comrades: now we have carbon markets and carbon trading/So will we save the planet? Hell muthafucking no!/But we'll have the biggest, most fantastic party till we hit ground zero/So lets co-opt the NGOs and some scholarly scholars/Coz we wanna go green like freshly minted US dollars/So in that sense yes we are the real green party/Because nature is time and time is money/So give us your money and give it to us by the tonne/Put it in my bank account – it's called the Green Climate Fund!" [*Dossier C*].

¹⁷⁰ *Dossier D*.

Whether such a sclerotic insistence on private money to fill the GCF – “illusionary” insistence, according to Bobby Peak, from GroundWork, who defined the Green Climate Fund as an “empty bank account”¹⁷¹ – is due to institutional inertia, ideological fixation or pathological compulsion to repeat, what is crystal clear is that carbon markets as privileged devices of environmental governance will *not* be able to impose the emissions reduction targets the planet needs to avoid the catastrophic effects of global warming. Further evidence of this incapability is provided by the fact that the World Bank – infamously known for being involved in massive funding of fossil fuel-intensive projects – is probably going to act as the guarantor of the GCF.

¹⁷¹ *Dossier A.*

Figure 1. Protest at the Speakers Corner. Source: *Dossier C*.



As independent researcher David Hallows aptly states, “the idea of spending public money to create conditions for private investments in the GCF is absurd. It seems they simply want to create another financial bubble”.¹⁷²

To summarise, the *Durban Platform* did not mark any relevant discontinuity from the market revivalism pompously launched in Cancún. However, this sort of market hegemony within the UNFCCC has been counterbalanced by a progressive radicalisation of climate justice demands. In order to analyse in some detail three particularly relevant (for our purposes) amongst them, we need to briefly describe the historical trajectory of the transnational climate justice movement.

¹⁷² *Dossier A*.

1.2 - *A brief history of the climate justice movement*

From the general perspective I briefly outlined, it is simply impossible not to label Durban's COP17 as a complete failure. Fortunately, however, during the summer of 2011 the city was not exclusively populated by elegant businessmen and restless bureaucrats. For the whole duration of the conference, in fact, a significant mass of activists never stopped contesting mainstream climate politics and never ceased to seek for alternatives to tackle global warming, at local as well as at transnational levels. An obvious example is the Global Day of Action on Climate Justice (December 3rd), which mobilized around 10,000 people. Although the rally was vociferous and colorful, its effectiveness was undermined by the subordination of grassroots movements to mainstream NGOs. As radical intellectual Ashwin Desai stated, criticizing “big name spectacle NGOs”: “the local grassroots organizations were reduced to spectators, and were allowed only the occasional cameo appearance with most often a single line: '*Amandla!*' [Power!]”.¹⁷³

¹⁷³

Dossier B.

Figure 2 & 3. Images from the Global Day of Action. Source: *Dossier C.*



In order to properly understand the conflicting dynamics that took place in Durban, however, we need to assess more directly the history of the climate justice movement. According to Patrick Bond (2012a), the first attempt to forge a veritable climate advocacy dates back to the mid-1990s, when big NGOs and a few grassroots movements created the Climate Action Network. Since 1997, however, this network adopted a very collaborative strategy with regard to the global elite and openly supported the PK carbon trading mechanisms. More radical climate justice demands, such as a 50% GHGs emissions reduction by 2020 and the decommissioning of nascent carbon markets, began to be articulated by a variegated movement whose lineage includes several different traditions, amongst which two are of particular relevance: 1990s anti-racist environmentalism, whose main merit has been to unmistakably show the link between ecological protection and social justice; and 1990s advocacy by Ecuador-based *Acción Ecológica*, whose elaboration of the ecological debt as an international justice issue has greatly inspired climate consciousness around the world. An intense process of networking at the beginning of the 2000s led to the formation, in 2004, of the Durban Group for Climate Justice, whose radical anti-market approach is perfectly represented by the “Durban Declaration on Carbon Trading”, which states:

As representatives of people’s movements and independent organisations, we reject the claim that carbon trading will halt the climate crisis. This crisis has been caused more than anything else by the mining of fossil fuels and the release of their carbon to the oceans, air, soil and living things [...] We denounce the further delays in ending fossil fuel extraction that are being caused by corporate,

government and United Nations' attempts to construct a "carbon market", including a market trading in "carbon sinks". History has seen attempts to commodify land, food, labour, forests, water, genes and ideas. Carbon trading follows in the footsteps of this history and turns the earth's carbon-cycling capacity into property to be bought or sold in a global market. Through this process of creating a new commodity – carbon – the Earth's ability and capacity to support a climate conducive to life and human societies is now passing into the same corporate hands that are destroying the climate. People around the world need to be made aware of this commodification and privatization and actively intervene to ensure the protection of the Earth's climate. Carbon trading will not contribute to achieving this protection of the Earth's climate. It is a false solution which entrenches and magnifies social inequalities in many ways: The carbon market creates transferable rights to dump carbon in the air, oceans, soil and vegetation far in excess of the capacity of these systems to hold it [...] The Kyoto Protocol's Clean Development Mechanism (CDM), as well as many private sector trading schemes, encourage industrialised countries and their corporations to finance or create cheap carbon dumps such as large-scale tree plantations in the South as a lucrative alternative to reducing emissions in the North [...] In addition to these injustices, the internal weaknesses and contradictions of carbon trading are in fact likely to make global warming worse rather than "mitigate" it [...] 'giving carbon a price' will not prove to be any more effective, democratic, or conducive to human welfare, than giving genes, forests, biodiversity or clean rivers a price.¹⁷⁴

Signed by almost 200 associations, the "Durban Declaration" paved the way for a more consistent organisational structure which finally emerged in 2007 with the foundation of the Climate Justice Now! network.

¹⁷⁴*Dossier C.*

Figure 4. Climate Justice Now! logo. Source: *Dossier D.*



Composed by nearly 500 organisations (as of November 2010) from all over the world, the network expresses an articulated conception of climate justice summarised by the basic principles all members share by joining the activist platform. Such principles are the following

Climate Justice Now! will work to expose the false solutions to the climate crisis promoted by these governments, alongside financial institutions and multinational corporations - such as trade liberalisation, privatisation, forest carbon markets, agro-fuels and carbon offsetting. We will take our struggle forward not just in climate talks, but on the ground and in the streets, to promote genuine solutions that include:

- leaving fossil fuels in the ground and investing instead in appropriate energy-efficiency and safe, clean and community-led renewable energy;
- radically reducing wasteful consumption, first and foremost in the North, but also by Southern elites;

- huge financial transfers from North to South, based on the repayment of climate debts and subject to democratic control. The costs of adaptation and mitigation should be paid for by redirecting military budgets, innovative taxes and debt cancellation;
- rights-based resource conservation that enforces Indigenous land rights and promotes peoples' sovereignty over energy, forests, land and water;
- sustainable family farming and peoples' food sovereignty. We are committed to building a diverse movement locally and globally for a better world.¹⁷⁵

In preparation of the massive protests organised in Copenhagen against the COP 15, Climate Justice Now! was joined by the European left's Climate Justice Alliance and was able to hegemonise to a significant extent the broad opposition to the multilateral process, attracting to its direct actions and seminars numerous activists from more mainstream groups like Greenpeace, Rainforest Action Network and 350.org.

The disaster represented by the Copenhagen Accord, however, re-fashioned the constellation of climate activism in its more familiar shape: on the one hand, climate justice grassroots movements radically opposing carbon trading and UN multilateralism; on the other one, big NGOs attempting to impose “less worse” solutions by lobbying and pressuring “from the inside”. This political furrow became even more pronounced in April 2010, when the Bolivian government- launched (but civil society-run) World People's Conference on Climate Change and the Rights of Mother Earth was held in Cochabamba. The demands put forward by the “People's Agreement on Climate Change

¹⁷⁵*Dossier C.*

and the Rights of Mother Earth” showed a revolutionary potential such that basically no governmental agency – let alone corporation – could accept given the current socio-economic conditions.¹⁷⁶ Amongst the most radical of such demands are the following:

- 50% reduction of GHGs emissions by 2017;
- stabilisation of temperature rise to 1 degree Celsius and of CO2 atmospheric levels to 300 parts per million;
- repayment of the climate debt owed by the global North to the global South;
- full respect of human rights and the inherent rights of indigenous people;
- ratification of the universal declaration of the rights of Mother Earth to ensure harmony with nature;
- establishment of an International Court of Climate Justice;
- rejection of carbon markets and commodification of nature and forests through the REDD+ programme;
- promotion of measures to change the consumption patterns of developed countries;
- end of intellectual property rights for technologies useful to mitigate climate change; and
- payment of 6% of developed countries' GDP to addressing climate change.¹⁷⁷

¹⁷⁶ Although the Bolivian government has backed the Cochabamba proposals, and both Bolivia and Ecuador's new constitutions includes rights of nature, the process of politically implementing the principles of the “People's agreement” is highly problematic (Mueller 2012).

¹⁷⁷ *Dossier C.*

Notwithstanding the political distance between the two strands of climate justice – which was evident also in late-2010 at COP 16 in Cancún – transnational climate advocacy at large tried a reconciliation to organise as broad an opposition as possible to the upcoming COP 17 in Durban. This decision created the problematic scenario described above by Ashwin Desai with regard to the Global Day of Action on Climate Justice, which also affected the 'People's Space' organized by the Civil Society Committee on UNFCCC COP17 (commonly referred to as C17¹⁷⁸), a two-week long counter-conference that took place on Howard Campus, at the University of KwaZulu-Natal.¹⁷⁹ Although the C17 'People Space' programme was immensely rich in its diversified interests and approaches (experience exchanges, teach-ins, campaigns launches, collective debates, concerts, press conferences, film festivals, thematic seminars, keynote addresses, etc.), the organization of the event as a whole was affected by a number of flaws. To name but a few: lack of mobilization of local grassroots movements; general deficit of climate consciousness and relative failure of producing valuable and easily accessible information on the topic; excessive breadth of the C17 coalition, with consequent subordination of radical politics to unity. As for the first two points, Alan Murphy, from Ecopeace Party, lucidly stressed that “we lacked reciprocal solidarity. Different groups were campaigning for their

¹⁷⁸ The C17 represented a broad range of organizations including NGO's, Community Based Organizations, faith communities, trade unions and academia. Many of the organizations on the committee were themselves coalitions. To give a quick idea of how diverse were the many 'souls' of such a coalition, examples of actors involved in the committee are the following: Earthlife Africa eThekweni, TimberWatch, South Durban Community Environmental Alliance, Greenpeace Africa, Congress Of South African Trade Unions, Economic Justice Network, GroundWork.

¹⁷⁹ This location, quite far from downtown, was just the first of a long series of logistical problematics, culminated with the organization of competing events in different parts of the city, with the obvious consequence of defeating the purpose of civil society convergence. As Patrick Bond (2012b) shows in full detail, however, a significant amount of logistical inconveniences depended on intentional delays on the part of the City of Durban and other governmental agencies.

limited, if legitimate, goals. This is understandable but it's also a clear problem for civil society".¹⁸⁰ Moreover, with specific regard to the last point, particularly instructive was the climate justice international conference *Dirty Energy Week: Challenging Climate Gangsters* (November 22nd – 25th), during which a lively exchange of climate politics world-views took place between critical insiders ("The UNFCCC is a terrain of struggle: we need to force our demands into the multilateral process") and radical outsiders ("the Stockholm Syndrome is serious: you need to realise you've been kidnapped").¹⁸¹ As an overall *ex post* activists' self-criticism, we can easily – and entirely – subscribe Patrick Bond's analysis, according to which

delegitimization of global capitalism's climate policy reformism, especially when reliant on self-destructing carbon markets, should have been the starting point for a coherent politico-intellectual demolition of the COP17, and a matching activist programme. Without that in place, it makes more sense to dedicate time and energy to the national, sub-national and local sources of the crisis, and return to the global scale – perhaps in 2013 or later (although time is running out) – with a formidable array of recent climate justice victories, momentum and cadres (2012b: 67).

To conclude this section, we might juxtapose the two main features of the transnational climate justice movement as it has been framed above: on the one hand, its *inherent fluidity*, its lack of co-ordinated organisational structures and common analytical perspectives as well as political horizons. As Patrick Bond and Michael Dorsey have

¹⁸⁰ *Dossier A.*

¹⁸¹ *Dossier B.*

recently argued: “Climate justice movements across the world have not solidified a set of tactics, much less strategy, principles, ideology and foundational philosophy” (2011: 298). Quincy Saul, from Ecosocialist Horizon, sees this *process of organising convergences* as the crucial issue to which the politics of climate justice will be confronted in the near future: “An ambitious task would be to just say: well, climate change is the most dangerous challenge the world has ever faced, so we need to build a worldwide movement to counter that. But a more realistic, modest task is to do all we can to help already existing local struggles developing a global vision of ecosocialism and move towards an ecosocialist horizon. That can take many forms, but mainly it's a matter of organising convergences. This is the key strategic question of the XXI century”.¹⁸² On the other hand, however, climate justice movements have also expressed themselves as *constituent power*, namely as irreducible profaning instances which are able – at the same time – to deconstruct the carbon trading dogma and to envisage viable alternatives. As Michael Dorsey has emphatically written:

These demands are not just positions against authority – *anti-positions* – “against power”, per se. To the contrary, the demand for climate justice is an expression of hope – indeed, desire and love – and a demand for objectives rooted in collective decision-making that are well beyond the provisional scope of power as presently conceived. The climate justice movement is therefore one of liberation as well as economic and ideological sovereignty. Prophetically, the struggle for climate justice dares to demand changing the world without reproducing hierarchical state or market power as it is currently known. In this way, it holds both a threat against the hegemonic doxa and a novel promise of liberation (2007: 20).

¹⁸²

By critically overlapping those two main features (need to strategically unify divergences and twofold nature – at once deconstructive and creative – of climate struggles), we aim at framing *profanation as organising convergences* as methodological principle to investigate three specific climate justice campaigns. Our focus will be on how, by connecting heterogeneous demands into single campaigns, climate justice activists tend to force the carbon trading dogma beyond its system of compatibilities.

2 - THE TRANSNATIONAL LEVEL: REPAYING THE CLIMATE DEBT

*I think that capitalism is the worst enemy of humanity
and if we do not change the model, change the system,
then our presence, our debate, our exchange, and the proposals
that we make in these meetings at the UN will be totally in vain [...]*

I feel that it is important to organise an international movement

to deal with the environment,

a movement that will be above institutions,

businesses and countries

that just talk about commerce,

that only think about accumulating capital.

We have to organize a movement that will defend life,

defend humanity, and save the earth.

I think that it is important to think about

some regions, some sectors and some countries

repaying what has often been called the ecological debt.

If we do not think about how this ecological debt will be paid,

how are we going to solve the problems of life and humanity?

Evo Morales – 2007

One of the most crucial issues discussed by climate advocates in Durban's C17 concerned the so-called *climate debt*. Such a notion is of particular interest from our perspective since it closely links the *global* dimension of climate change policies (North vs. South) to their *financial* character (predominance of carbon trading as a putative solution to global warming). At a first sight, the concept of climate debt appears as remarkably straightforward: since industrialised countries and high-emissions societies have evidently overused the planetary carbon dump in the last two centuries and a half, decisively contributing to atmospheric degradation, these same subjects owe developing areas – whose climate responsibilities are incomparable, if existing at all in some instances – a global warming-related reparation which still awaits to be paid. The Bolivian government's submission to the UNFCCC in 2009 brilliantly summarises the issue as follows:

The climate debt of developed countries must be repaid, and this payment must begin with the outcomes to be agreed in Copenhagen. Developing countries are not seeking economic handouts to solve a problem we did not cause. What we call for is full payment of the debt owed to us by developed countries for threatening the integrity of the Earth's climate system, for over-consuming a shared resource that belongs fairly and equally to all people, and for maintaining lifestyles that continue to threaten the lives and livelihoods of the poor majority of the planet's population [...] Any solution that does not ensure an equitable distribution of the Earth's limited capacity to absorb GHGs, as well as the costs of mitigating and adapting to climate change, is destined to fail.¹⁸³

¹⁸³

As this excerpt suggests, the apparent simplicity of climate debt as a political category is merely superficial, and various complexities emerge as soon as three main problematics are tackled: a) how to *calculate* the actual amount to be compensated for? Given the ecological nature of the misused entity, its translation into the grammar of money risks replicating the very procedures performed by the carbon trading dogma; b) how to *demand* the repayment? Given the tendency of human rights-based discourses to be co-opted by neoliberal agencies through legal means, a new paradigm grounded on a conception of Earth's climate as a global common should be established in order to ensure a radical shift away from green economy policies¹⁸⁴; c) how to *transfer* the agreed sum in such a way that it reaches actual climate victims and is used to foster a veritable transition towards a low-carbon economy, centred around decentralised renewable energy rather than fossil fuels? Given a long-standing history of endemic global South elites'

¹⁸⁴ A good example of the shortcomings of a rights-based activist discourse is provided by the recent water struggles in Johannesburg, South Africa. As Patrick Bond and Jackie Dugard convincingly argues (2008), despite their good intentions many activist campaigns organised around the notion of individual water rights ended up fostering rather than stopping the process of neoliberalisation of nature. In a subsequent article, Bond critically observes that a perspective grounded on retail water provision, in which water is conceived of as an economic commodity, “only to a limited extent links water consumption (including over-consumption by firms and wealthy households) to ecosystem sustainability” (2010: 311). However, the issue of a rights-based approach to environmental campaigns has been broadly – and critically – discussed in activist scenes and, obviously, its multifarious features makes it difficult to find a definitive solution. For instance, two different – albeit not necessarily mutually exclusive – interpretations are provided by Marie Hurchzermeyer and Ashwin Desai. According to the former, marginal gains through courts are important aspects in the struggle for emancipation: “Urban Reform in this sense is a pragmatic commitment to gradual but radical change towards grassroots autonomy as a basis for equal rights” (quoted in Bond 2011c: 247). Differently, Desai notes that “if one surveys the jurisprudence of how socio-economic rights have been approached by South Africa courts there is, despite all chatter, one central and striking feature. Cases where the decision would have caused government substantial outlay of money or a major change in how they make their gross budgetary allocations, have all been lost. Cases where money was not the issue [...] or where what was being asked for was essentially negative – to be left alone – the courts have at times come grandly to the aid of the poor. And even to have some of these judgements enforced by the executive is a story in and of itself. I have no problems using the law defensively, but when it comes to constitute the norms by which political advances are determined, it is extremely dangerous. By flirting with legalism, movements have had their demands infected with court pleadings. We have heartfelt pleas for the observance of purely procedural stuff, consult us before you evict us. We have demands for housing, now become '*in situ* upgrading' and 'reasonable government action'" (*Ibid.*).

corruption, the necessity to envisage new community finance strategies as well as unprecedented means of popular control over energy programs imperiously emerges.

Referring to the first point, an important reflection is provided by Joan Martinez Alier, according to whom the factors of such a huge calculative effort are almost innumerable and should provisionally include:

The (unpaid) costs of reproduction or maintenance or sustainable management of the renewable resources which have been exported; the actualized costs of the future lack of availability of destroyed natural resources (for instance, the oil and minerals no longer available, the biodiversity destroyed); the costs of (unpaid) reparation of the local damages produced by exports (for example, the sulphur dioxide of copper smelters, the mine tailings, the harms to health from flower exports, the pollution-irreversible damage); the (unpaid) amount corresponding to the commercial use of information and knowledge on genetic resources, when they have been appropriated gratis (“biopiracy”) (2003: 24-25).

Although such list could be indefinitely expanded, the main problem concerning the calculation of climate debt (and more comprehensively, as the previous quotation shows, of ecological debt¹⁸⁵) refers not so much to the elements to be considered, but to the value they should be accorded. Here the crucial issue of how to translate environmental values into monetary figures appears in all its ambivalence: Martinez Alier correctly remarks that “tropical rainforests used for wood export have an extraordinary past we will never know and ongoing biodiversity whose destruction we cannot begin to value” (*Ibid.*: 10). Simultaneously, and correctly again, his reasoning unfolds as follows: “although it is

¹⁸⁵ On the more general notion of ecological debt, see Martinez Alier (2002) and Simms (2005).

impossible to make an exact accounting, it is necessary to establish the principal categories and certain orders of magnitude in order to stimulate discussion” (*Ibid.*: 11). In other terms, the proposal is to disarticulate the monetary politics of quantification from the carbon trading dogma: to *dis-orient* it. Money would still function as a general equivalent, but instead of enabling capital's self-valorisation it would be subordinated to environmental justice.¹⁸⁶ In this way, Martinez Alier concludes with a precise figure to be repaid: “If we take the present human-made emissions of carbon, [this amounts to] a total annual subsidy of \$75 billion forthcoming from South to North” (*Ibid.*: 27)¹⁸⁷.

Obviously, however, establishing a figure to be repaid – albeit complex and politically non-neutral as a procedure – does not exhaust the depth presented by climate debt as a political category. In fact, particularly controversial is the issue concerning the actual modality of repayment. Unsurprisingly, the UNFCCC proposes to locate the source of money (whose amount is, however, far from having been already agreed upon) either in the Green Climate Fund or – which is essentially the same – in the revenues produced by various carbon markets mechanisms (ETF, CDM, REDD+, etc.). Social movements, on

¹⁸⁶ This argument can be considered as a variation of the main theme of the *money of the common*. According to Christian Marazzi (2012) such a theme refers to the monetary form of the socio-economic contribution performed by the general intellect. In other words, the money of the common expresses the constituent power of social knowledge as organisational principle of contemporary production without passively accepting its subordination to financial imperatives of valorisation through self-reflexivity. Not by chance, Marazzi criticises recent proposals by the European Central Bank of *project bonds* – obligations aimed at financing large infrastructural constructions – and counters to them *sustainable bonds* – similar obligations whose goal would be the provision of funds to projects aimed at fostering local sustainability under communities' control. For an extremely thought-provoking commentary to Marazzi's intuition see Lucarelli (2012).

¹⁸⁷ Obviously, this is not the only estimate of ecological debt. For instance Patrick Bond (2009) reports that Vandana Shiva has calculated that wild seed varieties alone account for \$66 billion of annual biopiracy benefits to the US. Another possibility, again reported by Bond, is explored by Richard Norgaard and his colleagues, according to whom the global North would be responsible for \$1.8 trillion in concrete damages over several decades.

the other hand, demand that such source of money be independent from carbon trading (as it would be through the *climate basic income*, as we will see below), or – even better – located outside conventional circuits of capitalistic valorisation. For instance, Esteve Corbera and Charlotte Friedli envisage a sort of *de-commercialised REDD+ scheme* to be regarded as an Ecological Debt Fund. As they argue, “the fund could serve as the main financial instrument of developed countries to pay back the ecological debt acquired with poorer countries as a result of sustained ecologically uneven exchange and the historically uneven contribution to global GHG emissions” (2012: 235). From our perspective, such proposal is extremely interesting since it maintains the massive mobilisation of the general intellect upon which contemporary value-production is increasingly based upon, but strongly opposes its subordination to profit-making imperatives.

This issue brings us directly to the second and third aspects of climate debt, which are particularly important to reflect on the peculiar, extremely close interrelations it establishes with the *financial debt* that lies at the very core of current global crises, especially in the Eurozone. Such affinities, in turn, will allow us to better articulate climate debt campaigns as specific forms of *carbon profanations*. From the perspective of biopolitics as method, it seems reasonable to argue that those phenomena are but the two sides of the same coin: as financial debt expresses the governmental sequestration of the future by neoliberal, self-reflexive economic instability, so climate debt (and the repetitive procrastination of its repayment) exposes the refusal by Northern elites to politically account for their past dominance. In other words, they configure themselves respectively as the economic and environmental dimensions of one and the same crisis of capitalism as world-ecology. Thus, this framework shows the first aspect of climate debt

repayment campaigns as a *carbon profanation*, hence as a process of *organising convergences*. As contemporary, tendentially high-educated and yet deeply deskilled workforces in the global North structure their radical claims around the slogan “we won't pay your crisis!”¹⁸⁸ – hence advancing a profoundly *abolitionist demand* – so global warming-affected communities in the South pretend the immediate end of violently unjust international relations – hence articulating a different, but nonetheless very proximate in spirit, *abolitionist demand* (Ross 2011).¹⁸⁹ As Nicola Bullard of Focus on the Global South aptly points out: “The only way the debt can be repaid is by ensuring that the historic relations of inequality are broken once and for all and that no 'new' debt will accumulate. This requires system change, both in the North and in the South. That's why climate debt is such a subversive idea” (quoted in Bond 2012a: 132).¹⁹⁰

¹⁸⁸ Although such slogan originated in the 2008 student mobilisations in Europe (known as Anomalous Waves), and is consequently tightly linked to university struggles and resistance against student loans, it must be stressed that the financial debt social movements currently opposed is profoundly multilayered and differentiated. As an excellent reportage by Astra Taylor for the magazine *The Nation* clearly explains, the exposition to diverse forms of debt is what provides a common ground to the multifarious experiences of contemporary workforces: “Debt is the tie that binds the 99 percent,' Occupy organizer Yates McKee has written: 'from the underwater and foreclosed-upon homeowners who were first pummeled by the economic crisis, to the millions of debt-strapped students who are in default or on the brink, to all those driven into bankruptcy by medical bills, to workers everywhere who have been forced to compensate for more than thirty years of stagnating wages with credit card debt, to the firefighters and teachers who have had to accept pay cuts because their cities are broke, to the citizens of countries where schools and hospitals are being closed to pay back foreign bondholders. Given the way debt operates at the municipal and national levels, the issue affects us all—even those who are fortunate enough to be debt-free, as well as those so poor they don't have access to credit. Debt is one of the ways we all feel Wall Street's influence most intimately, whether it's because of a ballooning mortgage payment or a subway fare hike or a shuttered clinic'. 'This is why we're not talking about a debtors' movement, but a debt *resistance* movement,” says 28-year-old Chris Casuccio, a Strike Debt member whose student loan debt has swelled to more than \$100,000 since he graduated” (Taylor 2012).

¹⁸⁹ On a different level, which we cannot fully articulate here, also the *foreign debt* might be included in the equation, as Ecuador's President Rafael Correa's inaugural statement clearly demonstrates. In fact, Correa has defined his country foreign debt as “illegitimate” and “contracted in dubious circumstances”. For a very unsympathetic – and yet fully detailed – discussion of this issue, see Porzecanski (2010).

