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### Citation for published version:

Darmon, I 2024, 'Equality, not sufficiency! Critical theoretical perspectives on the inequality-unsustainability nexus', *Sustainability: Science, Practice and Policy*, vol. 20, no. 1, 2338588, pp. 1-17.  
<https://doi.org/10.1080/15487733.2024.2338588>

### Digital Object Identifier (DOI):

[10.1080/15487733.2024.2338588](https://doi.org/10.1080/15487733.2024.2338588)

### Link:

[Link to publication record in Edinburgh Research Explorer](#)

### Document Version:

Peer reviewed version

### Published In:

Sustainability: Science, Practice and Policy

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**Equality, not sufficiency! Critical theoretical perspectives on the inequality-unsustainability nexus**

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ACCEPTED PRE-PRINT DRAFT

**Abstract**

Attention to inequality is increasingly taking centerstage in the fight against climate change and environmental devastation. More and more scholars and activists emphasize the need to put the reduction of inequality at the core of environmental and climate politics, and more and more propose a (socially just) “sufficiency” approach and politics to do so. Just sufficiency is presented as the new desirable societal pact, tasked with taking over from the current dominant growth pact driving “excess,” and replacing it with a politics of “enough,” through “collectively defined self-limitation.” However an excess/enough lens misses the dynamics of production of inequality in the first place, with important political implications. This article thus seeks to contribute a tighter critical theoretical understanding of the inequality-unsustainability relation as a *nexus* historically powered by specific mechanisms of fossil, metabolic, as well as “green” accumulation. Through the theorization of these relations, one can better apprehend how inequality is not only a question of unfair distribution or exclusion from affluence demanding to be addressed through social and environmental justice, but also the condition for the modes of extraction and exploitation that produce and reproduce unsustainability. I argue that the counterhegemonic struggle must be waged on that terrain: putting limitations (not self-limitations) on the accumulation machine and its inequality-unsustainability nexus. This reading,

which builds on critical theory and Marxist and feminist political ecology, is related to notions of class as structured not only by exploitation, but also, crucially by dispossession and status hierarchization. Adopting a nexus approach to inequality and unsustainability offers a critical theoretical method that can hopefully shift the assessments and orientations of the sufficiency movement away from the moral terrain of self-limitation (whose self?) toward the class politics of limits on capital needed today for socio-ecological transformation.

**Keywords:** capitalism, degrowth, self-limitation, dispossession, environmental politics, class politics

## **Introduction**

Attention to inequality is increasingly taking centerstage in the fight against climate change and environmental devastation – not only inequality between global North and global South, which has long been related to analyses of unsustainability, but also inequality within countries, as dynamics of inequality, and therefore also carbon inequality, are becoming more similar across all countries (Chancel et al 2023). Thus in his latest book, *A Brief History of Equality*, Thomas Piketty (2022, 26) asserts that “without resolute action seeking to drastically compress socioeconomic inequalities, there is no solution to the environmental and climatic crisis.” Similarly, one of the conclusions of Piketty’s World Inequality Lab colleague Lucas Chancel (2020, 123) in his recent book, *Unsustainable Inequalities*, is that “economic inequalities are at the heart of the environmentally unsustainable predicament that poses an existential threat to the world today.” This echoes Jason Hickel’s (2019a) plea, as well as an increasing number of degrowth and post-growth scholars, that “reducing inequality needs to be at

the very heart of climate policy.” These are very clear, and salutary, statements, going beyond the analysis underpinning the long-standing and today widespread call for joined-up struggles against inequality and unsustainability, including in the recent report of the Intergovernmental Panel on Climate Change (IPCC) on climate mitigation (IPCC 2022). The authors point to the need for putting social justice at the core of environmental and climate politics, as a question of principle, for political acceptability and feasibility reasons (Wilkinson and Pickett 2009, and given the strong connection between socioeconomic and environmental inequality (Chancel 2020, Laurent 2022).

But these accounts chiefly understand inequality as a question to be addressed through distributive social, as well as climate and environmental, policies against the background of squandering carbon budgets. In that context, scholars and social movements seeking to tackle climate change from the left have put forward the notion of (socially just) “sufficiency,”<sup>1</sup> which, by now, has almost become mainstream – the IPCC refers to it, and even energy multinationals put forward their own version of the concept.<sup>2</sup> Sufficiency is a call for reordering human activities in ways that restrain the material demands made on the planet, and for doing so equitably. “Just sufficiency” is presented as the new desirable societal pact, tasked with taking over from the current dominant growth pact driving “excess,” and replacing it with a politics of “enough” (Hayden 2019). Sufficiency scholars incriminate the affluence of the rich but see it as a more general hegemonic drive of consumption and unsustainability, fueled by the “experience of inequality” (Kallis 2019a, 40), which prompts them to call for “collectively defined self-limitation” in the demands made on the planet, albeit with different contributions from different social groups (Brand et al 2021).