¹⁹⁰ Such “historic relations of inequality” have obviously changed their shapes over time. David Hallows provides an excellent overview of their current state of affairs: “Global production networks have located the dirty end of the production chain in the global South, giving the North the appearance of clean

Obviously, the path towards a harmonisation of radical demands around different but co-existing forms of debt is all but clearly traced and/or easy to walk. On the contrary, it is fairly reasonable to assess a significant gap between generally Southern alternatives based on a culture of sober and respectful sharing – as expressed by formulations such as *buen vivir* (“good living”, as opposed to ceaseless attempts to “living better” by having more) and *sumak kausai* in Latin America, or *ubuntu* in Africa –¹⁹¹ and generally Northern desires to participate as much as possible in the abundance promised by endless economic growth. However insidious it may appear – and indeed be – such a gap is not impossible to overcome. A good starting point to explore convergences between the two sides¹⁹² is to establish a connection between the radical demand of an *unconditional basic income* (Van Parijs 1995; Fumagalli and Lucarelli 2008) in Europe and what can be provisionally defined as a *climate basic income* in the Global South. First and foremost, the two claims share a common refusal of (or, at the very least, a strategic independence from) the language of human rights: in fact, it is not a matter of establishing a legally

production. This is an uneven process but, schematically, what has emerged is a triangular ordering of the global economy. Raw materials from Africa and Latin America are taken to the Asian factory to produce goods consumed in the North. This flow of resources is largely managed by Northern transnational corporations who also determine the technologies of production, control product development and allocate 'value' – or profit – through the network. The global concentration of control in the hands of transnationals is a striking feature of the global restructuring of production and this intensified following the financial meltdown. Heavy pollution in China, and recent scandals involving the contamination of foods produced there has as much to do with cutting imposed by Northern transnational as with cowboy development in the wild East. As Wolfgang Sachs has observed, self-poisoning is the price newly industrialised nations have to pay for grater share of value creation, while producers of raw materials, at the bottom of the industrial supply chain, face the wholesale destruction of their environments” (2011: 106).

¹⁹¹ On these mainly indigenous alternatives to the capitalist growth-addiction, see De Marzo (2009; 2010).

¹⁹² It is important, however, to stress once again that the two sets of interests are in actuality much more nuanced than they are presented in our impressionistic review. Our aim is to simultaneously stress the strategic necessity and the political possibility of organising convergences, not to exhaust the multifarious expressions this problematic can assume in a variety of given contexts.

recognised right to consume or to pollute. Rather, what is at stake is the political recognition of precarious workers as productive subjects, on the one hand, and Southern populations as (most often) climatically better performing on the other hand. In this sense, both campaigns represent a profanation of the carbon trading dogma since the first proposes a different direction for the mobilisation of the general intellect, whereas the second counters community organisation and control over local resources to the self-valorising imperative of global financial capital.

To explore the relevance of this commons-based approach as opposed to a rights-based one, it is useful to consider the case of the Greenhouse Development Rights (GDRs) programme, advanced in particular by the German Green party and including a controversial “per capita right to pollute”. According to Patrick Bond, there are fundamental questions such a programme problematically avoids:

[...] whether environmental justice can be measured merely in terms of formal 'equality'; whether environmental justice is instead historical, political-economic and grounded in social struggles of those adversely affected; and in turn, whether environmental justice should not aim higher, for a broader, deeper eco-social transformation? The GDRs approach may foreclose these questions by reducing the challenge to incremental reformism (Bond 2012a: 137).

In a similar vein, Larry Lohmann critiques the programme's

[...] tacit endorsement of a long-discredited concept of 'development' that condescendingly sees 'resilience' as 'far beyond the grasp of the billions of people that are still mired in poverty', and that singles out for special climate blame 'subsistence farming, fuel wood harvesting, grazing, and timber extraction' by 'poor communities' awaiting Northern tutelage in capital flows, social networking,

carbon trading and methods for holding policy-makers accountable. (quoted in Bond 2012a: 137).

As we see, although rights-based and commons-based approaches are not necessarily mutually exclusive, the GDRs show a profoundly different attitude than the one expressed by the basic income claims. Yet, as we anticipated above, unconditional basic income in the global North and climate basic income in the South are not completely overlapping concepts. When asked about their respective affinities and divergences, Patrick Bond stated: “There are similarities, certainly. They can be found in the concept of *just transition*: for that to happen, it is equally crucial that precarious workers receive a basic grant and that the climate debt is paid from the North to the South. However, the Climate Basic Income Program payment is specifically designed to avoid that the climate debt is repaid through market mechanisms such as carbon trading or the Green Climate Fund. We need to ensure that money actually goes from the North to affected people rather than from the North to Southern private sectors of corrupted agencies. The goal is to reduce intermediaries' role as much as possible. This means that the money goes directly to people. An interesting project is underway in Namibia, where the equivalent of approximately 15\$ has been transferred directly to a thousand women through international aid – especially from German-based Rosa Luxembourg Foundation. This has been extremely important because these women can do what they want with the money, so that they can adapt the way they find most appropriate to the negative impacts of North-induced climate change”.¹⁹³ The global warming-related Basic Income Program

¹⁹³

Dossier A.

in the Namibian village of Otjivero has recently been the object of a detailed reportage by Dialika Krahe for the German magazine *Der Spiegel*:

It sounds like a Communist utopia, but a Basic Income Program pioneered by German aid workers has helped alleviate poverty in a Namibian village. Crime is down and children can finally attend school. Only the local white farmers are unhappy [...] “This country is a time bomb”, says Dirk Haarmann, reaching for his black laptop. “There is no time to lose”, he says, opening documents that contain numbers he hopes will support his case. Haarmann and his wife Claudia, both of them economists and theologians from Mettmann in Western Germany, were the ones who calculated the basic income for Namibia. And both are convinced that “this is the only way out of poverty” [...] “The basic income scheme doesn’t work like charity, but like a constitutional right”. Under the plan, every citizen, rich or poor, would be entitled to it starting at birth. There would be no poverty test, no conditions and, therefore, no social bureaucracy. And no one would be told what he or she is permitted to do with the money [...] “In a country like Namibia”, says Haarmann, “a basic income would achieve what conventional development aid could never do: provide a broad basis for human development, both personal and economic” (Krahe 2009).

This reportage clearly shows how a climate basic income can not only work, but also be considered in connection with an unconditional basic income. Once again, the process of organising convergences profanes (although partially and ambivalently) the exclusive drive for self-valorisation of the carbon trading dogma.

The second aspect of climate debt campaigns as carbon profanations can be appropriately appreciated by considering a specific proposal emerged in the Yasuní National Park in

East Ecuador. This national park, which is also a biodiversity hotspot¹⁹⁴ and the traditional territory of the Huaorani people, contains the country's largest oil reserves. In particular, two abundant petrol blocks – ITT [Ishpingo-Tambococha-Tiputi] and Block 31 – are estimated to be worth 960 million barrels of probable reserves (Martinez 2010). In 2007, Ecuador's President Rafael Correa presented a proposal concerning these oil reserves to the rest of the international community, demanding so-called developed countries to take responsibility for \$350 million as a compensation – over a ten-year time-span – in exchange for leaving this oil in the soil. This figure is equivalent to half of the expected profits should the country exploit the ITT oil field.

¹⁹⁴ In the course of the C17 workshop on this issue, an activist from Ecuador informed us that “with an estimated 2,274 tree and shrub species, Yasuní protects a large stretch of the world's most diverse tree community. In fact, there are almost as many tree and shrub species in just one hectare of Yasuní's forests as in the entire United States and Canada combined”; *dossier B*.

Figure 5. Yasuní proposal logo. Source: *Dossier D.*



It is important to remark that such proposal actually prefigures a non-capitalist way to confront the issue of fossil fuel-addiction since it does not limit itself to criticise destructive oil companies and complacent governments. Rather, the Yasuní proposal, which became state policy in 2007, practically delineates a new energy and development model based on leaving crude oil underground. As Yvonne Yanez – who, as a long-standing Acción Ecológica activist has been working on the issue for more than two decades – declares, “This project has nothing to do with carbon markets or payment for environmental services. The Yasuní proposal, who owns a lot to the indigenous way of conceive of existence, represents a new conceptualisation of what life or energy is: it actually gestures towards a post-oil civilisation”¹⁹⁵. This idea of a transition to a post-petrol energy model is manifest in the four main points the proposal consists of, as listed by Oilwatch activist Esperanza Martinez:

- 3) Not extracting the crude oil from the subsoil;

¹⁹⁵

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- 4) Channelling international resources in the form of compensation, donations, and symbolic sale of the crude oil that will remain unexploited;
- 5) Creating a capitalisation fund whose interest could provide a permanent source of income;
- 6) Using these funds to embark on a model of self-sufficiency with regard to food production and energy supply, in order to work towards constructing a post-petrol Ecuador (Martinez 2010: 234).

Equally important, in terms of designing a non-market-based approach to ecological issues, are the “expected results:

- 4) Protection of ecosystems in those areas chosen to be new frontiers of oil devastation;
- 5) Protection of local and global climates;
- 6) Respect for the rights of local populations;
- 7) Putting to work a new post-oil energy model”.¹⁹⁶

As we see, the political backbone of the Yasuní proposal is radically incompatible with a regime of truth based on the uncontested primacy of competition and self-valorising market forces and, as a consequence, demanding to leave the oil in the soil (and the coal in the hole, and the tar sand in the land – as activist in Durban chanted on many occasions) means profaning the carbon trading dogma through the political creation of

¹⁹⁶ *Dossier C.*

post-capitalist conditions of energy production, distribution and usage. However, as we have repeatedly highlighted, no profanation is – in principle – immune from co-optation. The constitutive ambivalence of the Yasuní proposal as carbon profanation is perfectly expressed by Esperanza Martinez:

Many different mechanisms were explored during the first year of this initiative. Not all of them were critical of the traditional neoclassical focus, nor even of the neoliberal model. For example, an attempt was made to deploy an external debt-based mechanism in order to guarantee that the oil would not be exploited, in combination with a carbon bond within the framework of emissions trading. Just as excuses are sought in the international arena, so too in Ecuador. Finally, the Yasuní Guarantee Certificate (CGY) was designed. While attempts have been made to distance these certificates from carbon bonds, the argument that it will be impossible to get money outside of the market, nonetheless threatens to turn them into a new market mechanism (*Ibid.*: 243).

How to maintain the political force of such radical demand and, hence, avoid capitalist recuperation? It is our conviction that an approach based on local oil reserves (as well as global climate) as *common/s* would be helpful to defend and reinvigorate a process of establishing new, more resilient institutions. Such institutions, we contend, are potentially able not only to resist co-optation, but also to generalise the struggle to leave the oil in the soil, and climate change governance out of market hegemony. We will expose and discuss a perspective grounded on the notion of the *common/s* in the conclusion.

3 - THE NATIONAL LEVEL: ONE MILLION CLIMATE JOBS

*Apartheid was a new term but an old idea.
It literally means “apartness” and it represented
the codification in one oppressive system
of all the laws and regulations that had kept Africans
in an inferior position to whites for centuries.*

*What had been more or less de facto
was to become relentlessly de jure.*

*The often haphazard segregation of the past three hundred years
was to be consolidated into a monolithic system
that was diabolical in its detail, inescapable in its reach,
and overwhelming in its power.*

*The premise of apartheid was that whites were superior
to Africans, Coloureds, and Indians,
and the function of it was to entrench white supremacy for ever.*

*As the Nationalists put it,
“Die wit man moet altyd baas wees”
(The white man must always remain boss).
Their platform rested on the term baasskap,
literally boss-ship, a freighted word that
stood for white supremacy in all its harshness.*

Nelson Mandela – 1994

*Apartheid was pervasive and inflicted unnecessary
and untold suffering on all its victims.
And you might say without exaggeration*

*that every person who was not white
to some extent was a victim of this horrendous policy.
Black people should by rights have been filled with hatred
and resentment and should have been baying for the blood
of white people for all that apartheid had done to them.*

*Our new Minister of Justice, Dullah Omar,
called us 'a nation of victim',
and that was an apt description up to a point.*

*But we should also declare that ours
was also wonderfully a nation of survivors,
with some quite remarkable people
who astounded the world with their capacity to forgive,
their magnanimity and nobility of spirit.*

Desmond Tutu – 2002

In order to properly understand the profound relevance as well as the specific problematics of the One Million Climate Jobs campaign, it is necessary to situate it in its contingent South African context, and more particularly in the multifarious challenges faced by the “developmental state” in the post-apartheid era. Patrick Bond defines the notion of developmental state as follows:

Though it typically refers to the East Asian experience combining manufacturing-sector growth and diversification with authoritarian politics, I take this oft-abused phrase to mean – in a South African context – a combination of macro-economic neoliberalism and unsustainable mega-project development, dressed up with rather tokenistic social welfare policy and rhetorical support for a more coherent industrial policy (Bond 2008a: 8).

The transition from the progressive policy proclaimed by the first ANC¹⁹⁷-led government in 1994 – RDP (Reconstruction and Development Programme) – to the openly neoliberal platform eventually adopted by the same government in 1996 – GEAR (Growth, Employment and Redistribution) – cannot be described in detail here. Suffice to say that the initial attempt to build the “Rainbow Nation” on the basis of a strategy of economic growth through just redistribution was soon sacrificed on the altar of the national inclusion within the global circuits of capital accumulation.¹⁹⁸ As Patrick Bond suggests, while resolutely “talking left”, the ANC leadership was rapidly “walking right” (2006). A perfect example of this attitude is represented by the fundamental policy called *Black Economic Empowerment* (BEE), launched in 1994 and then revisited several times in the course of its implementation. In theory, BEE can be defined as

[...] an integrated and coherent socio-economic process [which is] aimed at redressing the imbalances of the past by seeking to substantially and equitably transfer and confer ownership, management and control of South Africa's financial and economic resources to the majority of the citizens. It seeks to ensure broader and meaningful participation in the economy by black people [but also other minorities: Coloureds, Indians] to achieve sustainable development and prosperity (BEE Commission Report quoted in Weston 2011: 155).

¹⁹⁷ African National Congress.

¹⁹⁸ For divergent but equally detailed analyses of the post-apartheid debates and controversies, see Marais (2001), Bond (2005) and Hirsch (2005).

Notwithstanding such noble and fair premises, it is nowadays commonly recognised that “BEE has facilitated the structural expansion of the white elite class to include a small, black elite, overcoming the international constraints to capital accumulation posed by apartheid, while maintaining the basic class structure of South African society” (*Ibid.*: 147).¹⁹⁹ In other words, the “developmental state” in South Africa embodies the neoliberal merging of private markets and public administrations we described in the previous chapters.²⁰⁰ In fact, a brilliant paper recently delivered by Alex Casamento and Chris Webb defined South Africa as a *competitive state* (Casamento and Webb 2012).²⁰¹

As soon as the Tripartite Alliance government²⁰² embraced the global neoliberal atmosphere of the late 1990s, the problem of how to specifically inscribe the South African economic context into the planetary financial circuits of capital accumulation and valorisation emerged. In general terms, the influence of global capital penetrates in South Africa through the uncontested primacy of the so-called minerals-energy complex

¹⁹⁹ For an in-depth analysis of BEE, see Mancini (2011).

²⁰⁰ David Hallows brilliantly describes such mechanism with regard to the implementation, occurred in 2002, of the Micro-Economic Reform Strategy and the Integrated Manufacturing Strategy. As he explains, these policies “were premised on an open, export-oriented economy tied into the world economy through global production chains; and they were formed from an imagination of development as produced through market competition based in high-tech, high-capital and high-energy enterprises. This excluded the majority of South Africans from the core of the economy while subordinating this economic core itself to the needs and profits of global capital” (2011: 86-87).

²⁰¹ Discussing the many challenges faced by the South African Left in the post-apartheid era, Dale McKinley argues that “the state has rapidly become the ‘public arm’ of a slowly deracialising capitalist ruling class (both bureaucratic and corporate). The African National Congress (ANC), which is in political and administrative possession of the state, is under the effective control of this ruling class and is fully committed to serving its interests. Despite the more recent growth of a crisis of ideological identity and political division, the ANC’s own leadership layers, as well as those of its alliance partners (COSATU – Congress of South African Trade Unions) and (SACP – South African Communist Party) have become sub-agents of such class rule” (McKinley 2008: 68).

²⁰² The term “tripartite alliance” refers to the historical affiliation the ANC holds with COSATU and the SACP.

(MEC), which makes the country's economy the second most energy-intensive in the world.²⁰³ The MEC is structured around large-scale, energy-intensive industry and mining and consumes over 60% of the country's total electricity output (Hallowes 2011). Moreover, it is underpinned by coal as the fundamental source of energy. The extraction rate of South Africa rich reserves is ever-increasing in particular to supply coal-fired electricity for transnational corporations such as Anglo American, BHP Billiton and Arcelor Mittal. As Patrick Bond (2011b) has unmasked, this kind of electricity is among the cheapest in the world since it is provided under apartheid-era pricing agreements. As a consequence, multinational conglomerates are supplied with electricity for less-than-cost (about 1/8 of what domestic consumers pay). Nevertheless, at present over 30% of South African population have no or minimal access to electricity.

Beyond its unfair production and unjust distribution, from the perspective of climate change the economic dominance of MEC in South Africa presents the further problem of being extremely carbon intensive. In fact, as Patrick Bond, Rehana Dada and Graham Erion have recently documented, “[South African] CO2 emissions rate in the all-important energy sector – measured per person per unit of output (i.e., the economy's per capita energy intensity) is *twenty times worse than that of even the United States*” (2009: 7). And yet, as the same scholars report, a survey conducted by GlobalScan in 2006 revealed that less than half South Africans consider climate change a “serious problem”. Consequently, they conclude, “more than in nearly any other society, ordinary South Africans have been kept in the dark by government, media and business – with civil

²⁰³ On the several problematic situations linked to the dominance of MEC over South African economy see Sharife and Bond (2011).

society making uneven efforts to address the deficit” (*Ibid.*). Actually, during our research period in Durban, it was common to be exposed in casual conversations with taxi drivers or other Durbanites to arguments like this: “Never seen such a rainy summer... No wonder we are hosting the climate change conference!”²⁰⁴

It is against this general background that our analysis of the *One Million Climate Jobs*²⁰⁵ campaign should be situated. We choose to focus on this specific struggle for two orders of reasons: on the one hand, this campaign possesses the clear – and somehow rare – advantage of being at the same time technically feasible and politically realistic. On the other one, it is extremely interesting in that it assumes the carbon trading dogma of the green economy – capital is able internalize the environmental limit in such a way that ecological protection and economic growth can go hand in hand – but immediately disarticulates and inverts it. By means of a strategic profaning move, instead of coupling low impacts and dividends' increase, the *One Million Climate Jobs* campaign links the transition to a low carbon economy to the erasure of unemployment, a historical and particularly dramatic plague of the South African workforce.²⁰⁶

²⁰⁴ *Dossier B.*

²⁰⁵ The first One Million Climate Jobs campaign was launched in the UK in 2009. Obviously, however, its translation into a specifically South African context has significantly modified both core arguments and practical implications. For a detailed analysis of the British experience, see Neale (2009).

²⁰⁶ It is important to stress that, although unemployment is a general feature of the capitalist tendency to produce crises, its specifically South African form is irreducible to a universal characterisation of the problem. As Franco Barchiesi appropriately notes: “The rate of unemployment, presently standing at around 25% of the economically active population, does not in itself explain the full extent of the crisis, or its nature. Nor does the fact that two-thirds of the working-age, able-bodied population aged 18 to 34 have never worked in their lives, or the fact that only one third of the African economically active population is in full-time, formal jobs. More generally, South African society is facing – and this is a reality remarkably impervious to shifts in the economic cycle and in the economic policy discourse – a widespread decline of waged employment as a condition of stable social insertion, citizenship, and the enjoyment of social rights. The most visible impacts of wage labour’s decline are deepening labour market inequalities and the

Figure 6. One Million Climate Job campaign logo. Source: *Dossier D.*



The basic claim of *OMCJ* is almost self-evident: by shifting crucial productive activities from a fossil fuel-based model to a low-carbon scheme it is possible to create at least one million new jobs. Such jobs must be, and this is a fundamental element, both *decent* and *people-driven*. “Decency” is defined in terms of social as well as psycho-physical safety and of healthy working conditions, whereas “people's centrality” is declined along the line of population's primacy over profit. Keeping in mind the three pillars of this

expansion of working class poverty, which, encompassing a growing number of workers with formal occupations as well as casual ones, is engulfing urban as well as rural areas” (Barchiesi 2008: 52-53).

transitional strategy – ecological sustainability, social justice and state intervention – the activists list their set of priorities. As they write: “We can and must:

- ✓ produce our electricity from wind and sun in a way that is driven by the energy needs of all people, and that protects nature;
- ✓ park private cars and get onto our feet, bicycles, trains, taxis and buses;
- ✓ convert our homes and public buildings so that they use less energy and use water more efficiently;
- ✓ grow enough food for all people through techniques such as agroecology that are labour intensive, low in carbon emissions, protect soil and water, and provide healthy food;
- ✓ protect our natural resources, especially water, soil and biodiversity, to make sure that we can continue to meet the basic needs of all people;
- ✓ provide basic services such as water, electricity and sanitation so that we address the legacies of *apartheid* and build the resilience of our people to withstand the effects of climate change”.²⁰⁷

In the materials distributed by *OMCJ* campaigners, the specific contents of every listed demand are well articulated, clearly expressed and, crucially, sustained by solid

²⁰⁷

Dossier C.

scientific research. From our perspective, this feature is of particular importance because it allows us to interpret this campaign as a peculiar form of *carbon profanation* at the national level. In fact, the collective production of knowledge which made possible the construction of the campaign shows two characters that are consistent with the twofold nature of profanations. Firstly, as sketched above, activists assume the starting point of climate capitalism (creating value by means of solving catastrophic global warming), but immediately disarticulate it by questioning the very notion of *value*. Just as the green economists, *OMCJ* activists recognise the climate crisis as a terrain for development – as a job creator rather than as a job killer – but do so by privileging the working classes' interests instead of the financial sector's needs. Through this decisive move the campaign overcomes the insidious issue of the – often conflicting – relationships between environmental advocates and trade unionists. Such inclusivity strongly resonates with Andrew Ross' reflection on the possibility to effectively resist the austerity measures that are sweeping the Eurozone:

It's very likely that the impact of the new austerity politics will set back the green-labour cause (and it is intended to do so) but there can also be no doubt now about the political potential of synchronizing the movements for social, economic, and environmental justice – a potential that has got a big boost from the climate crisis. Indeed, if the climate crisis did not exist, it may have been necessary to invent it so that this synchrony could finally occur (2011: 45).

Ross' point is definitely applicable to the *OMCJ* campaign: actually, it is refreshing and encouraging to see, as organizations involved in the project, actors as diverse, and once very disconnected, as the COSATU, the WWF, the Rural People's Movement, the New Women's Movement, the Institute for Zero Waste, the National Union of Mineworkers

and many others. Even more importantly, such process of *organising convergences* seems to be immune from the risk of levelling the radicality of demands since it originates at the intersection between scientific knowledge production/diffusion and local activism; hence, it configures itself as more difficult to be co-opted and/or recuperated. Workers, unemployed and environmentalists are connected not through specific, single-issue political practices, but rather by a new, general understanding of the climate crisis as a political means of social liberation and jobs-creation.

However, the critique of the carbon trading dogma by means of unprecedented coalition-building processes does not exhaust the political relevance of this campaign. In fact, the second aspect of *OMCJ as carbon profanation* concerns its (potential) incompatibility with the capitalist desire/need to self-valorise. Here, the general intellect is heavily mobilised as the organising principle of production, but is not corrupted by the primacy of profit-making over collective wealth-sharing. The technical accuracy of each possible intervention within the context of various sectors, as reported in Table 1, is striking and demonstrates the simultaneous quality *and* radicality of the bottom-up research carried out by *OMCJ* activists. Decentralization of energy supplies, public subsidies for renewable sources, electricity basic allowances, new means of pursuing energy efficiency (such as retrofitting old buildings), reforms of the transport system, creation of greenwalls and greenroofs, restoration of polluted rivers and wetlands, widespread rainwater harvesting: these are but few concrete proposals to create jobs by decarbonizing the national economy (potentially) beyond capitalism.

Table 1. Source: *Dossier C.*

INITIATIVE	JOB CREATION
Renewable energy	
South Africa supplying half its electricity from renewable energy within ten years ; 50% of households having installed solar water heating systems by 2020; construction of 150 000 residential digesters	Over 150 000
Ecological restoration	
Public works programmes such as Working for Water, Landcare, Working for Coast, Working for Wetlands, Working for Fire, and Working for Waste	Up to 400 000
Construction and building industry	
Retrofitting regulation; inner city; municipal housing unit	Up to 70 000
Health	
Employment of community caregivers	Up to 1 300 000 (the majority part-time)
Rainwater harvesting (RWH)	
Introducing RWH to 10% of the South African population (jobs in design, building, installation, maintenance and education; link with small-scale agriculture, etc.)	65 000
Transport	
Increasing use of public transport; expansion of rail general freight with 18%; promotion of a South African owned and controlled shipping industry, etc.	460 000
Manufacturing (in relation to RE)	
Manufacturing of climate mitigation and adaptation products for domestic households; climate adaption products in water reaching 50% of households; sales, maintenance and transport of the above products	38 000
Eco-housing and sanitation	
Construction of 200 000 RDP houses a year using eco-housing methods; and recycling of recovered materials for floors	8 700
Waste	
Zero waste economy	Over 400 000
Tourism	
Half of tourist lodges in SA sourcing their food through community agricultural projects; energy and water efficiency retro-fitting in hotels; waste management initiatives in the accommodation sector; and investment in programmes such as EPWP and projects undertaken by Open Africa	220 000

At this point, we would like to underline what we consider a great strength of this campaign and, subsequently, to discuss one of its possible limits. Firstly, it is evident that the climate crisis is correctly conceived of as a *global political issue* whose implications affect every aspect of individual as well as collective life. Even more importantly, climate change is tackled as a crisis reflecting uneven power relations (between classes and between world's regions) and unequal catastrophic distribution (the poorer suffer the most, and yet are the least culpable). From this perspective, technical feasibility cannot be confused with technocratic approaches. *OMCJ* presents itself as a non-neutral solution by identifying who is responsible for the problem: a form of capitalistic market based on carbon-intensive accumulation for the sole purpose of making profits. This is why the

envisaged strategy “does not exclude the private sector altogether, but [it] cannot rely on businesses to take urgent action as their bottom line of profitability and accountability to shareholders mostly prevents them from doing what is required socially and environmentally”.²⁰⁸ In other words, the animal spirits of capital must be tamed in order to ensure a people-driven transition to a low-carbon economy.

Exactly this explicit and welcome politicization, however, this complete rejection of any technocratic rhetoric whatsoever, might represent a serious limit to the entire radical architecture of the campaign. In fact, who is in charge of this “taming”? *OMCJ* advocates seem to have no doubts about that: it cannot but be the nation state. Although, at times, such a state-centrism appears to be counterbalanced by a significant emphasis on community self-governance,²⁰⁹ it is fair to say that the institutional pivot of the transition is individuated in the (positive) power of the state as opposed to the (negative) influence of the market. Consider, for instance, the following passage: “A just transition to a low-carbon economy requires state intervention. The imperatives of climate change and job creation on the one hand potentially conflict with trade rules rigged to meet the needs of transnational corporations on the other. Solutions to climate change lean heavily on local production to create jobs and reduce emissions. Local production – whether for the manufacture of renewable energy or transport or food – will require a range of initial protections such as: subsidies to local producers, non-price-competitive contracts, and import tariffs to help make foreign products uncompetitive. These essential measures

²⁰⁸ *Dossier C.*

²⁰⁹ For example, the expression “publicly owned and community-controlled” recurs quite often in *OMCJ* materials.

would discriminate against foreign companies and investors and could therefore be non-compliant with the vast complex of trade rules explicitly designed to prohibit such measures. The struggle against climate change requires a struggle against the trade rules 'rigged in favour of the rich'.²¹⁰

As we see, the state vs. the market framework could not have been expressed in a clearer manner. Let us be direct, though: the problem with this framework does not concern the necessity to limit the market's all-pervasiveness but, rather, the very possibility that such a crucial task might be performed by the contemporary, heavily neoliberalized state. Actually, the analysis we provided in the previous chapters suggests that states and markets are deeply entangled in the cogency of the carbon trading dogma. As a consequence, we contend that the prefigurative dimension of the *OMCJ* campaign would benefit from a non-state-based perspective such as that grounded on the notion of the *common/s*, which we will expose and discuss in the conclusion.

²¹⁰

Dossier C.

4 - THE LOCAL LEVEL: SHUTTING DOWN BISASAR ROAD

LANDFILL

You cannot just get rid of the pollution. It settles.

And most of the waste [at Bisasar Road dumpsite]

was burned at night.

Now they want to put a new set of generators in the valley

and flare off additional methane

that would not be used for electricity.

In the process, more than 43,000 tonnes of carbon

will be produced every year.

They are saying it is going to alleviate global warming

because they are going to get carbon credits [...]

It's the opposite. It's a disaster.

It's another form of colonialism.

Sajida Khan – 2007

Besides global and national issues, Durban C17 dedicated a great deal of its attention to local struggles. In fact, no hierarchy could be detected amongst different oppositional scales, all the effort being directed towards the creation of a reciprocally incremental virtuous circle amongst them. Perhaps the best way to approach local scale problematics

in the context of anti-COP 17 mobilisations is to analyse the role played by “big events” in Durban's municipality (eThekweni)'s strategy to foster the city's growth. Whereas in the late 1990s Durban implemented innovative policies and generally acted supportively with regard to street traders and community-based informal activities, starting from the mid-2000s eThekweni turned to an investors-friendly strategy exemplified by the slogan “world-class city”. Rather than the needs of the population, Durban's city officials choose to privilege putative, market-driven exigencies centred around the organisation of “mega-events” in the hope to link urban expansion to tourism, sport happenings (the soccer World Cup in 2010²¹¹ is most likely going to be a prelude to an Olympic bid for 2024), and international trade. Quite unsurprisingly, such a strategy configures itself as very risky, to say the least; in addition, it implies a relevant increase in GHG emissions. As the SDCEA [South Durban Community Environmental Alliance] has aptly remarked:

Global capital has made the succession of mega-events into significant sources of profit with carbon emissions to match. For host countries and cities, they present the opportunity to market themselves to global investors. These opportunities come at a very dear cost. FIFA²¹² walked off with staggering profits from the World Cup, the corporate sponsors latched onto the global audience, and Durban was stuck with a bill of SA Rand 2 billion [approximately US\$ 250 million]. The prestigious Moses Mabhida Stadium has not been filled since the World Cup, and maintenance alone drains the city coffers. South Africa will also pay handsomely for the privilege of hosting COP 17 (2011: 125).

Obviously, such price to be paid looks very different depending on who is gazing at it. According to a representative of Durban's businesses association, interviewed in early

²¹¹ On the 2010 FIFA World Cup in South Africa, see Desai and Bond (2010).

²¹² Fédération Internationale de Football Association; it is the organiser of the World Cup.

December by local newspaper *The Mercury*, “hosting environmentally responsible events has positioned Durban as an innovative, globally competitive event destination. With experience gained from FIFA World Cup and now COP 17, Durban continues to set the benchmark for hosting large gatherings that are economically sustainable and efficient and take care of the environment at the same time. Durban is a leader in incorporating green practices and principles into events to maximize the positive benefits and minimize the negative impacts of large events. In addition, significant progress has been made in influencing decision-makers to set benchmarks for future green events and build sustainable principles in the way we do business”²¹³.

On the contrary, street vendors participating to the public hearings on climate change and poverty, hosted by SDCEA in 2011, observed that “COP 17 will be a big event with many visitors from around the world. And we know that they will then start with 'street cleaning', so the international visitors will not see dirty street vendors. We want support for our demand that we are not cleaned off the streets. We have learnt that the same thing happens in other parts of the world when they host big events. And we experienced it during the football World Cup”²¹⁴. Actually, in preparation for COP 17 Durban has been turned in a sort of perverse case study of socio-environmental injustices, in so far as a large number of poor people have been displaced from homes, streets and even fishing

²¹³ *Dossier D.*

²¹⁴ *Dossier C.*

piers in the area adjoining the International Convention Centre (ICC) (Bond and Desai 2011).²¹⁵

However, beyond a history of violent evictions and a recent neoliberal shift towards dubious forms of urban growth, Durban also shows a remarkable tradition of radical movements' resistance and civil society protagonism. Most importantly from our perspective, South Durban communities' environmental concerns about air pollution from industrial plants and refineries played a significant role in resisting local as well as international power, already during the apartheid-era.²¹⁶ More specifically, two dates must be mentioned: in 1993, a group of community organisations and NGOs formed the South Durban Environmental Forum (SDEF), which in 1997 became the South Durban Community Environmental Alliance (SDCEA). These movements engaged local and

²¹⁵ Another example of COP17 conceived of as a mega-event by eThekweni is the much-advertised art exhibition entitled *DON'T/PANIC*, held from November 23rd 2011 to February 19th 2012 at the Durban Art Gallery. In the words of curator Gabi Ngcobo: “*DON'T/PANIC* is a curatorial project responding to the subject of climate change, with the aim of unsettling both those who snub the subject and those who pay it an overwhelming amount of attention. Climate change is not a subject to be disregarded but perhaps it is one in which, within art, one can find syntaxes that transverse scientific stringency and start to inhabit more enabling spaces – spaces that tend toward the fictional, the fantastical, the spectral. Here I refer to art that has the ability to touch but never with the aim of embracing; art that is disobedient and disruptive; art that refuses to be an overt functional tool and therefore has the power to act against the general drift of the world.” (*dossier D*).

²¹⁶ Although regrettably understudied, the connection between anti-apartheid and environmental justice struggles is profoundly relevant from the perspective of biopolitics as method. It is impossible here to analyse this issue in the depth it certainly deserves, but we find it useful to report an important account of it recently proposed by David Hallows: “The environmental justice movement [in South Africa] emerged in the early 1990s. It saw the environmental destruction of apartheid in explicitly political terms and challenged the dominant view that reduced the environment to wildlife conservation. It also responded to the peripheral place of the environment within the imagination of liberation. For many black people, the environment was associated with conservation and conservation with forced removals. It was a middle-class white concern that put animals before (black) people and not relevant to the urgent needs of the country for development and social justice. Nonetheless, many of the demands articulated during the 1980s responded to environmental injustice: unions demanded health and safety at work; civics demanded water, energy and waste services; and everyone demanded the transformation of South Africa's spatial regime – an end to pass laws and urban influx controls and comprehensive redistribution of land. So in many ways, the struggle against apartheid was was implicitly also an environmental struggle as was first recognised by the National Environmental Awareness Campaign, founded in Soweto in the aftermath of the June 1976 uprising” (2011: 92).

national governmental agencies not only on the level of organising opposition to given projects, but also – and more crucially – they worked restlessly to undermine the truth claims upon which both apartheid and post-apartheid environmental racism²¹⁷ was/is based. In other words, their struggle targeted official – and often biased – knowledge and established a political field of legitimacy for alternative knowledge produced from the bottom up to foster progressive demands in the realm of environmental justice. A good example of this is the criticisms radical NGO groundWork addressed to the Air Quality Bill presented to the South African parliament in February 2004. Initially, this policy did not recognise the protection of people's health as one of its objectives, basically disregarding the connection between pollution and ill-health – which was the pillar of civil society counter-knowledge efforts. Although vociferous protests halted the government plan and forced the contested policy to include the Environment Right as it is incorporated in the South African Constitution (namely, as strongly related to health issues), David Hallowes is right in reflecting on the initial omission in the following terms:

[W]hether intentionally or not, [it] appeared to play to a corporate agenda that works to dissociate health and industrial pollution on the grounds of 'scientific uncertainty'. Scientific uncertainty is in fact the twin of wilful ignorance. As industry uses it, certainty must be absolute: the link between pollution and ill-health must be demonstrated in each case. Medical studies on the causes of ill-health, however, work on the basis of statistical probabilities and are not compatible with absolute certainty. Industry thus demands a standard of proof that it knows is impossible. The strategy is to invalidate statements linking

²¹⁷ In its most general meaning, the term “environmental racism” refers to situations in which racialised communities are targeted for the placement of polluting industries and factories. We will address the issue in a little more details below. For an excellent introduction, see Bullard (1993).

pollution and ill-health and so exclude them from public debate and make the relationship invisible. It puts the onus of proving harm onto those who suffer it and simultaneously raises the costs of doing so (2011: 100).

The consequence of the opposition to the Air Quality Bill was a decisive process of diffusion of knowledge which gave birth, in 2006, to the fundamental *South Durban Health Study* which, on the one hand, corroborated local people's long-argued connection between refineries' pollution and various diseases and, on the other hand, echoed people's demand for significant exposure reduction. The high quality of this research – a constant feature of Durban's eco-justice activism – can be properly appreciated in both sections of the study: “a health risk assessment based on monitoring South Durban residents' exposure to air pollutants; an epidemiological study that analysed the actual status of inhabitants' respiratory health by examining children at selected schools and their parents”,²¹⁸.

It is against this vibrant activist background – in which scientific truth and political claims melt into each other and become stakes of social struggles – that we chose to address the campaign aimed at shutting down Bisasar Road dumpsite as an example of (partial) carbon profanation. The reason of this choice is twofold: on the one hand, such an issue links together apartheid-era environmental racism and contemporary carbon trading's devastating effects; on the other hand, its controversial unfolding – which affected both supporters of the landfill and resisting communities – presents itself as particularly useful to problematise our hypothesis of carbon profanation. In fact, both of its aspects (organising convergencies + prefiguring a non-capitalist horizon) have been at

²¹⁸ *Dossier B.*

times overwhelmed by tactical concerns and/or by tacit co-optation. In other words, profaning acts can never be taken for granted. Nonetheless, we contend the example is all the more relevant since it stresses one more time that profanations are *not* automatic by-products of capitalist development; rather, they need constant participation, persevering organising and favourable contingent conditions to be effective and fulfill their emancipatory promises.

The history of Bisasar Road landfill begins even before its own establishment in 1980. In fact, in 1961, through the infamous *Group Areas Act*, the apartheid government relocated Indian populations across Durban to the area called Clare Estates, where Bisasar Road is situated. As was typical of apartheid, no compensation for this violent displacement was or has ever been paid and many Indians were forced into greatly inferior housing settlements. In the 1960s, at the time of the resettlement, there was a large quarry on Bisasar Road that was lined with trees and green space. In 1980, when the local government was running out of landfill space, the quarry was transformed into the Bisasar Road dump. Obviously, the fact that this was almost an entirely Indian neighbourhood during the time of apartheid is not coincidental. As it is manifest, the establishment of Bisasar Road dumpsite represents a textbook case of environmental racism (Erion 2009). This was probably the main reason – although certainly not the only one – why the project encountered from its very outset organised resistance by local populations. The majority of Indians living in Clare Estate were relatively middle-class and thus had the resources to rapidly get organised against the dump. The leader of this movement aiming at shutting down the landfill was Sajida Khan (1952-2007), whose intense community activism did not decline after the promise to close down the dump

was broken by the first ANC-led government in 1996. Despite a diffused, fierce and multi-tactics (amongst others: informative picket lines, dump blockades, a community-wide petition signed by more than 6,000 people) campaign co-ordinated by Khan, the government not only decided not to close the landfill, but actually deliberated to extend its life-span. This governmental pronouncement was all the more controversial given the profoundly detrimental dump-related health effects: in her informal surveys of the neighbourhood (a striking and powerful example of knowledge creation from below), Khan showed that seven out of ten residents in the area of Clare Estates closest to the landfill had reported at least one person in their household developing cancer (Reddy 2005).²¹⁹ Khan herself died of cancer in 2007 and was convinced her disease was directly linked to her exposure to various pollutants released by the dump. However, as Khadija Sharife brilliantly put it, Khan's long-standing community activism was able to diagnose a broader political cancer: "Poor countries are so poor they will accept crumbs. The World Bank knows this and they are taking advantage of it" (2011: 158).

How did the World Bank get involved in Bisasar Road landfill? Basically, through its transformation into a CDM project in 2002. Instead of closing the landfill, as demanded by local populations, eThekweni – more specifically, Durban Solid Waste (DSW) – decided to apply for CDM status through a landfill gas capture project. This project

²¹⁹ Concerning health-related issues at Bisasar Road, Graham Erion comments: "For Khan and other residents in Clare Estates there is only one place to lay the finger for their poor health: the dump. Prior to the 1990s there were very few government regulations on waste management and thus Bisasar was able to have a medical waste incinerator on its site and accept other forms of hazardous waste. Even when stricter regulations were put in place and the landfill ceased incinerating hazardous waste, Khan still cites unsubstantiated [as conducted by community activists] studies where the limits of waste emissions considered potentially hazardous were exceeded in hydrogen chloride by 50%, cadmium by 200%, and lead by more than 1000%. Limits for suspended particulate matter were also exceeded" (2009: 35).

received US\$15 million from the World Bank's Prototype Carbon Fund in start-up capital and, schematically, can be summarised as follows:

at three landfill sites across the city – Bisasar Road, La Mercy, and Mariannahill – wells are drilled to capture methane gas that would otherwise be released into the atmosphere as a GHG at least twenty times more potent than CO₂. By 2006, landfill gas was captured and flared at the Bisasar Road and Marianhill landfill, but this is only about 7% of the potential gas that could be captured. The proposed project plans to significantly increase both the efficiency of the gas capture (allegedly up 83% in 2012) and the dropping to approximately 45% collection efficiency over the twenty-one year life of the project. Once the gas has been captured it will be put into electricity generators for use by industrial consumers, thus offsetting coal emissions from the electricity these industries would have used in the absence of the project (Erion 2009). As we see, local officials claimed – strictly adhering to the carbon trading dogma – that the CDM had transformed a problematic issue into a profitable business opportunity. In fact, proponents of the project claim to produce two climate benefits. In the words of an activist running a workshop at C17 on this issue, these are: “preventing the release of methane in the atmosphere and generating electricity which supposedly offsets coal emissions”. However, she continued, “the climate benefits, if any, are offset by increased emissions in developed countries which buy the carbon credits generated”²²⁰.

This insightful remarks raise two different questions we already encountered in the previous chapter: a) do CDM-projects actually reduce global carbon emissions?; b) is the

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criterion of additionality really satisfied? In the case of the Bisasar Road dumpsite (but the same can be said of all CDMs), the first answer is easy: no. However, the second answer is more nuanced and needs further exploration. Let us recall that, in principle, for a CDM to be accepted it must show its additionality with regard to a counterfactual scenario built on a future projection of the business as usual situation. Such requirement, in the case of Bisasar Road landfill, is controversial to say the least. On the one hand, DSW claims that CDM funding would allow increased efficiency both in flaring and waste collection. On the other hand, however, John Parkin, Deputy Head of Engineering at DSW, declared contradictorily that “what makes it [Bisasar Road project] worthwhile is the revenue that can be earned from carbon credits”, and that “it started off as an environmental project in 2003. The Kyoto Protocol was only signed up to 51% by 2005. We already started the project and we were going ahead no matter what, so whether CDM became reality or not, the project was going to go ahead” (quoted in Sharife and Bond 2011: 41-43). Understandably, thus, Khadija Sharife and Patrick Bond called the Bisasar Road CDM a perfect example of “municipal and multifaceted fraud” (*Ibid.*).

More important from our perspective, however, is to report and discuss the various form of community oppositions to the CDM, as well as the problems such oppositions encountered. In fact, as soon as the World Bank sponsored the project, Saijda Khan strategically filed a lawsuit against municipal authorities for failure to close the landfill. This move forced the WB to back off in 2005, but did not put an end to Bisasar Road

operations.²²¹ As explained in the above mentioned workshop, “it continues to be an unsightly place of rotting garbage spreading repugnant odours, invasive dust and life-threatening toxins over the surrounding neighbourhood. The landfill has a history of poor operation, which includes toxic leachate leaks and toxic air emissions. In addition, there is no buffer zone between the landfill and residents, who are located literally within a few meters of the site. Ten public schools are also located within one square km of the landfill”²²². Moreover, the new CDM-induced operations even worsened the conditions faced by residents since, “due to methane-electricity conversion processes, fumes from rotting waste possess a much higher level of lethal chemicals and metals”²²³.

This worsening of Bisasar Road dumpsite's conditions was made possible to a great extent by a profound political fracture affecting local communities, whose unavoidable outcome was a significant reduction of the effectiveness of their resistance. In fact, eThekweni and DSW perfectly performed the *divide et impera* strategy by exploiting class differences to break the potential unity of affected people.

Figure 7. Protest against Bisasar Road landfill continuing operation. Source: Dossier C.

²²¹ In 2006, the French Development Agency pledged long-term loans of US\$ 8 million to Durban's landfill gas projects (Bisasar Road is by far the largest of the three), alongside the US\$ 1.3 million extended by South Africa's Department of Trade and Industry (Bond 2007). Moreover, in 2008 the World Bank was replaced by an investment company, Trading Emissions, which acquired the right to buy one million emissions reductions credits (Sharife and Bond 2009).

²²² *Dossier B.*

²²³ *Dossier C.*



While Indian, middle-class residents have demanded the closure of the dumpsite due to health concerns, black Zulu residents have opposed this demand due to livelihood-related matters. In particular, the Kennedy Road (also adjoining the dump) shack dwellers, organised in the movement called Abahlali baseMjondolo,²²⁴ welcomed the chance to have few of their members recover recyclable materials from the landfill. Although very dangerous,²²⁵ the shack dwellers' movement considered landfill waste picking to be more

²²⁴ Abahlali baseMjondolo (in isiZulu: those who live in the shacks) is a South African shack dwellers' movement which is well known for its campaigning for public housing. The movement refuses party and parliamentary politics, boycotts and has had conflictual relationship with the ANC. Its key demand is that the social value of urban land should take priority over its commercial value and it campaigns for the public expropriation of large privately owned landholdings. Its crucial organising strategy is to try to create urban commons from below by trying to create a series of linked communes. Abahlali baseMjondolo became nationally known through its successful struggles against adverse living conditions and police repression. For an in depth analysis of the movement, see Pithouse (2006).

²²⁵ Health workers from a Durban clinic confirmed that Kennedy Road residents suffers severely from asthma, sinusitis, pneumonia and even tuberculosis. Although the toxic body load is to date unknown, the Cancer Society of South Africa has labelled the area a “cancer hotspots” due to the fact that heavy metals and other noxious substances are present in significant quantities in water, air and shifting soils (Sharife and Bond 2012).

appealing than nothing. As an informative booklet recently released – and broadly discussed at C17 – by GAIA [Global Alliance for Incinerators Alternatives] reports:

Faced with the opposition of Clare Estate formal residents, the city officials and their international partners cultivated the support of shack dwellers. DSW presented false promises to the informal settlement of benefits derived from the CDM project. This included promises that the CDM project would secure fifty engineering scholarships and two hundred formal jobs. The reality was six jobs and five bursaries over twenty-one years for residents of eThekweni, Durban... According to African shack dwellers, DSW also promised that they would receive cheap or free electricity; and that five to ten percent of profits were to be used for community development. But the shack dwellers still have no electricity [...]. Moreover, DSW eventually limited access to the dump due to safety and health concerns, especially after one of the recyclers was killed by an onsite compactor.²²⁶

Although the leader of Abahlali baseMjondolo, S'bu Zikode, acknowledged political manipulations by DSW by declaring that “we were used; they even offered us free busses to protest in favour of this project [...] to damage those who oppose it” (quoted in Sharife and Bond 2012: 40), the movement still believes that the continued operation of the landfill offers its members an opportunity to address livelihood concerns, however limited. This is particularly striking in light of two interrelated facts: a) eThekweni's broken promises; b) Sajida Khan's reasonable alternative to the CDM project:

Since the 1990s, we have been asking them to remove the methane. What they can do is look for alternatives. There is gas liquification process that can take out the methane, purify it and add it to diesel for trucks and use it as fuel. It can be pumped and used in industries. There is a gas pipeline running right along the dumpsite. All they have to do is extract and purify the gas and add it to that

²²⁶

Dossier C.

pipeline. It is far cheaper but they would not get so much of the emissions reduction credits. But the what is more important, the health of the community or making money at the expense of the community? (in Dada 2009: 103).

As we see, according to Khan the methane should indeed be removed, but through nearby gas pipes instead of being burned and flared on the site. Khan's objective was twofold: Bisasar Road immediate closure and simultaneous conversion of methane to electricity to occur a long way from residential areas. Unfortunately, as Khadija Sharife and Patrick Bond aptly point out, for her vision to be realised a set of favourable political conditions were necessary, but absent:

Khan required something bigger than we find in Durban and South African politics at present: a united red and green civil society front that can defeat the local-global capitalist-patriarchal rubbish industry, using a 'zero waste' philosophy that would create dozens – perhaps hundreds – of reliable jobs in recycling for Kennedy Road shack dwellers who could be suitably resettled with security of tenure, on stable land in the immediate vicinity. With such a political front in place and the municipality on post-neoliberal hands, the simultaneous termination and rehabilitation of the Bisasar Road dump could then proceed, as Khan has demanded, potentially with stable soil cover, vegetation and a new public space for the oppressed neighbours (Sharife and Bond 2009: 100).

What, then, can the campaign to shut down the Bisasar Road landfill, led by Sadija Khan, tell us about the notion of carbon profanation? First of all, as we anticipated, it is a useful example to remember how effective organising and valid counter-knowledge might be insufficient to defeat global capital and local governmental actors: proper political conditions are also required. From this perspective, we may consider such campaign as a *missed – albeit still potential – carbon profanation*. With regard to the first aspect of profanations, there is no doubt that Khan's proposal was at the same time a disarticulation of the carbon trading dogma (health comes before profit) and a (failed)

attempt to organise convergences amongst different groups towards a common radical goal. Moreover, referring to the second element of profanations, the critical development of a Zero Waste strategy²²⁷ from below clearly delineates an anti-capitalist model beyond competitive obsolescence and wasteful consumption. Co-ordinating the centrality of waste-pickers' economic function and the reduction of garbage creation is simply incompatible with a mindset which perceives gas-to-electricity conversion as a way to fabricate carbon credits. Especially this last point – the articulation of a new, post-capitalist economic meaning of the notion of waste – can play a fundamental role in envisaging a productive system based more on the circulation of knowledge and information than on the physical expansion of the throughput, which is to say the amount of matter and energy which traverses the economy (and is eventually thrown away in the form of rubbish). To elaborate on this premise, the Zero Waste approach would politically benefit, we contend, from a practical as well as theoretical engagement with an inclusive and intrinsically dialogical perspective such as that grounded on the notion of the *common/s*, which we will expose and discuss in the conclusion. Perhaps a mutual influence between these two frameworks could overcome that “main strategic flaw”

Ashwin Desai has acutely detected in Khan's long-standing battle:

²²⁷ “Zero waste is a philosophy that encourages the redesign of resource life cycles so that as many products as possible are reused. As a result, trash sent to landfills and incinerators is minimal. A working definition of zero waste, often cited by experts in the field originated from a working group of the Zero Waste International Alliance [zerowaste.org] in 2004: “Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health”. For a more detailed analysis of such a category, see Palmer (2005), and Connett (2005).

Sajida's main strategic flaw was the belief that by meticulous scientific presentation of the facts, based upon thorough research, she could persuade the ruling class. Facts became the main weapon of struggle. But without an ongoing critical mass of people, once the World Bank was convinced she was right and dropped out – apparently the case by 2006, just as happened with the Narmada dams in India – then the domestic government stepped in to take up the slack. So eThekweni municipality is now taking over from the World Bank and looking for investors because the bigger cadreship is not there to stop it. Facing down the World Bank was impressive and deserved the claim to a victory. But its one thing to tell truth to power, and Sajida was absolutely brilliant in defeating the system's experts. But one needs a much bigger mass movement to go beyond that (quoted in Sharife and Bond 2009: 100-101).

CONCLUSION

The three campaigns we have analysed in this chapter – climate debt, *OMCJ*, and Bisasar Road CDM – demonstrated at the same time the constituent power of carbon profanations in their capacity to both disarticulate the carbon trading dogma and to prefigure progressive alternatives to it, and the intrinsic limits to which they are constantly exposed. Moreover, we suggested that a contamination of these experiences with a perspective based on the notion of *common/s* might be beneficial in terms of gaining institutional consistency and resisting capital's co-optation. As anticipated, we will discuss such issues in the conclusion of our dissertation. The main point concerns the configuration of the climate (and, hence, of its crisis) as a commons to be managed beyond – although not necessarily, and in any case not always, against – the double trap of private and public property. Such configuration is, at the moment, little more than a work in progress in its initial stage. It is, however, especially significant since, within the

Climate Justice Now! Network, there is no unity concerning the political approach to be adopted with regard to the specific abstractions – created by the mobilisation of the general intellect – upon which carbon trading is structured. Two opposite examples are provided by Yvonne Yanez, from Acción Ecológica and Oil Trade Watch, and Joel Kovel, from Ecosocialist Horizon. According to the former, “as movements, we shouldn’t fight capitalist abstractions with other abstractions. We need to look at the concrete and start from that. We need to look at lifestyles which have nothing to do with a capitalist approach to fossil fuel and base our struggles on that concreteness. These lifestyles are often called ‘traditional’ but they are much more ‘modern’ than fossil fuel-based lifestyles. And they are not necessarily indigenous: many fishermen communities conduct a live in perfect balance with nature”.²²⁸ At the other side of the spectrum, Kovel argues that “a proper eco-socialist strategy cannot just avoid the reality or run away from it, like: the wild man goes up onto the mountain... Well, this is sheer folly: the suicidal, hysterical, nihilistic response to the challenge of climate change”.²²⁹ These statements do not represent, we contend, an unsurpassable political *impasse*; rather, they individuate a problematic field of intervention upon which a perspective based on the theory of the *common/s* might be particularly useful.

Although obviously embryonic, a form of militant action which situates itself on this level is, perhaps, detectable in the social movement that in Durban has labelled itself *Occupy COP17*. Mainly composed by international activists constantly – but not exclusively – involved in cultural jamming and delegitimation-through-irony

²²⁸ *Dossier A.*

²²⁹ *Dossier A.*

masquerades (the “Conference of Polluters” logo and the *clownesque* protests became very popular amongst anti-COP17 activists)²³⁰, this movement set as its main goal the creation of a political bond between *Occupy* and *Climate Justice* advocacy at large. Although small in numbers and often (self)confined to the municipality-conceded 'Speakers Corner' (just in front of the International Convention Centre), *Occupy COP17* managed to hold general assemblies on a daily basis and to facilitate the encounter of many different groups (as well as official delegations).

Figure 8&9. Speakers Corner by Night & Conference of Polluters logo. Source: *Dossier C*.



²³⁰ They also attracted local as well as national national media, monopolising headlines and debates for many days in a row (*dossier D*).

Particularly relevant has been the attempts to weave a rebellious red thread linking past local resistances to contemporary global uprisings. From this perspective, the legacy of Gandhian *satyagraha*²³¹ – originally developed in 1906 in the columns of the South African news-sheet *Indian Opinion* – which can be loosely translated with “insistence on truth”, has been brilliantly adjusted by local activists to fit the contemporary scenario. As one of them explained in an informal meeting, “the truth we need to insist upon isn't a truth for everybody. It's the warm, calm and compassionate truth of the people against the cold, heartless and treacherous truth of transnational corporations. It's a truth that link us all by excluding those who want to oppress us. Let's believe in it and let's be confident: it might take a long time, but we'll eventually win this battle”.²³² Another powerful reactivation of historical memory concerned the Black Consciousness Movement (BCM), founded and led by Stephen Biko (eventually murdered in 1977 while in the custody of the South African Security Police [SASP]). Such Movement emerged in the mid-1960s and rapidly gained widespread support amongst black youth, enough support to organise the notorious Soweto uprising in June 1976, when at least two-hundred people were killed by the SASP as students marched to protest the use of Afrikaans language in African schools. The main political tenet of the BCM was the refusal of white monopoly on truth, especially the condescending values of white people of liberal opinion. The BCM's strategy of ceaselessly challenging the dialectic of apartheid South Africa as a

²³¹ The term “satyagraha” has been coined by Mahatma Gandhi and refers to a practical philosophy connected with broader categories such as non-violent resistance and civil disobedience. Gandhi employed this strategy both in the context of the Indian independence movement and in his earlier struggle in South Africa (Huttenback 1971). His teaching has been hugely influential, for instance in Nelson Mandela's anti-apartheid struggle and in Martin Luther King Jr's campaigns during the civil rights movement in the United States.

²³² *Dossier B.*

means of raising awareness to empower black thought and create an alternative system of value could be of great relevance for the current global struggle against carbon trading, at least according to some *Occupy COP17* activists. One of them argued in a meeting: “My people's slogan during mass demonstrations was 'black man, you're on your own'. Well, today it's the same for us all, not just black men because today's apartheid concerns climate instead of race and is everywhere, not just in South Africa. We don't give a damn about what they say: there can be no trust, no trust at all. They've shown us what they want and what they are so many times that we need no more. We refuse even to listen, or we just listen to unmask their lies. We need to raise our consciousness about climate change and then think about something different. We don't need them but they need our ignorance. 'Climate justice man, you're on your own!'”²³³.

This effort to infuse contemporary struggles with the force of past ones was invaluable and particularly crucial in trying to globalise resistance instead of capital. Even more important, however, was the attempt to articulate a strong but highly problematic link between anti-austerity struggles (“We won't pay your crisis!”, “We are the 99%”) and climate justice mobilizations (“The global North must pay its ecological debt!”, “Are we, mainly from the global North, actually the 99%?”). This attempt – recognised by activists as a crucial one – gave us the possibility to start thinking, at the collective level, about a global convergence of struggles which wont arise spontaneously but will have to be patiently build, little by little. As a New York-based activist shouted during a general assembly: “I'm a midwife and I feel sorry every day for all the newborn. I feel sorry

²³³

because this world is fucked up. Is fucked up in my country, because they won't be able to go to college or to pay their mortgages. It is fuck up in Africa because your land is being stolen. It is fucked up in the small islands because they are gonna be underwater. I feel sorry for them but I also think they're calling me to action. Me and you: all of us. It's a responsibility we have: don't pay the mortgage, take back the land, stop oceans' levels rising. It's just one struggle. It's either we win or this fucked up world won't recover"²³⁴. Just like this political convergence, the climate as a commons to be reclaimed and alternatively managed does not exist in nature. It must be produced along with new institutions that are able to give it enough consistency to escape both the state and the market. The goal is far away, barely visible at the moment. But the first steps moved by *Occupy COP17* give us, at the very least, something to be hopeful about. The brief reflections we will advance in the general conclusion are meant to provide a provisional set of theoretical points to further substantiate this hope.

General Conclusion: Planetary Climate as a Global Commons

*In the case of the atmosphere
the climate crisis now calls for a shift in perspective.*

It is urgently necessary that we all voice

the same claim of entitlement,

which arises from our understanding

of the atmosphere as a commons,

instead of surrendering this resource,

by virtue of our inaction,

to arbitrary misuse by individuals.

The perspective we need to adopt is that

the climate belongs to us all.

Silke Helfrich and Jörg Hans – 2010

*We might call this an ecology of the common –
an ecology focussed equally on nature and society,*

on humans and the non-human world

in a dynamic interdependence, care,

and mutual transformation [...]

One might still conceive of economic production

as an engagement of the subject with nature,

a transformation of the object through labour,

but increasingly the 'nature' that biopolitical labour transforms

is subjectivity itself.

This relation between economic production and subjectivity

*thus cuts out the ground from under
traditional notions of the labour process
and creates a potentially vertiginous loop.*

*We can cut through some of these seeming paradoxes,
though, by approaching the production process
in terms of metamorphoses of the common.*

*And it should be obvious that this kind of economic process,
central to biopolitical production,
is also an ontological process through which
nature and subjectivity are transformed and constituted.*

Michael Hardt and Toni Negri – 2009

There are no commons without commoning.

Peter Linebaugh – 2008

In a recent, deeply thought-provoking article (2012), Joel Wainwright and Geoff Mann have appropriately remarked that the political implications of the global climate crisis should be regarded as no less dramatic than its ecological effects for social justice and human well-being. Undertaking a risky – but surely worth – realist approach to possible future configurations of power exercise, the authors list four alternative social formations that might arise to face the greatest challenge of our time: a) *climate Leviathan*, in which the UNFCCC drives climate-related efforts based on carbon trading and technological innovations to slow down global warming; b) *climate Mao*, in which a planetary sovereign power assumes as its main task to limit capital's circuit of valorisation to reduce unjust wastefulness, excessive GHGs emissions and unsustainable consumption;

c) *climate Behemoth*, in which scientific evidence is downplayed by conspiracist denialism and evangelical rhetoric, so that reactionary populism and radical anti-state libertarianism can join forces to ignore the crisis and accelerate business-as-usual behaviours; d) *climate X*, in which local hubs of the global climate justice movement manage to organise not only a successful resistance against carbon trading and its exploitative mechanism, but also a new institutional setting for a low-carbon society. Quoting the notorious statement by Frederic Jameson – “it is easier to imagine the end of the world than the end of capitalism” – Wainwright and Mann call for a new engagement with radical imagination on the part of ecological activists so that climate X can be envisaged as “worldly and structurally open: a movement of the community of the excluded that affirms climate justice and popular freedoms against capitalism and planetary sovereignty” (2012: 17).

Wainwright and Mann's notable analysis is intended to generate discussion and – possibly – build unity among different expressions of climate justice advocacy and, as such, doubtlessly represents a welcome contribution. From a mainly theoretical perspective, however, we found particularly interesting the two questions posed at the beginning of their reflection: a) “Do we have a theory for revolution in the name of *climate justice*?”; b) “Do we have a theory of how capitalist nation-states are transforming as a consequence of *planetary change*?” (*Ibid.*).

Our contribution to answer to the first question is basically contained in the notion of *carbon profanation*, which has been articulated in Chapter 4 and shall be further substantiated in the second part of this Conclusion. On the other hand, our attempt to assess the specific problematic advanced by the second question – although we would

substitute “valorisation/exploitation mechanisms” to “nation-states” – has been carried out in Chapter 2 and 3 by employing the analytical toolbox provided by biopolitics as method, as elaborated in Chapter 1. From this standpoint, a red thread has been unfolding throughout the first three chapters of this work as an underground current: the controversial issue concerning whether or not capitalism and the environmental crisis can be thought as compatible. Quite unsurprisingly, while the Marxist tradition is generally consistent in considering capitalism and sustainability as essentially incompatible (O'Connor 1998), the supporters of carbon trading tend to perceive the issue as a false problem, taking for granted the possibility and desirability of a sustainable declination of capital (Stern 2009).

In both camps, however, more nuanced positions are available: from a Marxist perspective, Tadzio Mueller and Alexis Passadakis have argued that, although the antagonism between capital and life is at the origin of what they call *biocrisis*, such an antagonism is not necessarily unmanageable since it represents simultaneously the limit *and* the driving force of contemporary capitalist development. As they compellingly explain:

While this is by no means a foregone conclusion, the biocrisis is the opportunity that *might* just allow capitals and governments to at least temporarily deal with the legitimation and accumulation crises [...] How? By internalising the antagonism at the heart of the biocrisis – that between human life and capital – as a drive of a new round of supposedly green accumulation, and as a legitimating device for the further extension of governmental authority into the nooks and crannies of everyday life (Mueller and Passadakis 2010: 558).

Differently, from a perspective which assumes capital's relations as the only available horizon, Peter Newell and Matthew Paterson discusses four possible scenarios for the

near future of climate capitalism: a) in the *neoliberal utopia* of perfectly functioning carbon markets, competitiveness would drive a smooth transition to a low-carbon economy; b) in the *stagnation* case, carbon trading fails and leads to cynicism and fatalism, with the global North facing increasingly expensive adaptation challenges and the global South being reduced to a reservoir of climate refugees; c) in the *decarbonised dystopia* the triumph of technological-fixes is coupled with the rise of political authoritarianism; d) in *climate Keynesianism* stronger governmental supervision of carbon trading, instances of climate justice and redistributive policies converge in the form of a Green New Deal. The two authors do not conceal their preference for the last scenario and describe it as follows:

The development of strong rules to guide carbon markets, policies to reach areas that markets cannot affect and a global bargain to create an integrated decarbonisation of the economy across the world become the central elements in creating a genuinely new form of capitalism [...] The potential benefit of such an economy become more evenly spread around the world. But at the heart of this coalition remains global finance – whose coordinating power is mobilised and channelled by governments to achieve decarbonisation (Newell and Paterson 2010: 178).

With regard to this long-standing debate, our position is resolutely on the side of Mueller and Passadakis: climate capitalism, namely a sector-specific application of the green economy, is not only possible but, to a certain extent, already under way. Obviously, this does not mean that a planetary and irresistible spreading of carbon trading practices would solve global warming: judging from the first years of its implementation, such an outcome looks very unlikely. Actually, a recent issue of *Economist* magazine has titled an

article about global carbon markets Complete Disaster in the Making, and has argued the following:

The trouble is that the supply of credits has far outstripped demand. The one-billionth CER was issued on September 7th [2012]. But the largest greenhouse-gas emitters either did not ratify the Kyoto protocol (America) or were not obliged by it to cut emissions (China and India). That has left Europe as the main source of demand for credits, and the CDM has become a sort of annex to Europe's cap-and-trade scheme, the Emissions Trading System. But the euro crisis has reduced industrial activity (cutting pollution) and European firms were anyway given overly generous carbon quotas under the cap-and-trade scheme. So carbon prices have collapsed, falling from \$20 a tonne in August 2008 to below \$5 now (Economist 2012).

Adamantly, carbon trading does not work. What we would like to suggest, however, is that regardless of carbon markets poor performance, it is still possible to make money out of the climate crisis. In fact, the same article seems to suggest that, assuming the EU will overcome the crisis soon and stricter caps will be set, there might be a boost in demand with the CDM providing a valuable link between regional and national carbon markets which are emerging in several areas of the world. Again: to solve a problem induced by the market, more market is needed. This is why, we contend, rather than structuring anti-capitalist critiques of carbon trading on putatively unsurpassable contradictions between Earth's physical limits and capital's cannibalistic voracity, it is more useful to meticulously show, discuss and struggle against the innumerable reasons that make climate capitalism socially, politically and ecologically *undesirable*.

None other than this, in fact, was the goal of our analysis in Chapter 2 and 3: to analyse the historical specificity – i.e. the neoliberal character – of nature conceived of as an element of contemporary processes of valorisation. In a parallel way, we intended to shed

light on the unprecedented modalities through which this notion of *anti-naturalistic nature* embodies subtle and pervasive forms of exploitation of the general intellect.

Against this background, an important argument was implicit and concerned the necessity of a *perspective based on class-partiality* to make sense of the climate crisis: seen from a capitalist vantage point, cooling the planet is an option if and only if profits are created in the process; by contrast, the general intellect as well as affected communities and global climate activists think of “true” solutions to global warming as new, non-monetary-based and decentralised ways of practising ecological decision making.

In other words, our contribution to “a theory of how capitalist valorisation/exploitation mechanisms are transforming as a consequence of *planetary change*” can be summarised through the the five main steps of our analysis: a) a Marxian-Foucauldian methodological apparatus to simultaneously read the environmental crisis from a historico-materialistic and a biopolitical perspective; d) a political account of the shift from nature as an enacting limit to nature as a crucial element valorisation as co-extensive with the affirmation of the general intellect as the main organising principle of production and neoliberalism as hegemonic form of governmentality; c) a critique of the crucial discursive formation of the green economy, whose main feature is the harmonisation of capital's imperatives of economic growth and ecological necessities of energy and matter throughput reduction; d) a problematisation of the relationship between use-value and exchange value and the discussion of a hypothesis according to which, in contemporary capitalism and with specific regard to carbon commodities, use-value would have lost its innocence and increasingly become based on the capital's need to self valorise; e) a critical approach to the carbon trading dogma, namely the peculiar regime of truth which

translates the green economy mantra into the field of climate change policy, and its three supports: informational, legal and calculative/promissory.

Referring to the first question posed by Wainwright and Mann – “Do we have a theory for revolution in the name of *climate justice*?” – we have proposed to use the notion of *carbon profanation* as an analytical tool to interpret three campaigns linked to the notion of climate justice. Our intention was to highlight both dimensions of such climate struggles: the *deconstructing* one, aimed at disarticulating the carbon trading dogma, and the *creative* one, based on a political prefiguration of a post-capitalist way to manage global warming. As we argued in Chapter 4, all three empirical case studies – climate debt, One Million Climate Jobs and Bisasar Road landfill – would benefit by a sort of contamination with a perspective centred around the notion of the *common/s*. Thus, to properly contribute to answering Wainwright and Mann's question, we need to better specify both this concept and its application to climate justice conflicts. As a preliminary remark, however, let us stress that our discussion merely intends to sketch further lines of possible research and, as consequence, is meant to open up new spaces of problematisation rather than to solve or exhaust them. Thus, in a very impressionistic way, we shall consider three closely interrelated points: a) how the *common/s* diagonally cuts the state vs. market dichotomy (issue of ownership); b) how the *common/s* diagonally cuts the material vs. immaterial dichotomy (issue of productivity); c) how the *common/s*' dynamic unfolds by incrementally reinforcing its revolutionary potential (issue of organisation).

A remarkable definition of the notion of *commons* has been recently provided by Silke Helfrich and represents for us an ideal starting point:

Commons are a network that sustains, that is woven together from our multilayered relationships to natural, social and cultural resources. They are not separate from us; they do not exist without us [...] The concept of the commons sheds light on the two sides of this relationship, reveals its two faces. On the one hand, it highlights the nature and function of the resources under discussion. On the other hand, it raises questions about the state of the communities associated with those resources and the conditions required for their success. The common pool resources concerned here – whether material or immaterial – are the basis of all productive, reproductive and creative processes. Without genes, there can be no diversity. Without land, no food. Without light, no growth. Without sound, no music. Without language, no communication. Without knowledge, no progress. Without water, no life (Helfrich 2010: 1).²³⁵

The conceptual history of this notion has a very long tradition, but it also shows unprecedented characters in the current phase of capitalist development. Thus, our hypothesis is that, although capital has attempted to pillage the commons ever since its inception – i.e. primitive accumulation – its contemporary configuration diverges from the preceding ones in that *the commons play the role of crucial element of production*, not just an aspect amongst many. It is this historical novelty that suggests to use the expression *common/s* instead of commons. As Sandro Mezzadra and Brett Neilson appropriately argue, the difference between the singular and the plural [common vs.

²³⁵ Common-pool resources (CPRs) are a type of good consisting of a natural or human-made resource system (e.g. an irrigation system or fishing grounds), whose size or characteristics makes it expensive, but not impossible, to exclude potential beneficiaries from obtaining advantages from its use. Unlike pure public goods, CPRs face problems of congestion or over-use, because they are subtractable. A cCPR usually consists of a core resource (e.g. water or fish), which defines the *stock variable*, while providing a limited quantity of extractable fringe units, which defines the *flow variable*. Whereas the core resource must be protected or controlled in order to allow for its continuous use, the fringe units can be harvested or consumed. For an in-depth analysis, see Ostrom (1990).

commons] is important: in fact, “the former signals a process of production, both entirely immanent and material, by which instances of the latter acquire extension in time and space. At the same time it gives to this plural instances an intensive quality that brings them into relation in contingent but also constitutive ways” (2013: forthcoming).

The first point to be made, following Mezzadra and Neilson's reasoning, is that the logic of the common/s disrupts traditional images of sovereignty as split between state power and market self-referentiality. From this perspective, it is undeniable that the main reference of contemporary disputes is to be located in ecologist Garrett Hardin's classic article, “The Tragedy of the Commons” (1968). According to him, a given population sharing land as a commons will necessarily end up over-exploiting it. He took as an example a common pasture to which everyone might add more livestock for grazing in the absence of any restriction whatsoever. This example delineates a hypothetical scenario in which individual farmers can take private benefits from the commons without taking into account its overall carrying capacity. Hardin's analysis then concludes that a shared resource cannot but be over-used: hence, the tragedy of the commons and the superiority of privatisation in whatever form.

There are at least two main problems here: the first is historical and refers to the fact that, as acutely noted by David Harvey, Hardin's hypothetical commons ultimately rests on a very narrow – if not imprecise – set of assumptions, “largely driven by the example of the land enclosures that occurred in Britain from the Sixteenth century onwards. As a result, thinking [about the common/s] has often polarised between private-property solutions or authoritarian state intervention” (2011: 101). Secondly, Hardin's tragic narrative defines as a commons something which actually is *not* a commons, but rather a regime of

unregulated access to land. In such a situation – never empirically experienced or recorded – anyone can appropriate the wealth contained in the natural resource under consideration without taking responsibility either towards its maintenance or towards other users. It is, in other words, the *ideal-type of non-governance*: as David Bollier suggests, “the story Hardin tells is not about common land, it is about no man's land” (2010: 3). In fact, a commons is the polar opposite of the absence of governmental rules: it is a social system based on self-government and consensus rights for controlling access to and use of a particular resource. When properly functioning, a commons possesses well-defined boundaries which are porous and open to further innovation and development. Those boundaries are recognised and respected by participants, so that possible free riders can be identified and sanctioned.

As we see, it is not the absence of rules that defines a commons. Rather, it is the fact that those rules cannot be exclusively – or even primarily – ascribed to state authority or market invisible hand. Commons are “goods” which cannot be categorised as either “public” or “private”. As a consequence, the role played by citizens, or civil society, become fundamental to understand and evaluate the commons as a specific – if multifarious – community-based form of management. Commenting on an extensive field research conducted in 1994 with other colleagues, Elinor Ostrom remarks:

By considering the interaction between actors at different levels of governance, it is possible to contribute to a more nuanced understanding of the variations in diverse governance outcomes in the management of common-pool resources based on the needs and interests of citizens. We have learned that citizens do play an essential role in the governance of common-pool resources and that efforts to turn over all of the responsibility for governing these resources to external experts are not likely to protect them in the long-run. The complexity of the resources at

local, regional, national, and global levels do require complex governance systems involving citizen input in diverse fashions (Ostrom 2010: 9).

Now, the fundamental question raised by this analysis of the commons is the following: is it possible to envisage and produce a form of ownership which is different from both state regulation and market automatism? Ostrom's research is somehow reluctant to engage on this plane, its interest essentially lying in the articulation of an integrative-intermediate domain between the public and the private spheres, which directly mirrors the construction of a social law by European jurists in the early Twentieth century (Mezzadra and Neilson forthcoming). Other scholars, however, have opted for a more radical approach aimed at highlighting the disruptive potential of *common ownership* with regard to both state-centred solutions and market-driven logics. In passing, let us note that the proliferation of public-private partnerships in the context of climate governance (analysed in Chapter 3) actually shows how both the state and the market are deeply implicated in the new wave of enclosures. The necessity to look for alternative ways of managing the commons is posed, first and foremost, by neoliberal governmentality itself.²³⁶

Kolya Abramsky has dedicated to the concept of common ownership an important essay, titled “Sparking a Worldwide Energy Revolution” and published in 2010. There, he argued that common ownership has the potential to build new relations of production, exchange, and livelihood. In particular, and with specific regard to the energy sector,

²³⁶ This does not mean, however, that non-all pervasive state powers and/or market mechanisms cannot have a role in the process of expanding the common/s. For example, with regard to state programs, Nick Dyer-Witheford and Greg de Peuter argue that those can be important but the “growth and interconnection of the commons have to precede such state interventions, to prefiguratively establish the necessary preconditions”. Conversely, the common/s should “grow beyond the moment of such direct interventions, in a proliferation of self-starting components that exceeds centralised control” (2010: 47).

three main advantages of community control over natural resources can be detected: a) a rational management and use of remaining fossil fuel reserves; b) an acceleration of the shifting process towards a low-carbon economy through a veritable *just transition*, which is to say a collective planning of the intentional and comprehensive phase-out, in accordance with shared priorities and pace; c) a modification in allocating the economic revenues from the rent of natural resources by directing those monetary flows towards common benefits during the period when they are still in use. Abramsky is aware that the concept of common ownership alone will not bring about these necessary changes in the general economic system. However, he rightly points out that it can function as a catalyst for the innumerable struggles already taking place worldwide:

Of course, common ownership will almost certainly *not* guarantee any of those outcomes. It is not panacea [...] Common ownership of energy resources (fossil or renewable) and their associated infrastructures and technologies cannot be understood as blueprints to be implemented from above by policy makers. They are not theoretical models or predictions. If we are ever to see such ownership structures become the dominant form of ownership, they will be the outcome of lengthy and complex struggles, led by grassroots social movements against capital relations within the energy sector (and more generally), with both users and workers in the sector playing a key role in these struggles. It will be important to create political spaces that are broad enough to include these struggles (Abramsky 2010: 639-640).

As we see, it is always the struggle that eventually defines forms of ownership, means of economic control or planning, and social relations in general. Moreover, we contend that the notion of common/s can be of use in the process of organising convergences amongst radical demands from below. The “broad political spaces” Abramsky refers to are exactly what can infuse further strength and resilience in campaigns such as those we analysed in

Chapter 4. In fact, the notion of common/s clearly delineates a conflictual frontier within the horizon of which the *collective* unmistakably takes precedence over the *individual*. Common rights are *not* reducible to a simple multiplication of liberal individual rights. On the contrary, they express the productive power acquired by the social body in the form of the general intellect. This is why the common/s defines simultaneously the *battlefield* and the *goal* of contemporary struggles. As David Harvey brilliantly points out:

The central conclusion is that the collective labouring that is now productive of value must ground collective, not individual, property rights. Value [...] is the capitalist common, and it is represented by money, the universal equivalency by which common wealth is measured. The common is not, therefore, something extant once upon a time that has since been lost, but something that, like the urban commons, is continuously being produced. The problem is that it is just as continuously being enclosed and appropriated by capital in its commodified and monetary form (Harvey 2011: 105).

This passage from Harvey brings us to the second point we would like to articulate: the issue of productivity. In general terms, it suggests that the internal differentiation of the notion of *common/s* cannot be structured along the material vs. immaterial axis, as proposed for example by Giovanna Ricoveri (2010). In fact, as we have seen in Chapter 3, climate change itself is impossible to be experienced – even to be *thought* – in the absence of refined and complex knowledge infrastructures. A better approach to the multilayered nature of common/s can be found in formulations that distinguish various instances by degree rather than by kind.²³⁷ In this way, the productive tension between the

²³⁷ From this perspective it might be useful to report Christian Siefkes's masterful reflection on the contiguities between digital and physical peer production: “Is it possible to produce 'what you need, when

common as a historical form of production (and potentially, the basis for an emancipatory political project) and the commons as singular, contingent and relatively autonomous crystallisations of its dynamics can be preserved. Once the centrality of the mobilisation of the general intellect is recognised as the driving force behind the crucial role played by the common/s in contemporary capitalist circuits of valorisation/exploitation, different taxonomies become useful tools to advance both theoretical understanding and political efficacy. One of those taxonomies of the common/s is proposed by Antonio Lafuente, whose first proper concern is to emphasise “the historical nature of commons, which suggests that they are not objective facts, but rather the fruit of a political decision necessarily tied to the surrounding technologies” (2010: 1). Subsequently, Lafuente differentiates the category of common/s along four lines, explicitly non-mutually exclusive: the *body* (sensitivity and corporality), the *environment* (biosphere and geosphere), the *city* (domesticity, culture and urbanism) and the *digital* (codes and structures). Beyond specific interconnections amongst the four realms, what is important to underline here is that Lafuente's formulation allows us to fully appreciate the peculiar intertwining between abstract and concrete: common/s are *not* immediate, natural givens;

you need it' for everybody, on this limited planet? That question cannot be answered without considering the social form of production [...] Peer production is benefit-driven: in contrast to capitalist production, the goal is not 'to make money'. Instead, the specific needs, desires, and goals of the participant determine what happens [...] It has been noted that commons-based peer production can produce only information, not things. The underlying notion is that it excels in the sphere of information, which is so easy to copy and change, but fails in the material world, which is not. But this argument misses the fact that it is not an inherent property of information that makes it so easy to copy, but rather a question of infrastructure. 30 years ago, only corporations with extremely expensive specialised machinery were able to reproduce music. Only the spread of broadband internet connections and sufficiently large hard discs made it commonplace. Similar developments regarding the production of physical things are not only possible – in some areas, they are already under way. The reproduction of physical things is possible if three conditions are met: you need access to the *complete design*, to the *required resources*, and to the *necessary means of production*” (2012).

rather, they are the outcome of a determinate process of production whose organisation is the political stake of contemporary class struggle.

In a similar fashion, Nick Dyer-Witford and Greg de Peuter historicise the concept of common/s by dissecting it in three typologies: *eco-social commons* (ecological sphere: the customary sharing of environmental resources in early-capitalist societies); *labour commons* (social sphere: socialist planning and liberal welfare state); *networked commons* (digital sphere: open source, free software and peer-to-peer production on the Internet). What is fundamental in Dyer-Witford and de Peuter's approach is the *antagonistic proximity* which links the circulation of capital to the circulation of the common/s: “If the cellular form of capitalism is the *commodity*, the cellular form of society beyond capital is the *common*. A commodity is a good produced for exchange, a common a good produced to be shared. Exchange presupposes private owners between whom it occurs. Sharing presupposes collectivities within which it occurs” (2010: 44). Considering how profoundly – as we have shown with regard to carbon trading in Chapter 3 – contemporary commodity production relies on the mobilisation of the general intellect as a common/s, we can easily appreciate the cogency of such antagonistic proximity. This is why contemporary production must be regarded as eminently *ambivalent*: from a global perspective, it represents the highest degree of exploitation ever experimented, but it simultaneously discloses the possibility of its revolutionary inversion. As Mezzadra and Neilson brilliantly put it:

The proliferation and spread of enclosures in the contemporary world produces a huge amount of violence, sufferance, and pain, intensifying both dispossession and exploitation. But at the same time, at least conceptually, these enclosures provide an important perspective on the vacillation of the legitimacy of private

property as societal rule. In any act of enclosure, whether literal or not, this legitimacy is affirmed. Struggles against enclosures and for the commons across the globe show the absolutely concrete, reverse and antagonistic side of this conceptual moment (Mezzadra and Neilson 2013: forthcoming).

It is in this potential reversal that the notion of *profanation* as an act of radical imagination finds its ideal habitat. In fact, it suggests the possibility of prefiguring a post-capitalist future by disarticulating the regime of truth upon which neoliberal governmentality is grounded. In Chapter 4, we analysed three examples of carbon profanation. It seems to us that, in a sort of circular movement, they enrich the following theoretical prefigurations of a common/s-based world proposed by Dyer-Witthford and de Peuter, and are simultaneously enriched by them:

Eco-social commons would be institutions managing the biosphere not as a commercial resource, but as the shared basis for any continuing form of human association – collective agencies for planetary climate control, fishery reserves, protection of watersheds, and prevention of pollution [...] By labour commons we mean the democratised organisation of productive and reproductive work. This brings us back to [the example of] worker cooperatives, in which the workplace is an *organisational common*, the labour performed is a *commoning practice*, and the surplus generated, a *commonwealth* [...] By networked commons we mean communication systems that unleash, rather than repress, the tendency of digital technologies to create non-rivalrous goods and common pool resources that overflow intellectual property regimes. We are not thinking merely of liberal 'creative commons' initiatives, but of large-scale adoption in public institutions of open-source practices (Dyer-Witthford and de Peuter 2010: 45).

This movement of mutual and enriching contamination brings us to the third and last point we would like to make with regard to the notion of the common/s, namely the issue of organisation. In short, the crucial question is twofold and can be expressed in the following terms: How does the common/s' dynamic unfold? How is it possible to

organise this dynamics in such a way that it is *controlled enough* non to be exposed to co-optation, but also *open enough* not to find itself ossified?

The first question has received different but equally valid answers in the *workerist* tradition: Hardt and Negri have defined the dynamics of the common/s as “generation” (2000: 387); Dyer-Witheford has stressed the centrality of its “circulation” (2006: 1); Mezzadra and Neilson have proposed the locution “opening and reopening in translation” (2013: forthcoming). Beyond terminological options, however, what is important to underline is that the common/s grows through the simultaneous production of a unitary – but not universal – political horizon *and* of singular – but not self-referential – spatio-temporally localised conflicts. Between the two planes the connection is constant and represents a “nondialectical synthesis” (Casarino and Negri 2008: 70), which means that for the common/s' dynamic to successfully deploy itself a process of incremental expansion through a widening of struggle fronts must take place. This *processual character of the common/s* is nicely captured by Massimo De Angelis who, elaborating on Peter Linebaugh's intuition, remarkably provide the following definition:

Commoning is about the (re)production of/through commons. To turn a noun into a verb is not a little step and requires some daring. Especially if in doing so we do not want to obscure the importance of the noun, but simply ground it on what is, after all, life flow: there are no commons without incessant activities of commoning, of (re)producing in common. But it is through (re)production in common that communities of producers decide for themselves the norms, values and measures of things. Let us put the 'tragedy of the commons' to rest then, the basis of the economists' argument for enclosures: there is no commons without commoning, there is no commons without communities of producers and particular flows and modes of relations. Hence, what lies behind the 'tragedy of the commons' is really the tragedy of the destruction of commoning through all

sorts of structural adjustments, whether militarised or not (De Angelis 2010: 957).

This quotation makes crystal clear the constitutive connection that links the notion of *common/s* and the concept of *profanation*. Moreover, it allows us to begin answering the second aspect of the twofold question posed above. In fact, a necessary condition for the processuality of commoning to be maintained and possibly augmented is, on the one hand, the disarticulation of the regime of truth based on the legitimacy of enclosures and, on the other hand, the prefiguration of a different narrative to discursively sustain the revolutionary potential embodied in the common/s. This is exactly what a profanation does. Consider for example the following passage from a compelling article by David Bollier:

The point of talking about the commons is to open up a larger conversation about types of wealth and value. Not all wealth can be expressed through a market price. And, indeed, other types of value – ecological, social, democratic, moral – need to be fully recognised and actively protected. The very epistemology of conventional economics has trouble doing this; the commons is helpful because it offers a way to name species of wealth that classical liberal and neoliberal economics prefers to overlook [...] The commons helps us develop a broader understanding of 'wealth' by introducing the idea of *inalienability*. Certain resources have value beyond any price, and should be insulated from market forces. The beauty of nature, the sanctity of specific places, the ecological value of wildlife, the ethical norms of selling safe products, the moral values and traditions that define a community – all represent wealth beyond price (Bollier 2010: 2).

None other than this is the challenge facing the climate justice movement: experimenting politico-organisational means to disarticulate an exclusively capital-based notion of value and at the same time institute and protect a new approach to the commonwealth produced

by the general intellect in constitutive connection with the physical conditions of planet Earth. The walk is long and tortuous but activists do not start from scratch: as we have seen, proposals for climate debt repayment are under way, campaigns to slow down global warming by creating a more just society are being pushed forward, and local struggles continue to threaten the cogency and legitimacy of the carbon trading dogma.

If the general intellect is the productive source of commonwealth, it is now time for the class of producers to re-appropriate the products of its labour. This means, first and foremost, to directly challenge the governmental hegemony of financial markets, as *Occupy* in North America and the *Indignados* in Europe are doing on a daily basis. Financial systems, however, should not be carelessly destroyed or merely decommissioned: they express the power of the general intellect and this power must be retained in order to foster the common/s' growth. Rather, it is the common/s' corruption that should be pitilessly targeted by activists. Following an intuition of Italian philosopher Carlo Sini (2012), we would like to conclude this work on a provocative note: what if financial markets themselves are nothing else than the most amazing common/s waiting to be saved from itself, from its own privatistic disease?

BIBLIOGRAPHY

- AAVV. 1987. *OUR COMMON FUTURE*. OXFORD: OXFORD UNIVERSITY PRESS.
- ABRAMSKY, KOLYA (ED.). 2010. *SPARKING A WORLDWIDE ENERGY REVOLUTION*. OAKLAND: AK PRESS.
- ABRAMSKY, KOLYA. 2010. SPARKING A WORLDWIDE ENERGY REVOLUTION: BUILDING NEW RELATIONS OF PRODUCTION, EXCHANGE, AND LIVELIHOOD. IN ABRAMSKY, KOLYA (ED.). *SPARKING A WORLDWIDE ENERGY REVOLUTION*. OAKLAND: AK PRESS.
- AGAMBEN, GIORGIO. 1993. *THE COMING COMMUNITY*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- AGAMBEN, GIORGIO. 1998. *HOMO SACER: SOVEREIGN POWER AND BARE LIFE*. STANFORD: STANFORD UNIVERSITY PRESS.
- AGAMBEN, GIORGIO. 2004. *THE OPEN: MAN AND ANIMAL*. STANFORD: STANFORD UNIVERSITY PRESS.
- AGAMBEN, GIORGIO. 2005. *STATE OF EXCEPTION*. CHICAGO: UNIVERSITY OF CHICAGO PRESS.
- AGAMBEN, GIORGIO. 2007A. *PROFANATIONS*. NEW YORK: ZONE BOOKS.
- AGAMBEN, GIORGIO. 2007B. *IL REGNO E LA GLORIA*. VENEZIA: NERI POZZA.
- AGAMBEN, GIORGIO. 2009A. *THE SIGNATURE OF ALL THINGS: ON METHOD*. NEW YORK: ZONE BOOKS.
- AGAMBEN, GIORGIO. 2009B. *WHAT IS AN APPARATUS?.* STANFORD: STANFORD UNIVERSITY PRESS.
- ALLEN, W. THEODORE. 1997. *THE INVENTION OF THE WHITE RACE*. LONDON: VERSO.
- ALQUATI, ROMANO. 1993. *PER FARE CONRICERCA*. TORINO: VELLEITÀ ALTERNATIVE.
- ALQUATI, ROMANO. 1994. *CAMMINANDO PER REALIZZARE UN SOGNO COMUNE*. TORINO: VELLEITÀ ALTERNATIVE.
- APRILE, CARMELA. 2008. *LE POLITICHE AMBIENTALI*. ROMA: CAROCCI.
- ARMANO, EMILIANA; SCIORTINO, RAFFAELE. 2010. *IN MEMORY OF ROMANO ALQUATI*. [HTTP://WWW.GENERATION- ONLINE.ORG/P/P_ALQUATI.HTM].

- ASCUI, FRANCISCO; LOVELL, HEATHER. 2011. AS FRAMES COLLIDE: MAKING SENSE OF CARBON ACCOUNTING. IN "ACCOUNTING, AUDITING & ACCOUNTABILITY JOURNAL", 24 (8): 978- 999.
- BACHRAM, HEIDI. 2004. CLIMATE FRAUD AND CARBON COLONIALISM: THE NEW TRADE IN GREENHOUSE GASES. IN "CAPITALISM, NATURE, SOCIALISM", 15 (4): 1-16.
- BARCA, STEFANIA. 2011. "PANE E VELENO. STORIE DI AMBIENTALISMO OPERAIO IN ITALIA". IN ZAPRUDER, 24: 100-107.
- BARCHIESI, FRANCO. 2008. HYBRID SOCIAL CITIZENSHIP AND THE NORMATIVE CENTRALITY OF WAGE LABOUR IN POST-APARTHEID SOUTH AFRICA. IN "MEDIATIONS", 24 (1): 52- 67.
- BARRY, ANDREW; OSBORNE, THOMAS; ROSE, NIKOLAS (EDS.). 1996. *FOUCAULT AND POLITICAL REASON: LIBERALISM, NEO-LIBERALISM AND RATIONALITIES OF GOVERNMENT*. CHICAGO: UNIVERSITY OF CHICAGO PRESS.
- BAZZICALUPO, LAURA; TUCCI, ANTONIO. 2010. *IL GRANDE CROLLO*. MILANO: MIMESIS.
- BAZZICALUPO, LAURA. 2010. *BIOPOLITICA: UNA MAPPA CONCETTUALE*. ROMA: CAROCCI.
- BENSAÏD, DANIEL. 2007. *LES DÉPOSSÉDÉS. KARL MARX, LES VOLEURS DE BOIS E LE DROIT DES PAUVRES*. PARIS: LA FABRIQUE.
- BENTON, TED. 1989. MARXISM AND NATURAL LIMITS. IN "NEW LEFT REVIEW" I (178): 51-86.
- BENYUS, JANINE. 1997. *BIOMIMICRY: INNOVATION INSPIRED BY NATURE*. NEW YORK: HARPER&COLLINS.
- BERNSTEIN, STEVEN; CLAPP, JENNIFER; HOFFMANN, MATTHEW. 2009) *REFRAMING GLOBAL ENVIRONMENTAL GOVERNANCE*. WATERLOO: CENTRE FOR INTERNATIONAL GOVERNANCE INNOVATION.
- BIANCHI, PIETRO. 2010. THE DISCOURSE AND THE CAPITALIST. LACAN, MARX, AND THE QUESTION OF SURPLUS. IN "FILOZOFSKI VESTNIK" 31 (2): 123-137.
- BIANCHI, PIETRO. 2011. THE WORD AND THE FLESH. IN "ANGELAKI", 16 (3): 39-51.
- BLAUT, JAMES M. 1999. ENVIRONMENTALISM AS EUROCENTRISM. IN "THE GEOGRAPHICAL REVIEW" (AMERICAN GEOGRAPHICAL SOCIETY), 89 (3): 391-408.
- BLAUT, JAMES M. 2000. *EIGHT EUROCENTRIC HISTORIANS*. NEW YORK: GUILFORD PRESS.

- BOAS, HALLIE (ED.). 2011. *NO REDD PAPERS: VOLUME ONE*. PORTLAND: EBERHARDT PRESS.
- BÖHM, STEFFEN; DABHI, SIDDHARTHA (EDS.). 2009. *UPSETTING THE OFFSET: THE POLITICAL ECONOMY OF CARBON MARKETS*. LONDON: MAYFLYBOOKS.
- BOLIN, BERT. 2007. *A HISTORY OF THE SCIENCE AND POLITICS OF CLIMATE CHANGE*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- BOLLIER, DAVID. 2010. *THE COMMONS: A NEGLECTED SECTOR OF WEALTH-CREATION*. [http://www.boell.org/Downloads/BOLLIER_COMMONS.PDF].
- BOLTANSKI, LUC; CHIAPELLO, EVE. 2005. *THE NEW SPIRIT OF CAPITALISM*. LONDON: VERSO.
- BOND, PATRICK (ED.). 2011A. *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- BOND, PATRICK; DADA, REHANA; ERION, GRAHAM (EDS.). 2009. *CLIMATE CHANGE, CARBON TRADING AND CIVIL SOCIETY: NEGATIVE RETURNS ON SOUTH AFRICAN INVESTMENTS*. AMSTERDAM: ROZENBERG PUBLISHERS.
- BOND, PATRICK; DESAI, ASHWIN. 2011. "PREFIGURATIVE POLITICAL ECOLOGY AND SOCIO-ENVIRONMENTAL INJUSTICE IN CENTRAL DURBAN". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- BOND, PATRICK; DORSEY, MICHAEL. 2011. ANATOMIES OF ENVIRONMENTAL KNOWLEDGE & RESISTANCE: DIVERSE CLIMATE JUSTICE MOVEMENTS AND WANING ECO-NEOLIBERALISM. IN "JOURNAL OF AUSTRALIAN POLITICAL ECONOMY", 66: 286-316.
- BOND, PATRICK; DUGARD, JACKIE. 2008. THE CASE OF JOHANNESBURG WATER: WHAT REALLY HAPPENED AT THE PRE-PAID PARISH PUMP. IN "LAW, DEMOCRACY AND DEVELOPMENT", 12 (1): 1-28.
- BOND, PATRICK. 2005. *ELITE TRANSITION: FROM APARTHEID TO NEOLIBERALISM IN SOUTH AFRICA*. LONDON: PLUTO PRESS.
- BOND, PATRICK. 2006. *TALK LEFT, WALK RIGHT. SOUTH AFRICA'S FRUSTRATED GLOBAL REFORMS*. DURBAN: UNIVERSITY OF KWAZULU-NATAL PRESS.
- BOND, PATRICK. 2007. PRIVATIZATION OF THE AIR TURNS LETHAL: 'PAY TO POLLUTE' PRINCIPLE KILLS SOUTH AFRICAN ACTIVIST SJIDA KHAN. IN "CAPITALISM NATURE SOCIALISM", 18 (4): 6-37.
- BOND, PATRICK. 2008. SOUTH AFRICA'S 'DEVELOPMENTAL STATE' DISTRACTION. IN "MEDIATIONS", 24 (1): 8-27.

- BOND, PATRICK. 2009. "REPAYING AFRICA FOR CLIMATE CRISIS: 'ECOLOGICAL DEBT' AS A DEVELOPMENT FINANCE ALTERNATIVE TO CARBON TRADING". IN BÖHM, STEFFEN; DABHI, SIDDHARTHA. 2009. *UPSETTING THE OFFSET: THE POLITICAL ECONOMY OF CARBON MARKETS*. LONDON: MAYFLYBOOKS.
- BOND, PATRICK. 2010. "SOUTH AFRICA'S 'RIGHTS CULTURE' OF WATER CONSUMPTION: BREAKING OUT OF THE LIBERAL BOX AND INTO THE COMMONS". IN JOHNSTON, BARBARA ROSE; HIWASAKI, LISA; KLAVER, IRENE; STRANG, VERONICA. *WATER, CULTURAL DIVERSITY & GLOBAL ENVIRONMENTAL CHANGE: EMERGING TRENDS, SUSTAINABLE FUTURES?*. NEW YORK: SPRINGER.
- BOND, PATRICK. 2011B. "INTRODUCTION: WELCOME TO DURBAN". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- BOND, PATRICK. 2011C. "THE RIGHT TO THE CITY AND THE ECO-SOCIAL COMMONING OF WATER: DISCURSIVE AND POLITICAL LESSONS FROM SOUTH AFRICA". IN SULTANA, FARHANA; LOFTUS, ALEX (EDS.). *THE RIGHT TO WATER: POLITICS, GOVERNANCE AND SOCIAL STRUGGLES*. LONDON: EARTHSCAN.
- BOND, PATRICK. 2012A. *POLITICS OF CLIMATE JUSTICE*. DURBAN: UNIVERSITY OF KWAZULU-NATAL PRESS.
- BOND, PATRICK. 2012B. DURBAN'S CONFERENCE OF POLLUTERS: MARKET FAILURE AND CRITIC FAILURE. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 42-69.
- BORIO, GUIDO; POZZI, FRANCESCA; ROGGERO, GIGI. 2002. *FUTURO ANTERIORE*. MILAN: DERIVEAPPRODI.
- BOYLE, JAMES. 2003. THE SECOND ENCLOSURE MOVEMENT AND THE CONSTRUCTION OF THE PUBLIC DOMAIN. IN "LAW AND CONTEMPORARY PROBLEMS", 66 (2): 30-37.
- BROWN, LESTER. 2006. *PLAN B 2.0: RESCUING A PLANET UNDER STRESS AND A CIVILIZATION IN TROUBLE*. NEW YORK: NORTON & CO.
- BROWN, LESTER. 2008. *PLAN B 3.0: MOBILIZING TO SAVE CIVILIZATION*. NEW YORK: NORTON.
- BROWN, WENDY. 2006. AMERICAN NIGHTMARE: NEO-LIBERALISM, NEO-CONSERVATISM, AND DE-DEMOCRATIZATION. IN "POLITICAL THEORY", 34 (6): 690-714.
- BULLARD, ROBERT. 1993. *CONFRONTING ENVIRONMENTAL RACISM: VOICES FROM THE GRASSROOTS*. CAMBRIDGE: SOUTH END PRESS.

- BUMPUS, ADAM; LIVERMAN, DIANA. 2008. ACCUMULATION BY DECARBONIZATION AND THE GOVERNANCE OF CARBON OFFSETS. IN "ECONOMIC GEOGRAPHY", 84 (2): 127-155.
- BUMPUS, ADAM. 2011. THE MATTER OF CARBON: UNDERSTANDING THE MATERIALITY OF TCO₂E IN CARBON OFFSETS. IN "ANTIPODE", 43 (3): 612-638.
- BURCHELL, GRAHAM; GORDON, COLIN; MILLER, PETER (EDS.). 1991. *THE FOUCAULT EFFECT: STUDIES IN GOVERNMENTALITY*. LONDON: HARVESTER WHEATSHEAF.
- BURCHELL, GRAHAM; GORDON, COLIN; MILLER, PETER (EDS.). 1991. *THE FOUCAULT EFFECT: STUDIES IN GOVERNMENTALITY*. LONDON-TORONTO: HARVESTER WHEATSHEAF.
- BURKETT, PAUL. 2006. *MARXISM AND ECOLOGICAL ECONOMICS*. BOSTON: BRILL.
- BURNE, KATY. 2011. COMPLEX FINANCIAL BETS RISE AHEAD OF OVERHAUL. IN "THE WALL STREET JOURNAL", [HTTP://ONLINE.WSJ.COM/ARTICLE/SB10001424052970204190504577040372556074142.HTML].
- BUTTON, JILLIAN. 2008. CARBON: COMMODITY OR CURRENCY? THE CASE FOR AN INTERNATIONAL CARBON MARKETS BASED ON THE CURRENCY MODEL. IN "HARVARD ENVIRONMENTAL LAW REVIEW", 32 (2): 571-596.
- CABELLO, JOANNA; GILBERTSON, TAMRA. 2012. A COLONIAL MECHANISM TO ENCLOSE LAND. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 167-180.
- CAFFENTZIS, GEORGE. 1997. "WHY MACHINES CANNOT CREATE VALUE, OR MARX'S THEORY OF MACHINES". IN DAVIS, JIM; HIRSCHL, THOMAS; STACK, MICHAEL. *CUTTING EDGE: TECHNOLOGY, INFORMATION CAPITALISM AND SOCIAL REVOLUTION*. LONDON: VERSO.
- ÇALIŞKAN, KORAY; CALLON, MICHEL. 2010. ECONOMIZATION, PART 2: A RESEARCH PROGRAMME FOR THE STUDY OF MARKETS. IN "ECONOMY AND SOCIETY", 39 (1): 1-32.
- CALLON, MICHEL (ED.). 1998. *THE LAWS OF THE MARKETS*. OXFORD: BLACKWELL.
- CALLON, MICHEL. 2009. CIVILIZING MARKETS: CARBON TRADING BETWEEN *IN VITRO* AND *IN VIVO* EXPERIMENTS. IN "ACCOUNTING, ORGANIZATIONS AND SOCIETY" 34: 535-548.
- CAMMELLI, MICHELE. 2003. *LA 'RAZZA': FRA SCIENZA E ALLEVAMENTO*, IN "FILOSOFIA POLITICA", N. 3, PP. 419-435.

CASAMENTO, ALEX; WEBB, CHRIS. 2012. "THE IMPLAUSIBILITY OF A DEVELOPMENTAL STATE. THE MINERALS-ENERGY COMPLEX AND SO-CALLED BLACK ECONOMIC EMPOWERMENT IN POST-APARTHEID SOUTH AFRICA". PAPER PRESENTED AT HISTORICAL MATERIALISM INTERNATIONAL CONFERENCE; YORK UNIVERSITY, TORONTO, MAY 11TH-13TH.

CASARINO, CESARE; NEGRI, ANTONIO. 2008. *IN PRAISE OF THE COMMON*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.

CASAMENTO, ROBERT. 2005. "ACCOUNTING FOR AND TAXATION OF EMISSION ALLOWANCES AND CREDITS". IN FREESTONE, DAVID; STRECK, CHARLOTTE (EDS.). *LEGAL ASPECTS OF IMPLEMENTING THE KYOTO PROTOCOL MECHANISMS: MAKING KYPTO WORK*. OXFORD: OXFORD UNIVERSITY PRESS.

CASERINI, STEFANO. 2008. *A QUALCUNO PIACE CALDO*. MILANO: EDIZIONI AMBIENTE.

CASERINI, STEFANO. 2009. *GUIDA ALLE LEGGENDE SUL CLIMA CHE CAMBIA*. MILANO: EDIZIONI AMBIENTE.

CHAKRABARTY, DIPESH. 2000. *PROVINCIALIZING EUROPE*. PRINCETON: PRINCETON UNIVERSITY PRESS.

CHAKRABARTY, DIPESH. 2009. THE CLIMATE OF HISTORY: FOUR THESES. IN "CRITICAL INQUIRY, 35 (2): 197-222.

CHAN, MICHELLE. 2009. *SUBPRIME CARBON?*. WASHINGTON: FRIENDS OF THE EARTH.

CHAVEZ, JOSE ANTONIO. 2010. ROLE OF CORPORATE ENVIRONMENTAL GOVERNANCE AND STRATEGY AS DRIVERS TO COMPANY STOCK VALUE GROWTH. IN "OIKOS": 1-15.

CHICCHI, FEDERICO; LEONARDI EMANUELE (EDS.). 2011. *LAVORO IN FRANTUMI*. VERONA: OMBRE CORTE.

CHICCHI, FEDERICO; ROGGERO, GIGI (EDS.). 2009. *LAVORO E PRODUZIONE DEL VALORE NELL'ECONOMIA DELLA CONOSCENZA*. MILANO: FRANCO ANGELI.

CHICCHI, FEDERICO. 2005. "CAPITALISMO, LAVORO E FORME DI SOGGETTIVITÀ". IN LA ROSA, MICHELE (ET AL.). *REINVENTARE IL LAVORO*. ROMA: SAPERE 2000.

CHICCHI, FEDERICO. 2012. *SOGGETTIVITÀ SMARRITA*. MILANO: BRUNO MONDADORI.

CHIGNOLA, SANDRO. 2008. "SULL' 'EPOCA' DELLA BIOPOLITICA. UN COMMENTO", IN AMENDOLA, ADALGISO; BAZZICALUPO, LAURA; CHICCHI, FEDERICO; TUCCI, ANTONIO. *BIOPOLITICA, BIOECONOMIA E PROCESSI DI SOGGETTIVAZIONE*. MACERATA: QUODLIBET.

- CHILDS, MIKE. 2012. PRIVATISING THE ATMOSPHERE: A SOLUTION OR DANGEROUS CON?. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 12-18.
- CICCARELLI, ROBERTO. 2008. *IMMANENZA*. BOLOGNA: IL MULINO.
- CICCARELLI, ROBERTO. 2008. REFRAMING POLITICAL FREEDOM IN THE ANALYTICS OF GOVERNMENTALITY. IN "LAW AND CRITIQUE", 19 (3): 307-327.
- CILLARIO, LORENZO. 1990. "IL CAPITALISMO COGNITIVO. SAPERE, SFRUTTAMENTO E ACCUMULAZIONE DOPO LA RIVOLUZIONE INFORMATICA". IN CILLARIO, LORENZO (ED.). *TRASFORMAZIONE E PERSISTENZA. SAGGI SULLA STORICITÀ DEL CAPITALISMO*. MILANO: FRANCO ANGELI.
- CILLARIO, LORENZO. 1996. *L'ECONOMIA DEGLI SPETTRI: FORME DEL CAPITALISMO CONTEMPORANEO*. ROMA: MANIFESTOLIBRI.
- CLEAVER, HARRY. 1972. THE CONTRADICTIONS OF THE GREEN REVOLUTION. IN "THE AMERICAN ECONOMIC REVIEW", 62 (2): 177-186.
- COASE, ROLAND. 1961. THE PROBLEM OF SOCIAL COST. IN "JOURNAL OF LAW AND ECONOMICS", 3: 1-44.
- COLLIER, STEPHEN. 2009. TOPOLOGIES OF POWER: FOUCAULT'S ANALYSIS OF POLITICAL GOVERNMENT BEYOND 'GOVERNMENTALITY'. IN "THEORY, CULTURE AND SOCIETY", 26 (6): 78-108.
- COMBES, MURIELLE. 1999. *SIMONDON: INDIVIDU ET COLLECTIVITÉ*. PARIS: PUF.
- CONLEY, VERENA. 1997. *ECOPOLITICS: THE ENVIRONMENT IN POST-STRUCTURALIST THOUGHT*. LONDON-NEW YORK: ROUTLEDGE.
- CONNETT, PAUL. 2005. *ZERO WASTE: A KEY MOVE TOWARDS A SUSTAINABLE SOCIETY*. [HTTP://WWW.AMERICANHEALTHSTUDIES.ORG/ZEROWASTE.PDF].
- CONWAY, ERIK; ORESKES, NAOMI. 2010. *MERCHANTS OF DOUBT*. NEW YORK: BLOOMSBURY PRESS.
- COOK, ALLAN. 2009. EMISSION RIGHTS: FROM COSTLESS ACTIVITY TO MARKET OPERATIONS. IN "ACCOUNTING, ORGANIZATIONS AND SOCIETY", 34 (3-4): 456-468.
- COOPER, MELINDA. 2008. *LIFE AS SURPLUS: BIOTECHNOLOGY AND CAPITALISM IN THE NEOLIBERAL ERA*. SEATTLE: UNIVERSITY OF WASHINGTON PRESS.
- COOPER, MELINDA. 2010. TURBULENT WORLDS. FINANCIAL MARKETS AND ENVIRONMENTAL CRISIS.. IN "THEORY, CULTURE & SOCIETY", 27 (2-3): 167-190.

- CORBERA, ESTEVE; FRIEDLI, CHARLOTTE. 2012. PLANTING TREES THROUGH THE CLEAN DEVELOPMENT MECHANISM: A CRITICAL ASSESSMENT. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 206-241.
- CORBERA, ESTEVE; SCHROEDER, HEIKE. 2011. GOVERNING AND IMPLEMENTING REDD+. IN "ENVIRONMENTAL SCIENCE & POLICY", 14 (2): 89-99.
- CRUTZEN, PAUL. 2002. GEOLOGY OF MANKIND. IN "NATURE", 415: 23-23.
- CUTRO, ANTONELLA. (ED.) 2005. *BIOPOLITICA. STORIA E ATTUALITÀ DI UN CONCETTO*. VERONA: OMBRE CORTE.
- CUTRO, ANTONELLA. 2004. *MICHEL FOUCAULT: TECNICA E VITA*. NAPOLI: BIBLIOPOLIS.
- DADA, REHANA. 2009. THE BURNING BREEZE OF BISASAR: INTERVIEW WITH SAJDA KHAN. IN "WOMEN IN ACTION", 2: 99-103.
- DALBY, SIMON. 2007. ANTHROPOCENE GEOPOLITICS: GLOBALIZATION, EMPIRE, ENVIRONMENT AND CRITIQUE. IN "GEOGRAPHY COMPASS", 1 (1): 103-118.
- DARIER, ERIC (ED.). 1999. *DISCOURSES OF THE ENVIRONMENT*. OXFORD: BLACKWELL.
- DE ANGELIS, MASSIMO. 2007. *THE BEGINNING OF HISTORY: VALUE STRUGGLES AND GLOBAL CAPITAL*. LONDON: PLUTO PRESS.
- DE ANGELIS, MASSIMO. 2010. THE PRODUCTION OF COMMONS AND THE 'EXPLOSION' OF THE MIDDLE CLASS. IN "ANTIPODE", 42 (4): 954-977.
- DE MARZO, GIUSEPPE. 2009. *BUEN VIVIR. PER UNA NUOVA DEMOCRAZIA DELLA TERRA*. ROME: EDIESSE.
- DE MARZO, GIUSEPPE. 2010. "PACHAMAMA O MUERTE". IN CACCIARI, PAOLO (ED.). *LA SOCIETÀ DEI BENI COMUNI. UNA RASSEGNA*. ROME: EDIESSE.
- DEAN, MITCHELL. 1999. *GOVERNMENTALITY: POWER AND RULE IN MODERN SOCIETY*. LONDON: SAGE.
- DELEUZE, GILLES. 1988. *FOUCAULT*. LONDON: ATHLONE.
- DESAI ASHWIN; BOND, PATRICK. 2010. WORLD CUP WOES FOR SOUTH AFRICA. IN "RED PEPPER" [[HTTP://WWW.SOLIDARITY-US.ORG/CURRENT/NODE/2935](http://www.solidarity-us.org/current/node/2935)].
- DESCHENEAU, PHILIPPE; PATERSON, MATTHEW. 2012. BETWEEN DESIRE AND ROUTINE: ASSEMBLING ENVIRONMENT AND FINANCE IN CARBON MARKETS. IN "ANTIPODE", 43 (3): 662-681.
- DIAMOND, JARED. 1997. *GUNS, GERMS AND STEEL: THE FATES OF HUMAN SOCIETIES*. NEW YORK: NORTON.

- DIAMOND, JARED. 2005. *COLLAPSE: HOW SOCIETIES CHOOSE TO FAIL OR SUCCEED*. NEW YORK: VIKING.
- DIMITROV, RADOSLAV (2010). INSIDE UN CLIMATE CHANGE NEGOTIATIONS: THE COPENHAGEN CONFERENCE. IN "REVIEW OF POLICY RESEARCH", 27 (6): 795-821.
- DOBSON, ANDREW. 1990. *GREEN POLITICAL THOUGHT: AN INTRODUCTION*. LONDON-BOSTON: UNWIN HYMAN.
- DOMINIJANNI, IDA; MARAZZI, CHRISTIAN. *THE STATE OF DEBT – THE ETHICS OF GUILT*. [HTTP://UNINOMADE.ORG/STATE-OF-DEBT-ETHICS-OF-GUILT/].
- DORSEY, MICHAEL; GAMBIRAZZIO, GERARDO. 2012. A CRITICAL GEOGRAPHY OF GLOBAL CDM. IN AAVV-EJOLT (ENVIRONMENTAL JUSTICE ORGANISATIONS, LIABILITIES AND TRADE). *THE CDM IN AFRICA CANNOT DELIVER THE MONEY*. 26-35. [<http://climateandcapitalism.com/files/2012/04/CDM-Africa-Cannot-Deliver.pdf>].
- DORSEY, MICHAEL. 2007. CLIMATE KNOWLEDGE AND POWER: TALES OF SKEPTIC TANKS, WEATHER GODS AND SAGAS FOR CLIMATE (IN)JUSTICE. IN "CAPITALISM, NATURE, SOCIALISM", 18 (2): 7-21.
- DREW, JACQUELINE; DREW, MICHAEL. 2010. *ESTABLISHING ADDITIONALITY: FRAUD VULNERABILITIES IN THE CLEAN DEVELOPMENT MECHANISM*. BRISBANE: GRIFFITH BUSINESS SCHOOL.
- DRYZEK, JOHN S. 1997. *THE POLITICS OF EARTH. ENVIRONMENTAL DISCOURSES*. OXFORD: OXFORD UNIVERSITY PRESS.
- DUPUY, JEAN-PIERRE. 2002. *POUR UN CATASTROPHISME ÉCLAIRÉ*. PARIS: SEUIL.
- DYER-WITHEFORD, NICK. 1999. *CYBER-MARX*. URBANA: UNIVERSITY OF ILLINOIS PRESS.
- DYER-WITHEFORD, NICK. 2005. "CYBER-NEGRI: GENERAL INTELLECT AND IMMATERIAL LABOR". IN MURPHY, TIMOTHY S.; MUSTAPHA, ADUL-KARIM. *THE PHILOSOPHY OF ANTONIO NEGRI*. LONDON: PLUTO PRESS.
- DYER-WITHEFORD, NICK. 2006. *THE CIRCULATION OF THE COMMON*. PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE *IMMATERIAL LABOUR, MULTITUDES AND NEW SOCIAL SUBJECTS: CLASS COMPOSITION IN COGNITIVE CAPITALISM*.
- DYER-WITHEFORD, NICK. 2012. *CYBER-MARXISM IN THE TWENTY FIRST CENTURY*. PAPER PRESENTED AT THE UNIVERSITY OF TORONTO I-SCHOOL, MARCH 29TH.
- DYER-WITHEFORD, NICK; DE PEUTER, GREG. 2010. COMMONS AND COOPERATIVES. IN "AFFINITIES: A JOURNAL OF RADICAL THEORY, CULTURE, AND ACTION". 4 (1): 30-56.

- ECONOMIST. 2012. *COMPLETE DISASTER IN THE MAKING*.
[[HTTP://WWW.ECONOMIST.COM/NODE/21562961](http://www.economist.com/node/21562961)].
- ECOSYSTEMS MARKETPLACE. 2011. *STATE OF THE FOREST CARBON MARKET 2011: FROM CANOPY TO CURRENCY*. [[HTTP://WWW.FOREST-TRENDS.ORG/DOCUMENTS/FILES/DOC_2963.PDF](http://www.forest-trends.org/documents/files/doc_2963.pdf)].
- EDWARDS, PAUL. 2010. *A VAST MACHINE*. CAMBRIDGE: MIT PRESS.
- EKERS, MICHAEL. 2008. THE POLITICAL ECOLOGY OF HEGEMONY IN DEPRESSION-ERA BRITISH COLUMBIA, CANADA: MASCULINITIES, WORK AND THE PRODUCTION OF THE FORESTSCAPE. IN "GEOFORUM", 40: 303-315.
- EKERS, MICHAEL. 2012. 'THE DIRTY SCRUFF': RELIEF AND THE PRODUCTION OF THE UNEMPLOYED IN DEPRESSION-ERA BRITISH COLUMBIA. IN "ANTIPODE", 44 (4): 1119-1142.
- ELLERMAN, DENNY; BUCHNER, BARBARA; CARRARO, CARLO (EDS.). 2007. *ALLOCATION IN THE EUROPEAN EMISSIONS TRADING SCHEME*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- ERION, GRAHAM (WITH LOHMANN, LARRY; REDDY, TRUSHA). 2009. "LOW-HANGING FRUIT ALWAYS ROTS FIRST: OBSERVATIONS FROM SOUTH AFRICA'S CARBON MARKETS". IN BOND, PATRICK; DADA, REHANA; ERION, GRAHAM (EDS.). *CLIMATE CHANGE, CARBON TRADING AND CIVIL SOCIETY: NEGATIVE RETURNS ON SOUTH AFRICAN INVESTMENTS*. AMSTERDAM: ROZENBERG PUBLISHERS.
- ESPOSITO, ROBERTO. 2008. *BIOS. BIOPOLITICS AND PHILOSOPHY*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- EWALD, FRANÇOIS. 1985. BIO-POWER. IN "HISTORY OF THE PRESENT", 2: 8-9.
- FLETCHER, ROBERT. 2010. WHEN ENVIRONMENTAL ISSUES COLLIDE: CLIMATE CHANGE AND THE SHIFTING POLITICAL ECOLOGY OF HYDROELECTRIC POWER. IN "PEACE & CONFLICT REVIEW". 5 (1): 14-30.
- FLETCHER, ROBERT. 2012. CAPITALIZING ON CHAOS: CLIMATE CHANGE AND DISASTER CAPITALISM. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 97-112.
- FLEW, TERRY. 2012. MICHEL FOUCAULT'S *THE BIRTH OF BIOPOLITICS* AND CONTEMPORARY NEOLIBERAL DEBATES. IN "THESIS ELEVEN", 108 (1): 44-65.
- FLIEGSTEIN, NEIL. 1998. THE POLITICS OF QUANTIFICATION. IN "ACCOUNTING, ORGANIZATIONS AND SOCIETY", 23 (3): 325-331.
- FORTUN, MICHAEL. 2001. MEDIATED SPECULATIONS IN THE GENOMIC FUTURES MARKETS. IN "NEW GENOMICS AND SOCIETY", 20 (2): 139-156.

- FOSTER, JOHN BELLAMY. 2000. *MARX'S ECOLOGY: MATERIALISM AND NATURE*. NEW YORK: MONTHLY REVIEW PRESS.
- FOSTER, JOHN BELLAMY. 2009. *THE ECOLOGICAL REVOLUTION: MAKING PEACE WITH THE PLANET*. NEW YORK: MONTHLY REVIEW PRESS.
- FOUCAULT, MICHEL. 1978. *THE HISTORY OF SEXUALITY, VOL. I: AN INTRODUCTION*. NEW YORK: PANTHEON BOOKS.
- FOUCAULT, MICHEL. 1980. *LANGUAGE, COUNTER-MEMORY, PRACTICE*. ITHACA, NEW YORK: CORNELL UNIVERSITY PRESS.
- FOUCAULT, MICHEL. 1986. *THE USE OF PLEASURE*. NEW YORK: PANTHEON BOOKS.
- FOUCAULT, MICHEL. 1994A. *DITS ET ÉCRITS, VOL. III*. PARIS: GALLIMARD.
- FOUCAULT, MICHEL. 1994B. *DITS ET ÉCRITS, VOL. IV*. PARIS: GALLIMARD.
- FOUCAULT, MICHEL. 1997. *ETHICS, SUBJECTIVITY AND TRUTH*. NEW YORK: THE NEW PRESS.
- FOUCAULT, MICHEL. 2000. *POWER*. NEW YORK: THE NEW PRESS.
- FOUCAULT, MICHEL. 2001A. *L'HERMÉTIQUE DU SUJET*. PARIS: SEUIL & GALLIMARD.
- FOUCAULT, MICHEL. 2001B. *FEARLESS SPEECH*. NEW YORK: SEMIOTEXT(E).
- FOUCAULT, MICHEL. 2002. *THE ARCHEOLOGY OF KNOWLEDGE*. LONDON-NEW YORK: ROUTLEDGE.
- FOUCAULT, MICHEL. 2002. *THE ORDER OF THINGS*. LONDON: ROUTLEDGE.
- FOUCAULT, MICHEL. 2003. *'SOCIETY MUST BE DEFENDED'*. BASINGSTOKE, NEW YORK: PALGRAVE MACMILLAN.
- FOUCAULT, MICHEL. 2003. *"SOCIETY MUST BE DEFENDED"*. NEW YORK: PICADOR.
- FOUCAULT, MICHEL. 2007. *SECURITY, TERRITORY, POPULATION*. BASINGSTOKE, NEW YORK: PALGRAVE MACMILLAN.
- FOUCAULT, MICHEL. 2008. *THE BIRTH OF BIOPOLITICS*. BASINGSTOKE, NEW YORK: PALGRAVE MACMILLAN.
- FRANKLIN, SARAH. 2007. *DOLLY MIXTURES: THE REMAKING OF GENEALOGY*. DURHAM: DUKE UNIVERSITY PRESS.
- FUMAGALLI, ANDREA; LUCARELLI, STEFANO. BASIC INCOME AND PRODUCTIVITY IN COGNITIVE CAPITALISM. IN "REVIEW OF SOCIAL ECONOMY", 66 (1): 71-92.

- FUMAGALLI, ANDREA; MEZZADRA, SANDRO. (EDS.). 2010. *CRISIS IN THE GLOBAL ECONOMY*. LOS ANGELES: SEMIOTEXT(E).
- FUNTOWICZ, SILVIO; RAVETZ, JEROME. 1993. SCIENCE FOR A POST-NORMAL AGE. IN "FUTURES", 25: 735-755.
- FUNTOWICZ, SILVIO; RAVETZ, JEROME. 2003. *POST-NORMAL SCIENCE*. INTERNATIONAL SOCIETY FOR ECOLOGICAL ECONOMICS - INTERNET ENCYCLOPEDIA OF ECOLOGICAL ECONOMICS [HTTP://KORNY10.BKE.HU/ANGOL/RAVETZ2003.PDF].
- FUSARO, DIEGO. 2009. "SAGGIO INTRODUTTIVO". IN MARX, KARL. *FORME DI PRODUZIONE PRECAPITALISTICHE*. MILANO: BOMPIANI.
- GALLOWAY, ALEXANDER; THACKER, EUGENE 2007. *THE EXPLOIT. A THEORY OF NETWORKS*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- GARDINER, MICHAEL. 2012. "THE 'DICTATORSHIP OF THE EYE': HENRI LEFEBVRE ON VISION, SPACE AND MODERNITY". IN HEYWOOD, IAN; SANDYWELL, BARRY (EDS.). *THE HANDBOOK OF VISUAL CULTURE*. LONDON: BERG.
- GIDDENS, ANTHONY. 2009. *THE POLITICS OF CLIMATE CHANGE*. CAMBRIDGE: POLITY.
- GILBERTSON, TAMRA; REYES, OSCAR. 2009. *CARBON TRADING: HOW IT WORKS AND WHY IT FAILS*. UPPSALA: DAG HAMMARSKJÖLD FOUNDATION.
- GOBO, GIAMPIETRO. 2001. *DESCRIVERE IL MONDO*. ROMA: CAROCCI.
- GOLDTOOTH, TOM. 2011. "WHY REDD/REDD+ IS NOT A SOLUTION". IN BOAS, HALLIE (ED.). *NO REDD PAPERS: VOLUME ONE*. PORTLAND: EBERHARDT PRESS.
- GRANT, JOHN. 2007. *THE GREEN MARKETING MANIFESTO*. CHICHESTER: WILEY.
- GUATTARI, FÉLIX. 2000. *THE THREE ECOLOGIES*. NEW BRUNSWICK, NJ: ATHLONE PRESS.
- GULLÌ, FRANCESCO (ED.). 2008. *MARKETS FOR CARBON AND POWER PRICING IN EUROPE*. CHELTHENAM: EDWARD ELGAR.
- GUPTA, SUJATA (ET AL.). 2007. "POLICIES, INSTRUMENTS AND CO-OPERATIVE ARRANGEMENTS". IN IPCC. *CLIMATE CHANGE 2007: MITIGATION*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- HAIVEN, MAX. 2011. FINANCE AS CAPITAL'S IMAGINATION: REIMAGINING VALUE IN AN AGE OF FICTITIOUS CAPITAL CRISIS. IN "SOCIAL TEXT", 108: 93-124.
- HALLOWES, DAVID. 2011. *TOXIC FUTURES*. DURBAN: UNIVERSITY OF KWAZULU-NATAL PRESS.

- HARDIN, GARRETT. 1968. THE TRAGEDY OF THE COMMONS. IN *SCIENCE*, 162: 1243-1248.
- HARDT, MICHAEL; VIRNO, PAOLO. 1996. *RADICAL THOUGHT IN ITALY: A POTENTIAL POLITICS*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- HARDT, MICHAEL; NEGRI, ANTONIO. 2000. *EMPIRE*. CAMBRIDGE, MASS.: HARVARD UNIVERSITY.
- HARDT, MICHAEL; NEGRI, ANTONIO. 2004. *MULTITUDE: WAR AND DEMOCRACY IN THE AGE OF EMPIRE*. NEW YORK: PENGUIN PRESS.
- HARDT, MICHAEL; NEGRI, ANTONIO. 2009. *COMMONWEALTH*. CAMBRIDGE, MASS.: HARVARD UNIVERSITY PRESS.
- HARRINGTON, J. 2008. *THE CLIMATE DIET: HOW YOU CAN CUT CARBON, CUT COSTS, AND SAVE THE PLANET*. LONDON: EARTHSCAN.
- HARVEY, DAVID. 1982. *THE LIMITS OF CAPITAL*. CHICAGO: CHICAGO UNIVERSITY PRESS.
- HARVEY, DAVID. 1996. *JUSTICE, NATURE AND THE GEOGRAPHY OF DIFFERENCE*. OXFORD: BLACKWELL.
- HARVEY, DAVID. 2003. *THE NEW IMPERIALISM*. OXFORD: OXFORD UNIVERSITY PRESS.
- HARVEY, DAVID. 2005. *A BRIEF HISTORY OF NEOLIBERALISM*. OXFORD-NEW YORK: OXFORD UNIVERSITY PRESS.
- HARVEY, DAVID. 2008. THE RIGHT TO THE CITY. IN "NEW LEFT REVIEW", 53: 23-40.
- HARVEY, DAVID. 2010. *THE ENIGMA OF CAPITAL*. OXFORD: OXFORD UNIVERSITY PRESS.
- HARVEY, DAVID. 2011. THE FUTURE OF THE COMMONS. IN "RADICAL HISTORY REVIEW", 109: 101-107.
- HAWKEN, PAUL; LOVINS, AMORY; LOVINS, L. HUNTER. 1999. *NATURAL CAPITALISM: CREATING THE NEXT INDUSTRIAL REVOLUTION*. NEW YORK: BACK BAY BOOKS.
- HELFRICH, SILKE (ED.). 2010. *GENES, BYTES, AND EMISSIONS: TO WHOM DOES THE WORLD BELONG?*. [HTTP://WWW.BOELL.ORG/WEB/148-576.HTML].
- HEYNEN, NIK; MCCARTHY, JAMES; PRUDHAM, SCOTT; ROBBINS, PAUL (EDS.). *NEOLIBERAL ENVIRONMENTS*. 2007. LONDON-NEW YORK: ROUTLEDGE.
- HIRSCH, ALAN. 2005. *SEASON OF HOPE: ECONOMIC REFORMS UNDER MANDELA AND MBEKI*. DURBAN: UNIVERSITY OF KWAZULU-NATAL PRESS.

- HOFFMAN, MARCELO IRAJÁ DE ARAUJO. 2011. FOUCAULT, POPULATION AND THE IRANIAN REVOLUTION. PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE *READING MICHEL FOUCAULT IN THE POSTCOLONIAL PRESENT*. UNIVERSITY OF BOLOGNA, MARCH 3RD-4TH.
- HOLMES, BRIAN. 2010. IS IT WRITTEN IN THE STARS? GLOBAL FINANCE, PRECARIOUS DESTINIES. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 10 (3-4): 222-233.
- HUTTENBACK, ROBERT. 1971. *GANDHI IN SOUTH AFRICA*. ITHACA: CORNELL UNIVERSITY PRESS.
- IACOMELLI, ALDO. 2005. *OLTRE KYOTO*. ROMA: FRANCO MUZZIO EDITORE.
- IFRS FOUNDATION. 2011. *PROJECT NEWS*. JUNE: [[HTTP://WWW.IFRS.ORG/CURRENT-PROJECTS/IASB-PROJECTS/EMISSION-TRADING-SCHEMES/PAGES/EMISSIONS-TRADING-SCHEMES.ASPX](http://www.ifrs.org/current-projects/iasb-projects/emission-trading-schemes/pages/emissions-trading-schemes.aspx)].
- INOUE, KIMIKO. 2004. *MONSANTO: BEHIND THE SCENES. A CORPORATE PROFILE*. OTTAWA: POLARIS INSTITUTE.
- INTERNATIONAL ENERGY AGENCY. 2011. *CO2 EMISSIONS FROM FUEL COMBUSTION*. PARIS: IEA STATISTICS [[HTTP://WWW.IEA.ORG/CO2HIGHLIGHTS/CO2HIGHLIGHTS.PDF](http://www.iea.org/co2highlights/co2highlights.pdf)].
- JAIN, H. K.. 2010. *THE GREEN REVOLUTION: HISTORY, IMPACT AND FUTURE*. HOUSTON: STUDIUM PRESS.
- JAMESON, FREDRIC. 1998. *THE CULTURAL TURN*. LONDON: VERSO.
- JASANOFF, SHEILA. 2005. *DESIGNS ON NATURE: SCIENCE AND DEMOCRACY IN EUROPE AND THE UNITED STATES*. PRINCETON: PRINCETON UNIVERSITY PRESS.
- JONAS, HANS. 1974. *PHILOSOPHICAL ESSAYS: FROM ANCIENT CREED TO TECHNOLOGICAL MAN*. CHICAGO: UNIVERSITY OF CHICAGO PRESS.
- KELLY, MARK. 2009. *THE POLITICAL PHILOSOPHY OF MICHEL FOUCAULT*. NEW YORK: ROUTLEDGE.
- KOVEL, JOEL. 2002. *THE ENEMY OF NATURE*. LONDON: ZED BOOKS.
- KRAHE, DARLIKA. 2009. A NEW APPROACH TO AID: HOW A BASIC INCOME PROGRAM SAVED A NAMIBIAN VILLAGE. IN "DER SPIEGEL INTERNATIONAL", 10 AUGUST.
- KUHN, THOMAS. 1962. *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS*. CHICAGO: UNIVERSITY OF CHICAGO PRESS.

- LA CAMERA, FRANCESCO. 2009. *MISURARE IL VALORE DELL'AMBIENTE*. MILANO: EDIZIONI AMBIENTE.
- LABATT, SONIA; WHITE, RODNEY. 2007. *CARBON FINANCE: THE FINANCIAL IMPLICATIONS OF CLIMATE CHANGE*. HOBOKEN: WILEY.
- LACLAU, ERNESTO; MOUFFE, CHANTAL. 1985. *HEGEMONY AND SOCIALIST STRATEGY*. LONDON: VERSO.
- LACLAU, ERNESTO. 1996. *EMANCIPATION(S)*. LONDON: VERSO.
- LAFUENTE, ANTONIO. 2010. *THE FOUR REALMS OF THE COMMONS* [http://www.boell.org/downloads/LAFUENTE_THE_FOUR_REALMS_OF_THE_COMMONS.PDF].
- LAMBERT, CAROLINE; PEZET, ERIC. 2012. *ACCOUNTING AND THE MAKING OF HOMO LIBERALIS*. IN "FOUCAULT STUDIES", 13: 67-81.
- LANDER EDGARDO. 2011. *THE GREEN ECONOMY: THE WOLF IN SHEEP'S CLOTHING*. TRANSNATIONAL INSTITUTE [<http://www.tni.org/report/green-economy-wolf-sheeps-clothing>].
- LATOUR, BRUNO, 2004. *POLITICS OF NATURE: HOW TO BRING SCIENCE INTO DEMOCRACY*. CAMBRIDGE: HARVARD UNIVERSITY PRESS.
- LATOUR, BRUNO. 1988. *THE PASTEURIZATION OF FRANCE*. CAMBRIDGE: HARVARD UNIVERSITY PRESS.
- LATOUR, BRUNO. 1991. *WE HAVE NEVER BEEN MODERN*. NEW YORK: HARVESTER WHEATSHEAF.
- LATOUR, BRUNO. 1993. *WE HAVE NEVER BEEN MODERN*. NEW YORK: HARVESTER WHEATSHEAF.
- LATOUR, BRUNO. 2002. *WAR OF THE WORLDS: WHAT ABOUT PEACE?*. CHICAGO: PRICKLY PARADIGM PRESS.
- LATOUR, BRUNO. 2004. *POLITICS OF NATURE*. CAMBRIDGE, MASS: HARVARD UNIVERSITY PRESS.
- LAVAL, CHRISTIAN. 2007. *L'HOMME ÉCONOMIQUE*. PARIS: GALLIMARD.
- LAZZARATO, MAURIZIO. 1996. "IMMATERIAL LABOUR". IN HARDT, MICHAEL; VIRNO, PAOLO (EDS.). *RADICAL THOUGHT IN ITALY*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- LAZZARATO, MAURIZIO. 2011. *LA FABRIQUE DE L'HOMME ENDETTÉ. ESSAI SUR LA CONDITION NÉOLIBÉRALE*. PARIS: ÉDITION D'AMSTERDAM.

- LEFEBVRE, HENRY. 1991. *THE PRODUCTION OF SPACE*. OXFORD: BLACKWELL.
- LEMKE, THOMAS. 2001. 'THE BIRTH OF BIOPOLITICS'. MICHEL FOUCAULT'S LECTURE AT THE COLLÈGE DE FRANCE ON NEOLIBERAL GOVERNMENTALITY. IN "ECONOMY & SOCIETY", 30 (2): 190-207.
- LEMKE, THOMAS. 2002. FOUCAULT, GOVERNMENTALITY AND CRITIQUE. IN "RETHINKING MAXISM", 14 (3): 49-64.
- LEONARDI, EMANUELE. 2010A. THE IMPRIMATUR OF CAPITAL: GILBERT SIMONDON AND THE HYPOTHESIS OF COGNITIVE CAPITALISM. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 10 (3-4): 253-266.
- LEONARDI, EMANUELE. 2010B. ECOLOGICAL CRISIS AND PROCESSES OF SUBJECTIVATION. IN "DIAPSALMATA", 1 (4): 1-25.
[\[http://www.orthotes.com/diap/index.php?option=com_content&view=article&id=58&Itemid=56\]](http://www.orthotes.com/diap/index.php?option=com_content&view=article&id=58&Itemid=56).
- LEONARDI, EMANUELE. 2010C. "RICCHEZZE E LIMITI DELL'AMBIENTALISMO". IN IN MARZOCCA, OTTAVIO (ED.). *GOVERNARE L'AMBIENTE? LA CRISI ECOLOGICA TRA POTERI, SAPERI E CONFLITTI*. MILANO: MIMESIS.
- LEONARDI, EMANUELE. 2011. "LA DIMENSIONE ECOLOGICA DELLA CRISI ECONOMICA GLOBALE". IN CHICCHI, FEDERICO; LEONARDI EMANUELE (EDS.). *LAVORO IN FRANTUMI*. VERONA: OMBRE CORTE.
- LEONARDI, EMANUELE. 2012. PER UNA CRITICA DELLA *GREEN ECONOMY* NEOLIBERALE. IN "CULTURE DELLA SOSTENIBILITÀ", 9 (1): 30-45.
- LEONELLI, RUDY (ED.). 2010. *FOUCAULT-MARX: PARALLELI E PARADOSSI*. ROME: BULZONI.
- LEONELLI, RUDY. 1999. FONTI MARXIANE IN FOUCAULT. IN "ALTRERAGIONI", 9.
- LEONTIEF, WASSILY. 1986. *INPUT/OUTPUT ECONOMICS*. NEW YORK: OXFORD UNIVERSITY PRESS.
- LINEBAUGH, PETER. 2008. *THE MAGNA CARTA MANIFESTO: LIBERTIES AND COMMONS FOR ALL*. BERKELEY: UNIVERSITY OF CALIFORNIA PRESS.
- LIPPERT, INGMAR. 2011. EXTENDED CARBON COGNITION AS A MACHINE. IN "COMPUTATIONAL CULTURE", 1 (1): 1-15.
- LIPPERT, INGMAR. 2012. CARBON CLASSIFIED? UNPACKING HETEROGENEOUS RELATIONS INSCRIBED INTO CORPORATE CARBON EMISSIONS. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 138-161.

- LOHMANN, LARRY; BÖHM, STEFFEN. 2012. CRITIQUING CARBON MARKETS: A CONVERSATION. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 81-96.
- LOHMANN, LARRY. 2005. MARKETING AND MAKING CARBON DUMPS: COMMODIFICATION, CALCULATION AND COUNTERFACTUALS IN CLIMATE CHANGE MITIGATION. IN "SCIENCE AS CULTURE", 14 (3): 203-235.
- LOHMANN, LARRY. 2006. *CARBON TRADING: A CRITICAL CONVERSATION ON CLIMATE CHANGE, PRIVATISATION AND POWER*. UPPSALA: DAG HAMMARSKJÖLD FOUNDATION.
- LOHMANN, LARRY. 2008. *CHRONICLE OF A DISASTER FORETOLD: REDD-WITH-CARBON TRADING*.
[[HTTP://WWW.THECORNERHOUSE.ORG.UK/SITES/THECORNERHOUSE.ORG.UK/FILES/CHRONICLE2.PDF](http://www.thecornerhouse.org.uk/sites/thecornerhouse.org.uk/files/chronicle2.pdf)].
- LOHMANN, LARRY. 2009. TOWARD A DIFFERENT DEBATE IN ENVIRONMENTAL ACCOUNTING: THE CASES OF CARBON AND COST-BENEFIT. IN "ACCOUNTING, ORGANIZATIONS AND SOCIETY", 34: 499-534.
- LOHMANN, LARRY. 2010A. "NEOLIBERALISM AND THE CALCULABLE WORLD: THE RISE OF CARBON TRADING". IN BIRCH, KEAN; MYKHENKO, VLAD (EDS.). *THE RISE AND FALL OF NEOLIBERALISM* LONDON: ZED BOOKS.
- LOHMANN, LARRY. 2010B. UNCERTAINTY MARKETS AND CARBON MARKETS: VARIATIONS ON POLANYIAN THEMES. IN "NEW POLITICAL ECONOMY", 15 (2): 225-254.
- LOHMANN, LARRY. 2011A. "REGULATION AS CORRUPTION IN THE CARBON OFFSET MARKETS". IN REDDY, TRUSHA (ED.). *CARBON TRADING IN AFRICA: A CRITICAL REVIEW*. PRETORIA: INSTITUTE FOR SECURITY STUDIES.
- LOHMANN, LARRY. 2011B. "FINANCIALIZATION, COMMODIFICATION AND CARBON: THE CONTRADICTIONS OF NEOLIBERAL CLIMATE POLICY". IN PANITCH, LEO; ALBO, GREG; VIVEK, CHIBBER (EDS.). *SOCIALIST REGISTER 2012: THE CRISIS AND THE LEFT*. NEW YORK: MONTHLY REVIEW PRESS.
- LOHMANN, LARRY. 2011C. "THE ENDLESS ALGEBRA OF CLIMATE MARKETS". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- LOVELL, HEATHER; MACKENZIE, DONALD. 2011. ACCOUNTING FOR CARBON: THE ROLE OF ACCOUNTING PROFESSIONAL ORGANISATIONS IN GOVERNING CLIMATE CHANGE. IN "ANTIPODE", 43 (3): 704-730.
- LOVELOCK, JAMES. 1988. *THE AGES OF GAIA: A BIOGRAPHY OF OUR LIVING EARTH*. NEW YORK: NORTON.

- LOVELOCK, JAMES. 2006. *THE REVENGE OF GAIA: WHY THE EARTH IS FIGHTING BACK – AND HOW WE CAN STILL SAVE HUMANITY*. NEW YORK: ALLEN LANE.
- LUCARELLI, STEFANO. 2012. *LA MONETA (DEL) COMUNE: COMMENTI A CHRISTIAN MARAZZI*. [HTTP:// UNINOMADE.ORG/SUMMER-SCHOOL-RENDITA-E-BIOPOTERE/#_FTN4].
- LUKE, TIMOTHY. 1995. “SUSTAINABLE DEVELOPMENT AS A POWER/KNOWLEDGE SYSTEM: THE PROBLEM OF 'GOVERNMENTALITY'”. IN FISHER, FRANK; BLACK MICHAEL (EDS.). *GREENING ENVIRONMENTAL POLICY: THE POLITICS OF A SUSTAINABLE FUTURE*. LONDON: PAUL CHAPMAN PUBLISHING.
- LUKE, TIMOTHY. 1999. *GENERATING GREEN GOVERNMENTALITY: A CULTURAL CRITIQUE OF ENVIRONMENTAL STUDIES AS POWER/KNOWLEDGE FORMATION*. [<http://www.cddc.vt.edu/tim/tims/Tim514a.PDF>].
- LUXEMBURG, ROSA. 2003. *THE ACCUMULATION OF CAPITAL*. LONDON: ROUTLEDGE.
- MACKENZIE, DONALD. 2009A. *MATERIAL MARKETS: HOW ECONOMIC AGENTS ARE CONSTRUCTED*. OXFORD: OXFORD UNIVERSITY PRESS.
- MACKENZIE, DONALD. 2009B. 'MAKING THINGS THE SAME': GASES, EMISSION RIGHTS AND THE POLITICS OF CARBON MARKETS. IN “ACCOUNTING, ORGANIZATIONS AND SOCIETY”, 34 (3-4): 440-455.
- MAKINDE, MARTIN. 2004. “AGRICULTURAL BIOTECHNOLOGY IN AFRICAN COUNTRIES”. IN BRANNINGAN, MICHAEL (ED.). *CROSS-CULTURAL BIOTECHNOLOGY*. LANHAM: ROWAM & LITTLEFIELD.
- MAKOWER, JOEL. 2010. *STRATEGIES FOR THE GREEN ECONOMY*. NEW YORK: MCGRAW-HILL.
- MANCINI, ANTONIO. 2011. “FROM DE BEERS TO BEE”. PAPER PRESENTED AT THE CENTRE FOR CIVIL SOCIETY, UNIVERSITY OF KWAZULU-NATAL, DURBAN, IN DECEMBER 2011 [<http://ccs.ukzn.ac.za/files/From%20De%20Beers%20to%20the%20BEE%20FINAL.PDF>].
- MANDELA, NELSON. 1994. *LONG WALK TO FREEDOM*. NEW YORK: LITTLE, BROWN AND COMPANY.
- MARAIS, HEIN. 2001. *SOUTH AFRICA: LIMITS TO CHANGE. THE POLITICAL ECONOMY OF TRANSITION*. NEW YORK: ZED BOOKS.
- MARAZZI, CHRISTIAN. 2005. “CAPITALISMO DIGITALE E MODELLO ANTROPOGENETICO DI PRODUZIONE”. IN LA ROSA, MICHELE (ET AL.). *REINVENTARE IL LAVORO*. ROMA: SAPERE 2000.

MARAZZI, CHRISTIAN. 2008. *CAPITAL AND LANGUAGE: FROM THE NEW ECONOMY TO THE WAR ECONOMY*. LOS ANGELES: SEMIOTEXT(E).

MARAZZI, CHRISTIAN. 2011. *THE VIOLENCE OF FINANCIAL CAPITAL*. LOS ANGELES: SEMIOTEXT(E).

MARAZZI, CHRISTIAN. 2012. *LA MONETA DEL COMUNE*. [[HTTP://UNINOMADE.ORG/MONETA-DEL-COMUNE/](http://uninomade.org/moneta-del-comune/)].

MARCUS, GEORGE; FISHER, MICHAEL. 1986. *ANTHROPOLOGY AS CULTURAL CRITIQUE: AN EXPERIMENTAL MOMENT IN THE HUMAN SCIENCES*. CHICAGO: UNIVERSITY OF CHICAGO PRESS.

MARTINEZ ALIER, JOAN. 2002. *ENVIRONMENTALISM OF THE POOR*. CHELTENHAM: EDWARD ELGAR PUBLISHING.

MARTINEZ ALIER, JOAN. 2003. MARXISM, SOCIAL METABOLISM AND UNEQUAL ENVIRONMENTAL EXCHANGE. PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE *WORLD SYSTEMS THEORY AND THE ENVIRONMENT*. LUND UNIVERSITY, SEPTEMBER 19TH-22ND [[HTTP://WWW.H-ECONOMICA.UAB.ES/WPS/2004_01.PDF](http://www.h-economica.uab.es/wps/2004_01.pdf)].

MARTINEZ-ALIER, JOAN. 1987. *ECOLOGICAL ECONOMICS: ENERGY, ENVIRONMENT, AND SOCIETY*. CAMBRIDGE: BLACKWELL.

MARTINEZ, ESPERANZA. 2010. "LEAVE THE OIL IN THE SOIL: THE YASUNÍ MODEL". IN ABRAMSKY, KOLYA (ED.). *SPARKING A WORLDWIDE ENERGY REVOLUTION*. OAKLAND: AK PRESS.

MARX, KARL; ENGELS, FRIEDRICH. 1975. *COLLECTED WORKS. VOLUME I*. LONDON: LAWRENCE AND WISHART.

MARX, KARL; ENGELS, FRIEDRICH. 1978. *THE MARX-ENGELS READER*. NEW YORK AND LONDON: NORTON.

MARX, KARL. 1963. *THEORIES OF SURPLUS-VALUE. VOLUME I*. MOSCOW: FOREIGN LANGUAGES PUBLISHING HOUSE.

MARX, KARL. 1971. *CAPITAL. VOL. II*. MOSCOW: PROGRESS PUBLISHERS.

MARX, KARL. 1981. *CAPITAL. VOLUME III*. NEW YORK: VINTAGE BOOKS.

MARX, KARL. 1988. *ECONOMIC AND PHILOSOPHIC MANUSCRIPTS OF 1844*. NEW YORK: PROMETHEUS BOOKS.

MARX, KARL. 1990. *CAPITAL. VOLUME I*. NEW YORK: VINTAGE BOOKS.

MARX, KARL. 1993. *GRUNDRISSE: FOUNDATIONS OF THE CRITIQUE OF POLITICAL ECONOMY*. LONDON – NEW YORK: PENGUIN BOOKS.

- MARZOCCA, OTTAVIO. 2007. *PERCHÈ IL GOVERNO? IL LABORATORIO ETICO-POLITICO DI MICHEL FOUCAULT*. ROMA: MANIFESTOLIBRI.
- MARZOCCA, OTTAVIO. 2007. *PERCHÈ IL GOVERNO?* ROMA: MANIFESTOLIBRI.
- MARZOCCA, OTTAVIO. 2010. "EQUIVOCI DELL'*OIKOS*: ECOLOGIA, ECONOMIA E GOVERNO DEL *DAY AFTER*". IN MARZOCCA, OTTAVIO (ED.). *GOVERNARE L'AMBIENTE? LA CRISI ECOLOGICA TRA POTERI, SAPERI E CONFLITTI*. MILANO: MIMESIS.
- MARZOCCA, OTTAVIO. 2011. *IL GOVERNO DELL'ETHOS*. MILANO: MIMESIS.
- MATTEI, UGO. 2011. *BENI COMUNI: UN MANIFESTO*. ROMA-BARI: LATERZA.
- MCDONOUGH, WILLIAM; BRAUNGART, MICHAEL. 2002. *CRADLE TO CRADLE: REMAKING THE WAY WE MAKE THINGS*. NEW YORK: NORTH POINT PRESS.
- MCGREADY, MALCOM. 2008. ACCOUNTING FOR CARBON. IN "ACCOUNTANCY", JULY: 84-85.
- MCKINLEY, DALE. 2008. THE CRISIS OF THE LEFT IN CONTEMPORARY SOUTH AFRICA. IN "MEDIATIONS", 24 (1): 68-89.
- MCNALLY, DAVID. 2011. *GLOBAL SLUMP: THE ECONOMICS AND POLITICS OF CRISIS AND RESISTANCE*. OAKLAND: PM PRESS.
- MEADOWS, DONELLA H. (ET AL). 1972. *LIMITS TO GROWTH*. NEW YORK: POTOMAC ASSOCIATES.
- MENNICKEN, ANDREA; MILLER, PETER. 2012. ACCOUNTING, TERRITORIALIZATION AND POWER. IN "FOUCAULT STUDIES", 13: 4-24.
- MEZZADRA, SANDRO; NEILSON, BRETT. 2013. *BORDERS AS METHOD*. DURHAM: DUKE UNIVERSITY PRESS.
- MEZZADRA, SANDRO. 2011. THE TOPICALITY OF PREHISTORY. IN "RETHINKING MARXISM", 23 (3): 302-321.
- MEZZADRA, SANDRO. 2012. *I PREDATORI METROPOLITANI*. [<http://uninomade.org/i-predatori-metropolitani/>].
- MIDNIGHT NOTES COLLECTIVE. 1992. *MIDNIGHT OIL: WORK, ENERGY, WAR. 1973-1992*. NEW YORK: AUTONOMEDIA.
- MILLER, PETER; ROSE, NIKOLAS. 2008. *GOVERNING THE PRESENT*. CAMBRIDGE: POLICY PRESS.
- MILLS, PAUL. 2008. THE GREENING OF MARKETS. IN "FINANCE & DEVELOPMENT", 45 (1): 25-37.

- MOL, ARTHUR. 2012. CARBON FLOWS, FINANCIAL MARKETS AND CLIMATE CHANGE MITIGATION. IN "ENVIRONMENTAL DEVELOPMENT", 1: 10-24.
- MONBIOT, GEORGE. 2012. *AFTER RIO, WE KNOW: GOVERNMENTS HAVE GIVEN UP ON THE PLANET*. [HTTP://WWW.GUARDIAN.CO.UK/COMMENTISFREE/2012/JUN/25/RIO-GOVERNMENTS-WILL-NOT-SAVE-PLANET].
- MOORE, JASON W. 2011A. TRANSCENDING THE METABOLIC RIFT: TOWARDS A THEORY OF CRISIS IN THE CAPITALIST WORLD-ECOLOGY. IN "JOURNAL OF PEASANT STUDIES", 38 (1): 1-46.
- MOORE, JASON W. 2011B. ECOLOGY, CAPITAL, AND THE NATURE OF OUR TIMES: ACCUMULATION AND CRISIS IN THE CAPITALIST WORLD-ECOLOGY. IN "JOURNAL OF WORLD-SYSTEM ANALYSIS", 17 (1): 108-147.
- MOORE, JASON W. 2012. CHEAP FOOD & BAD MONEY: FOOD, FRONTIERS, AND FINANCIALIZATION IN THE RISE AND DEMISE OF NEOLIBERALISM. IN "REVIEW: A JOURNAL OF THE FERNAND BRAUDEL CENTER", 32 (2-3): 1-29.
- MORE, THOMAS. 2008. *UTOPIA*. CHARLESTON: FORGOTTEN BOOKS.
- MOULIER-BOUTANG, YANN. 2007. *LE CAPITALISME COGNITIF: LA NOUVELLE GRANDE TRANSFORMATION*. PARIS: ÉDITIONS D'AMSTERDAM.
- MOULIER-BOUTANG, YANN. 2010. *L'ABEILLE ET L'ÉCONOMISTE*. PARIS: CARNETS NORD.
- MUELLER, TADZIO; PASSADAKIS, ALEXIS. 2010. "ANOTHER CAPITALISM IS POSSIBLE?". IN ABRAMSKY, KOLYA (ED.). *SPARKING A WORLDWIDE ENERGY REVOLUTION*. OAKLAND: AK PRESS.
- MUELLER, TADZIO. 2012. THE PEOPLE'S CLIMATE SUMMIT IN COCHABAMBA: A TRAGEDY IN THREE ACTS. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 70-80.
- NAPOLEONI, CLAUDIO. 1973. *SMITH, RICARDO, MARX*. TORINO: BOLLATI BORINGHERI.
- NEAL, JONATHAN (ED.). 2009. ONE MILLION CLIMATE JOBS NOW!. [<http://ccs.ukzn.ac.za/files/Britain%20green%20jobs%20pamphlet.pdf>].
- NEGRI, ANTONIO. 1984. *MARX BEYOND MARX*. SOUTH HADLEY: BERGIN & GARVEY PUBLISHERS.
- NEGRI, ANTONIO. 1996. "TWENTY THESES ON MARX", IN MAKDISI, SAREE; CASARINO, CESARE; KARL, REBECCA E. (EDS). *MARXISM BEYOND MARXISM*. NEW YORK, LONDON: ROUTLEDGE, 149-180.

- NEGRI, ANTONIO. 1999. *INSURGENCIAS*. MINNEAPOLIS: UNIVERSITY OF MINNESOTA PRESS.
- NEGRI, ANTONIO. 2003A. *TIME FOR REVOLUTION*. LONDON: CONTINUUM.
- NEGRI, ANTONIO. 2003B. *CINQUE LEZIONI DI METODO SU MOLTITUDINE E IMPERO*. SALERNO: RUBETTINO.
- NEGRI, ANTONIO. 2007. *POLITICAL DESCARTES*. LONDON: VERSO.
- NEGRI, ANTONIO. 2008. *EMPIRE AND BEYOND*. CAMBRIDGE: POLITY PRESS.
- NEGRI, ANTONIO. 2010. *DENTRO/CONTRO LO STATO SOVRANO*. VERONA: OMBRE CORTE.
- NEILSON, BRETT. 2004. "POTENZA NUDA? SOVEREIGNTY, BIOPOLITICS, CAPITALISM", IN *CONTRETEMPS*, DEC. 2005, 63-78.
- NEWELL, PETER; PATERSON, MATTHEW. 2010. *CLIMATE CAPITALISM*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- NEYRAT, FRÉDÉRIC. 2006. BIOPOLITIQUE DES CATASTROPHES. IN "MULTITUDE", 24 (1): 107-117.
- NEYRAT, FRÉDÉRIC. 2008. *BIOPOLITIQUE DES CATASTROPHES*. PARIS: MF ÉDITIONS.
- NIETZSCHE, FRIEDRICH. 2006. *THE PRE-PLATONIC PHILOSOPHERS*. URBANA. UNIVERSITY OF ILLINOIS PRESS.
- NIGRO, ROBERTO. 2001. "FOUCAULT LECTEUR AND CRITIQUE DE MARX". IN BIDET, JAQUES; KOUVELAKIS, EUSTACHE (EDS.). *DICIONNAIRE MARX CONTEMPORAIN*. PARIS: PUF.
- O'CONNOR, JAMES. 1998. *NATURAL CAUSES*. NEW YORK: GUILFORD PRESS.
- OPEN EUROPE. 2007. *EUROPE'S DIRTY SECRET*. LONDON: OPEN EUROPE.
- ORESKES, NAOMI. 2007. THE SCIENTIFIC CONSENSUS ON CLIMATE CHANGE: HOW DO WE KNOW WE ARE NOT WRONG?. IN DI MENTO, JOSEPH; DOUGHMAN, PAMELA (EDS.). *CLIMATE CHANGE*. CAMBRIDGE: MIT PRESS.
- OSTROM, ELINOR. 1990. *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- OSTROM, ELINOR. 2010. *GOVERNING A COMMONS FROM A CITIZEN'S PERSPECTIVE*. [http://www.boell.org/downloads/OSTROM_GOVERNING_A_COMMONS.PDF].
- PALMER, PAUL. 2005. *GETTING TO ZERO WASTE*. SEBASTOPOL, CALIFORNIA: PURPLE SKY PRESS.

- PANDOLFI, ALESSANDRO. 2006. "LA NATURA DELLA POPOLAZIONE", IN CHIGNOLA, SANDRO (ED.). *GOVERNARE LA VITA*. VERONA: OMBRE CORTE.
- PARAS, ERIC. 2006. *FOUCAULT 2.0: BEYOND POWER AND KNOWLEDGE*. NEW YORK: OTHER PRESS.
- PATERSON, MATTHEW; STRIPPLE, JOHANNES. 2010. MY SPACE: GOVERNING INDIVIDUALS THROUGH THE CARBON MARKET. IN "ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE", 28 (2): 341-362.
- PATERSON, MATTHEW. 2009. "RESISTANCE MAKES CARBON MARKETS". IN BÖHM, STEFFEN; DABHI, SIDDHARTHA (EDS.). *UPSETTING THE OFFSET: THE POLITICAL ECONOMY OF CARBON MARKETS*. LONDON: MAYFLYBOOKS.
- PAYAL, PAREKH. 2011. WIKILEAKS AND THE CDM. [<http://www.climate-consulting.org/2011/09/09/WIKILEAKS-AND-THE-CDM/>].
- PEARSE, REBECCA. 2012. MAPPING REDD IN THE ASIA-PACIFIC. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 181-205.
- PECK, JAMIE; TICKELL, ADAM. 2002. NEOLIBERALIZING SPACE. IN "ANTIPODE", 34 (3): 380-404.
- PELLIZZONI, LUIGI. 2010. "FABBRICARE LA NATURA: CRISI ECOLOGICA, CRITICA SOCIALE E GOVERNAMENTALITÀ NEOLIBERALE". IN MARZOCCA, OTTAVIO (ED.). *GOVERNARE L'AMBIENTE? LA CRISI ECOLOGICA TRA POTERI, SAPERI E CONFLITTI*. MILANO. MIMESIS.
- PELLIZZONI, LUIGI. 2011. GOVERNING THROUGH DISORDER: NEOLIBERAL ENVIRONMENTAL GOVERNANCE AND SOCIAL THEORY. IN "GLOBAL ENVIRONMENTAL CHANGE", 21: 795-803.
- PENCE, GREGORY. 2001. *DESIGNER FOOD: MUTANT HARVEST OR BREADBASKET OF THE WORLD*. LANHAM: ROWMAN & LITTLEFIELD.
- PETERMANN, ANNE. 2011. "THE LINK BETWEEN REDD AND GENETICALLY ENGINEERED TREES". IN BOAS, HALLIE (ED.). *NO REDD PAPERS: VOLUME ONE*. PORTLAND: EBERHARDT PRESS.
- PIGOU, ARTHUR CECIL. 1952. *THE ECONOMICS OF WELFARE*. LONDON: TRANSACTION PUBLISHERS.
- PITHOUSE, RICHARD. 2006. *OUR STRUGGLE IS THOUGHT, ON THE GROUND, RUNNING: THE UNIVERSITY OF ABAHLALI BASEMIONDOLO*. [<http://www.sds.ukzn.ac.za/files/Pithouse%20SEMINAR%20PAPER.PDF>].
- POLANYI, KARL. 2001. *THE GREAT TRANSFORMATION*. BOSTON: BEACON PRESS.

- PORRAS, INA. 2012. *COSTA RICA'S 'GREEN ECONOMY' SHOWS THAT MONEY CAN GROW ON TREES*. [HTTP://WWW.GUARDIAN.CO.UK/GLOBAL-DEVELOPMENT/POVERTY-MATTERS/2012/JUN/26/COSTA-RICA-GREEN-ECONOMY-TREES].
- PORZECANSKI, ARTURO. 2010. WHEN BAD THINGS HAPPEN TO GOOD SOVEREIGN DEBT CONTRACTS: THE CASE OF ECUADOR. IN "LAW AND CONTEMPORARY PROBLEMS", 73 (4): 251-271.
- PRUDHAM, SCOTT. 2007. SUSTAINING SUSTAINED YIELD: CLASS, POLITICS, AND POST-WAR FOREST REGULATION IN BRITISH COLUMBIA. IN "ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE", 25: 258-283.
- RATUVA, STEVEN. 2009. COMMODIFYING CULTURAL KNOWLEDGE: CORPORATISED WESTERN SCIENCE AND PACIFIC INDIGENOUS KNOWLEDGE. IN "INTERNATIONAL SOCIAL SCIENCE JOURNAL", 60 (195): 153-163.
- RAVAIOLI, CARLA. 2010. *BENI COMUNI VS. MERCI*. MILANO: JACA BOOK.
- READ, JASON. 2009. A GENEALOGY OF HOMO ECONOMICUS: NEOLIBERALISM AND THE PRODUCTION OF SUBJECTIVITY. IN "FOUCAULT STUDIES", 6: 25-36.
- REDDY, TRUSHA. 2005. DURBAN'S PERFUME RODS, PLASTIC COVERS AND SWEET-SMELLING TOXIC DUMP. IN "CARBON TRADE WATCH" [<http://www.carbontradewatch.org/articles/durbans-perfume-rods-plastic-covers-2.html>].
- REINA, DAVIDE; VIANELLO, SILVIA. 2011. *GREENWEBECONOMICS*. MILAN: EGEEA.
- REVEL, JUDITH. 2005. *MICHEL FOUCAULT*. PARIS: BORDAS.
- REYES, OSCAR. 2011. *EU EMISSIONS TRADING SYSTEM: FAILING AT THE THIRD ATTEMPT*. CARBON TRADE WATCH [http://www.carbontradewatch.org/downloads/publications/ETS_briefing_april2011.pdf].
- REYES, OSCAR. 2012. CARBON MARKETS AFTER DURBAN. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 19-32.
- RICOTTI, PAOLO. 2010. *SOSTENIBILITA E GREEN ECONOMY. QUARTO SETTORE*. MILANO: FRANCO ANGELI.
- ROBIN, MARIE-MONIQUE. 2010. *THE WORLD ACCORDING TO MONSANTO*. NEW YORK: NEW PRESS.
- RORTY, RICHARD. 1989. *CONTINGENCY, IRONY AND SOLIDARITY*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.

- ROSE, NIKOLAS. 1999. *POWERS OF FREEDOM*. CAMBRIDGE, UK: CAMBRIDGE UNIVERSITY PRESS.
- ROSE, NIKOLAS. 2007. *THE POLITICS OF LIFE ITSELF: BIOMEDICINE, POWER AND SUBJECTIVITY IN THE TWENTY-FIRST CENTURY*. PRINCETON, NJ: PRINCETON UNIVERSITY PRESS.
- ROSE, NIKOLAS. *POWERS OF FREEDOM: REFRAMING POLITICAL THOUGHT*. CAMBRIDGE: CAMBRIDGE UNIVERSITY PRESS.
- ROSS, ANDREW. 2011. "VITA E LAVORO NELL'ERA DELLA GIUSTIZIA CLIMATICA". IN CHICCHI, FEDERICO; LEONARDI, EMANUELE (EDS.). *LAVORO IN FRANTUMI*. VERONA: OMBRE CORTE.
- RULLANI, ENZO. 2004. *LA FABBRICA DELL'IMMATERIALE*. ROMA: CAROCCI.
- RULLANI, ENZO. 2009. "LA PRODUZIONE DI VALORE A MEZZO DI CONOSCENZA: IL MANUALE CHE NON C'È". IN CHICCHI, FEDERICO; ROGGERO, GIGI (EDS.). *LAVORO E PRODUZIONE DEL VALORE NELL'ECONOMIA DELLA CONOSCENZA*. MILANO: FRANCO ANGELI.
- SASSEN, SASKIA. 2003. GLOBALIZATION OR DENATIONALIZATION?. IN "REVIEW OF INTERNATIONAL POLITICAL ECONOMY", 10 (1): 1-22.
- SASSEN, SASKIA. 2006. *TERRITORY, AUTHORITY, RIGHTS: FROM MEDIEVAL TO GLOBAL ASSEMBLAGES*. PRINCETON: PRINCETON UNIVERSITY PRESS.
- SAYRE, NATHAN. 2008. THE GENESIS, HISTORY, AND LIMITS OF CARRYING CAPACITY. IN "ANNALS OF THE ASSOCIATION OF AMERICAN GEOGRAPHERS", 98 (1): 120-134.
- SCHMIDT, CHARLES. 2009. CARBON OFFSETS: GROWING PAINS IN A GROWING MARKET. IN "ENVIRONMENTAL HEALTH PERSPECTIVES", 117 (2): 62-68.
- SCHREUDER, YDA. 2009. *THE CORPORATE GREENHOUSE*. LONDON: ZED BOOKS.
- SCICHLONE, LAURA. 2008. *L'EUROPA E LA SFIDA ECOLOGICA. STORIA DELLA POLITICA AMBIENTALE EUROPEA (1969-1998)*. BOLOGNA: IL MULINO.
- SDCEA [SOUTH DURBAN COMMUNITY ENVIRONMENTAL ALLIANCE]. 2011. "FEELING THE HEAT IN DURBAN". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- SHANIN, TEODOR (ED). 1983. *LATE MARX AND THE RUSSIAN ROAD. MARX AND THE "PERIPHERIES OF CAPITALISM"*. NEW YORK: MONTHLY REVIEW PRESS.
- SHARIFE, KHADIJA; BOND, PATRICK. 2009. "FALSE SOLUTIONS TO CLIMATE CHANGE CRISIS AMPLIFY ECO-INJUSTICE". IN "WOMEN IN ACTION", 2: 96-100.

- SHARIFE, KHADIJA; BOND, PATRICK. 2011. "ABOVE AND BEYOND SOUTH AFRICA'S MINERALS- ENERGY COMPLEX". IN DANIEL, JOHN; NAIDOO, PRISHANI; PILLAY, DEVAN; SOUTHALL, ROGER. *NEW SOUTH AFRICAN REVIEW 2: NEW PATHS, OLD COMPROMISES?*. JOHANNESBURG: WITS UNIVERSITY PRESS.
- SHARIFE, KHADIJA; BOND, PATRICK. 2012A. CLIMATE FINANCING CRISIS AND THE CDM'S CRASH. IN AAVV-EJOLT (ENVIRONMENTAL JUSTICE ORGANISATIONS, LIABILITIES AND TRADE). *THE CDM IN AFRICA CANNOT DELIVER THE MONEY*. 1-25. [<http://climateandcapitalism.com/files/2012/04/CDM-Africa-Cannot-Deliver.pdf>].
- SHARIFE, KHADIJA. 2011. "COLONISING AFRICA'S ATMOSPHERIC COMMONS". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- SHIVA, VANDANA. 2001. *PROTECT OR PLUNDER? UNDERSTANDING INTELLECTUAL PROPERTY RIGHTS*. NEW YORK: ZED BOOKS.
- SHIVA, VANDANA. 2005. *EARTH DEMOCRACY: JUSTICE, SUSTAINABILITY AND PEACE*. CAMBRIDGE: SOUTHEND PRESS.
- SIEFKES, CHRISTIAN. 2012. BEYOND DIGITAL PLENTY: BUILDING BLOCKS FOR PHYSICAL PEER PRODUCTION. IN "JOURNAL OF PEER PRODUCTION", 1. [[HTTP://PEERPRODUCTION.NET/ISSUES/ISSUE-1/INVITED-COMMENTS/BEYOND-DIGITAL-PLENTY/](http://peerproduction.net/issues/issue-1/invited-comments/beyond-digital-plenty/)].
- SIMMS, ANDREW. 2005. *ECOLOGICAL DEBT: THE HEALTH OF THE PLANET AND THE WEALTH OF NATIONS*. LONDON: PLUTO PRESS.
- SIMONDON, GILBERT. 2005. *L'INDIVIDUATION À LA LUMIÈRE DES NOTIONS DE FORME ET D'INFORMATION*. GRENOBLE: MILLION.
- SINI, CARLO. 2012. LA VITA CATTURATA DENTRO UN SEGNO. IN "IL MANIFESTO", 14TH SEPTEMBER: 10.
- SMITH, NEIL. 1984. *UNEVEN DEVELOPMENT*. OXFORD: BASIL BLACKWELL.
- SOLOW, ROBERT (ET. AL.). 1961. CAPITAL-LABOUR SUBSTITUTION AND ECONOMIC EFFICIENCY. IN "THE REVIEW OF ECONOMICS AND STATISTICS", 43 (3): 225-250.
- SOLOW, ROBERT. 1974. THE ECONOMICS OF RESOURCES AND OR THE RESOURCES OF ECONOMICS. IN "THE AMERICAN ECONOMIC REVIEW", 64 (2): 1-14.
- SORRENTINO, VINCENZO. 2008. *IL PENSIERO POLITICO DI MICHEL FOUCAULT*. TRIESTE: MELTEMI.
- STERN, NICHOLAS. 2007. *STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE*. LONDON: HER MAJESTY'S TREASURY.

- STERN, NICHOLAS. 2009. *THE GLOBAL DEAL: CLIMATE CHANGE AND THE CREATION OF A NEW ERA OF PROGRESS AND PROSPERITY*. NEW YORK: PUBLIC AFFAIRS.
- STIEGLER, BERNARD. 2004. *DE LA MISÈRE SYMBOLIQUE. TOME I: L'ÉPOQUE HYPERINDUSTRIELLE*. PARIS: GALILÉE.
- SUNDER RAJAN, KAUSHIK. 2006. *BIOCAPITAL: THE CONSTITUTION OF POSTGENOMIC LIFE*. DURHAM: DUKE UNIVERSITY PRESS.
- TAVARES, PAULO. 2011. "AMAZONE: STRUGGLE TERRAIN. DEVELOPMENT, PRIMITIVE ACCUMULATION AND THE CONTESTED GOVERNMENT OF NATURE". PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE *READING MICHEL FOUCAULT IN THE POSTCOLONIAL PRESENT*.
- TAYLOR, ASTRA. 2012. OCCUPY 2.0: STRIKE DEBT. IN "THE NATION", SEPTEMBER 5TH.
- TELLMANN, UTE. 2009. FOUCAULT AND THE INVISIBLE ECONOMY. IN "FOUCAULT STUDIES", 6: 5-24.
- TERRANOVA, TIZIANA. 2009. ANOTHER LIFE. THE NATURE OF POLITICAL ECONOMY IN FOUCAULT'S GENEALOGY OF BIOPOLITICS, IN "THEORY, CULTURE & SOCIETY", 26 (6): 234-262.
- TOMBA, MASSIMILIANO. 2009. HISTORICAL TEMPORALITIES OF CAPITA: AN ANTI-HISTORICIST PERSPECTIVE. IN "HISTORICAL MATERIALISM", 17: 44-65.
- TOSCANO, ALBERTO. 2006. *THEATRE OF PRODUCTION*. LONDON: PALGRAVE.
- TOSCANO, ALBERTO. 2008A. THE OPEN SECRET OF REAL ABSTRACTION. IN "RETHINKING MARXISM", 20 (2): 273-287.
- TOSCANO, ALBERTO. 2008B. THE CULTURE OF ABSTRACTION. IN "THEORY, CULTURE & SOCIETY", 25 (4): 257-275.
- TRONTI, MARIO. 2006. *OPERA E CAPITALE*. MILANO: DERIVEAPPRODI.
- TSING, ANNA LOWENHAUPT. 2005. *FRICTION: AN ETHNOGRAPHY OF GLOBAL CONNECTION*. PRINCETON: PRINCETON UNIVESRITY PRESS.
- TURRINI, MAURO (ED.). 2010. *BIOCAPITALE*. VERONA: OMBRE CORTE.
- TUTU, DESMOND. 2002. *NO FUTURE WITHOUT FORGIVENESS*. JOHANNESBURG: RIDER BOOKS.
- UNITED NATIONS. 2012. *THE FUTURE WE WANT*. [<http://www.uncsd2012.org/rio20/content/documents/370The%20Future%20We%20WANT%2010JAN%20CLEAN.PDF>].

- UNEP. 2011. *TOWARDS A GREEN ECONOMY: PATHWAYS TO SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION*. [<http://www.unep.org/greeneconomy>].
- VAN BREUGEL, MICHIEL (ET AL.). 2011. ESTIMATING CARBON STOCK IN SECONDARY FORESTS: DECISIONS AND UNCERTAINTIES ASSOCIATED WITH ALLOMETRIC BIOMASS MODELS. IN "FOREST ECOLOGY AND MANAGEMENT", 262: 1648-1657.
- VAN PARIJS, PHILIPPE. 1995. *REAL FREEDOM FOR ALL: WHAT (IF ANYTHING) CAN JUSTIFY CAPITALISM?*. NEW YORK: OXFORD UNIVERSITY PRESS.
- VERCELLONE, CARLO. 2005. THE HYPOTHESIS OF COGNITIVE CAPITAL. PAPER PRESENTED AT THE HISTORICAL MATERIALISM ANNUAL CONFERENCE, BIRBECK COLLEGE AND SOAS, UK, NOVEMBER 4TH AND 5TH.
- VERCELLONE, CARLO (ED.). 2006A. *CAPITALISMO COGNITIVO*. ROMA: MANIFESTOLIBRI.
- VERCELLONE, CARLO. 2006B. IL RITORNO DEL *RENTIER*. IN "POSSE", AUTUMN: 97-111.
- VERCELLONE, CARLO. 2007. FROM FORMAL SUBSUMPTION TO GENERAL INTELLECT: ELEMENTS FOR A MARXIST READING OF THE HYPOTHESIS OF COGNITIVE CAPITALISM. IN "HISTORICAL MATERIALISM", 15: 13-36.
- VIGO DE LIMA, IARA. 2010. *FOUCAULT'S ARCHAEOLOGY OF POLITICAL ECONOMY*. NEW YORK: PALGRAVE MACMILLAN.
- VIRNO, PAOLO. 2002. *GENERAL INTELLECT, EXODUS, MULTITUDE*. [[HTTP://WWW.GENERATION-ONLINE.ORG/P/FPVIRNO2.HTM](http://www.generation-online.org/p/fpvirno2.htm)].
- VIRNO, PAOLO. 2004. *A GRAMMAR OF THE MULTITUDE*. NEW YORK: SEMIOTEXT(E).
- VOSS, JAN-PETER. 2007. INNOVATION PROCESSES IN GOVERNANCE: THE DEVELOPMENT OF 'EMISSIONS TRADING' AS A NEW POLICY INSTRUMENT. IN "SCIENCE AND PUBLIC POLICY", 34 (5): 329-343.
- WALSH, CATHERINE. 2002. THE (RE)ARTICULATION OF POLITICAL SUBJECTIVITIES AND COLONIAL DIFFERENCE IN ECUADOR: REFLECTIONS ON CAPITALISM AND THE GEOPOLITICS OF KNOWLEDGE. IN "NEPANTLA: VIEWS FROM THE SOUTH", 3 (1): 61-89.
- WALTNER-TOEWS, DAVID; KAY, JAMES; LISTER, NINA-MARIE E. (EDS.). 2008. *THE ECOSYSTEM APPROACH: COMPLEXITY, UNCERTAINTY AND MANAGING FOR SUSTAINABILITY*. NEW YORK: COLUMBIA PRESS UNIVERSITY.
- WEBER, KARL (ED.). 2009. *FOOD, INC.*. NEW YORK: PARTICIPANT MEDIA.
- WEISMAN, ALAN. 2007. *THE WORLD WITHOUT US*. NEW YORK: THOMAS DUNNE BOOKS.

- WESTON, DEL. 2011. "THE POLITICS OF CLIMATE CHANGE IN SOUTH AFRICA". IN BOND, PATRICK (ED.). *DURBAN'S CLIMATE GAMBLE: TRADING CARBON, BETTING THE EARTH*. BRAAMFONTEIN: UNIVERSITY OF SOUTH AFRICA PRESS.
- WHILE, AIDAN; JONAS, ANDY; GIBBS DAVID. 2009. FROM SUSTAINABLE DEVELOPMENT TO CARBON CONTROL: ECO-STATE RESTRUCTURING AND THE POLITICS OF URBAN AND REGIONAL DEVELOPMENT. IN "TRANS INST BR GEOGR". NS: 1-19.
- WHITINGTON, JEROME. 2012. THE PREY OF UNCERTAINTY: CLIMATE CHANGE AS OPPORTUNITY. IN "EPHEMERA: THEORY & POLITICS IN ORGANIZATION", 12 (1-2): 113-137.
- WINSTON, MARK. 2002. *TRAVELS IN THE GENETICALLY MODIFIED ZONE*. CAMBRIDGE: HARVARD UNIVERSITY PRESS.
- WORLD BANK. 2007. *STATE AND TRENDS IN THE CARBON MARKET 2007*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2008. *STATE AND TRENDS IN THE CARBON MARKET 2008*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2009. *STATE AND TRENDS IN THE CARBON MARKET 2009*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2010A. *WORLD DEVELOPMENT REPORT 2010: DEVELOPMENT AND CLIMATE CHANGE*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2010B. *STATE AND TRENDS IN THE CARBON MARKET 2010*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2011. *STATE AND TRENDS IN THE CARBON MARKET 2011*. WASHINGTON, DC: THE WORLD BANK.
- WORLD BANK. 2012. *STATE AND TRENDS IN THE CARBON MARKET 2012*. WASHINGTON, DC: THE WORLD BANK.
- WRIGHT, STEVE. 2005. "REALITY CHECK: ARE WE LIVING IN AN IMMATERIAL WORLD?". IN BARRY SLATER, JOSEPHINE. *UNDERNEATH THE KNOWLEDGE COMMONS*. LONDON: MUTE PUBLISHING.
- WRIGHT, STEVEN. 2002. *STORMING HEAVEN*. LONDON: PLUTO PRESS.
- YAMIN, FARHANA. 2005. *CLIMATE CHANGE AND CARBON MARKETS*. LONDON: EARTHSCAN.
- ZALASIEWICZ, JAN (ET AL.). 2008. ARE WE NOW LIVING IN THE ANTHROPOCENE? IN "GSA [GEOLOGICAL SOCIETY OF AMERICA] TODAY", 18 (2): 4-8.

- ZANINI, ADELINO. 2008. *ECONOMIC PHILOSOPHY*. BERN: PETER LANG AG.
- ZANINI, ADELINO. 2010. *L'ORDINE DEL DISCORSO ECONOMICO*. VERONA: OMBRE CORTE.
- ŽIŽEK, SLAVOJ. 2009. *FIRST AS TRAGEDY, THEN AS FARCE*. LONDON: VERSO.
- ZOBOLI, ROBERTO. 2012. GREEN ECONOMY: PERCORSI E DIMENSIONI. IN "CULTURE DELLA SOSTENIBILITÀ", 9 (1): 21-29.
- ZVEZDOV, DIMITAR. 2011. "ACCOUNTING FOR SUSTAINABLE ORGANISATIONS: WHERE IS THE ACCOUNTANT AND WHY IT MATTERS?". IN PILLMANN, WERNER; SCHADE, SVEN; SMITS, PAUL (EDS.). *INNOVATIONS IN SHARING ENVIRONMENTAL OBSERVATIONS INFORMATION*. AACHEN: SHAKER VERLAG.

Appendix 1

My empirical research has extensively used interviews and, thus, had received the Research Ethics Board approval on October 20th, 2011 (project number: FIMS-2011-12-007).

The study has used two broad methodological strategies:

1- Semi-structured in-depth interviews. We conducted in-depth interviews with participants about the ways through which they experience their environmental activism. The interview guide (below) provides one or two general questions about each of three major themes, framed broadly as: How do participants began to be involved in the Climate Justice movement? Which flaws do participants perceive in the market-led strategies to cope with the environmental crisis, and which correctives would they propose? How do participants engage with the double nature of their ecological activism (locally situated in South Africa but globally involved in the Climate Justice Now! Network)?

The interview guide was designed to be flexible rather than rigid. All the three basic themes have been addressed, but the order and wording of specific questions has evolved over the course of the events.

Interview Guide:

Theme 1. Discrepancies between strategies of global ecological marketization and actual effects of local environmental policies

Main question: How do you read, from an activist perspective, the tensions between global environmental policies and their implementation in the local, South African context?

Theme 2. Political alternatives

Main question: Do you envisage alternative ways of managing the environmental crisis, and specifically climate change?

Theme 3. Subjective tensions

Main question: In your opinion, how can some environmental activists protest against and, simultaneously, participate to the 17th UN Conference of the Parties?

2- Close analysis of existing literature from different sources (newspapers, political journals, scientific articles, books, websites). Acting as Visiting Scholar at the Centre for Civil Society at the University of KwaZulu-Natal in Durban, we had the possibility to study in great details the developments of environmental activism in South Africa.

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Leonardi, Emanuele. 2010a. "Ricchezze e limiti dell'ambientalismo". In Marzocca, Ottavio (Ed.). *Governare l'ambiente?*. Milano: Mimesis.

Leonardi, Emanuele. 2010b. Ecological Crisis and Processes of Subjectivation. In "Diapsalmata", 1 (4): 1-21.

- Leonardi, Emanuele. 2010c. The Imprimatur of Capital. In "Ephemera", 10 (3/4): 253-266.
- Leonardi, Emanuele. 2011. "La dimensione ecologica della crisi economica globale". In Chicchi, Federico; Leonardi, Emanuele (Eds.). *Lavoro in frantumi*. Verona: Ombre corte.
- Leonardi, Emanuele. 2012a. Per una critica della green economy neoliberale. In "Culture della sostenibilità", 5 (1): 30-46.
- Leonardi, Emanuele. 2012b. "Populismo come adattamento. Note critiche sull'analisi laclausiana della Lega Nord". In Baldassari, Marco; Melegari, Diego (Eds.). *Populismo e democrazia radicale*. Verona: Ombre corte.
- Leonardi, Emanuele; Greyl, Lucie; Healy, Hali; Temper, Leah. 2012. Stop That Train! Ideological Conflict and the TAV. In "Economics and Policy of Energy and the Environment", 2: 193-213.