This article argues that what the excess/enough lens misses is the dynamics of *production* of inequality in the first place. It is those dynamics of production of inequality under capitalism – which include, as I will explain further below, dispossession, exploitation and hierarchization – which have been shown to uphold fossil as well as “green” capital (e.g., Malm 2016; Dunlap 2018; Hornborg 2021), and therefore also the production of unsustainability. Mathai et al (2021) have called for more, and more systematic and theoretically informed, exploration of the “role of power and inequality as drivers of unsustainable production-consumption systems.”<sup>3</sup> I argue that such analyses have to be developed on the level of logics of accumulation, emphasizing the role of inequality in the dynamic reproduction of capitalist extraction and production and therefore unsustainability, rather than on the level of alleged societal choices of growth, affluence, and “excess” vs sufficiency and “enough.”

I seek to contribute a tighter critical theoretical understanding of the inequality-unsustainability relation as a *nexus* powered by capitalist accumulation, and of its developments under various capitalist regimes. The nexus approach offers a structural vantage point from which to question the primacy of sufficiency and affirm social equality as the watchword and condition for socioecological transformation. It is thus meant as an analytical method, but also for bringing such analysis to bear for political organization and action. For this I draw on the abundant critical theoretical literature untangling the workings of capitalist accumulation and its production of unsustainability through the fossil, metabolic, or “green” machines, which themselves feed on dispossession, exploitation, and hierarchical divisions among workers and communities. I refer to a method here, because, through the theorization of these relations, one can better apprehend how inequality is not only a question of unfair distribution or exclusion from affluence (Kallis 2019a), it is the *condition* for the modes of extraction and exploitation that

produce and reproduce unsustainability. As such, I argue that the counterhegemonic struggle must be waged on that terrain: putting limitations (not “self”-limitations) on the accumulation machine and its inequality-unsustainability nexus. This is for structural reasons, as environmental struggles concern the recovery of expropriated conditions of life and bodies (Foster and Clark 2020, 10) and seek to develop forms of “democratic control over life’s necessities” (Huber 2022, 21). But such a method is also aimed at tackling another, more strategic, level: it provides arguments (if need be!) for environmentalists to join social struggles – not to convince working-class protesters that their struggles are environmental, but rather to jointly call out capital accumulation for what it is (McAlevey 2020; Hutteau and Marano 2023).

The article is divided into three parts. I first critically review how various bodies of eco-critical scholarship, from studies carried out from a perspective of sufficiency to studies in ecological economics and environmental political economy, frame and conceptualize the relation between inequality and environmental unsustainability. Despite profound differences in standpoint, questions asked, and methodology, these studies do not attend to the structural character of inequality in capitalism. Hence the need to theorize the nexus between social inequality and environmental unsustainability, starting, precisely, from the *production* of inequality. The second and longest part of the article is dedicated to such an elaboration, drawing on studies by feminists and eco-feminists, eco-Marxists, and others in political and social ecology.

I analyze inequality as the outcome of three deeply intertwined processes of accumulation – exploitation, expropriation from means and conditions of existence, and differentiation of statuses (hierarchization) among the expropriated and exploited. Through illustrations of the nexus at key junctures under various “regimes” of capitalism, I show how this three-pronged

inequality in turn powers the fossil/metabolic and green/metabolic machines (Foster 1999; Malm 2016; Hornborg 1999, 2003, 2021; Gould and Lewis 2016),<sup>4</sup> their geographical and temporal distribution, and through them, the further generation of unsustainability on various scales and cumulatively. Having clarified how inequality is produced under successive regimes of capitalism and how this in turn fosters and entrenches unsustainability, I return, in the last, concluding, part of the article, to the issue of ecological politics and strategy in times of climate and environmental emergency, and particularly to the implications of the notion of inequality developed here, and the associated understanding of class, for the central question of the possibility of a class-based environmental politics, recognizing, of course, that the latter does not simply flow from the former. For this I take inspiration in recent, and diverse, efforts toward the theoretical and political articulation of inequality, class, and climate/environmental degradation, especially from (Marxist, feminist) political ecology (Barca 2020; Arsel 2023) and geography (Huber 2022).

### **Inequality and unsustainability in the sufficiency literature**

The relation of inequality to unsustainability is a sensitive question for scholars of the post-growth, degrowth, and sufficiency movements. Explorations and assessments of this relation are often predicated on conceptions of inequality as unjust distribution of wealth, consumption, and carbon (as well as of risk and exposure), which tend to incriminate “affluence” rather than capitalism as such. The lens of affluence and excess is dominant for analyses of western, or global North, societies and their overall impact, in part out of policy prescriptive concerns (as capping affluence seems within closer reach than ending capitalism) but also for more fundamental theoretical and ideological reasons, explored below. Be it as it may, such a

choice has profound consequences for the analysis and the type of politics proposed, a question to which I turn in the last part of the article.

Such conceptions of inequality view it as both stemming from, manifesting, and entrenching “excess,” where “excess” is not designating the structural drive of capitalist accumulation (this is not “excess” as surplus value), but refers to “excessive *affluence*” (Fanning et al 2021, 26, my emphasis). Excess is here contrasted with “enough,” “too muchness” with “enoughness” (Princen 2003, 14), from the perspective of normative frameworks (theories of justice, theories of human need) as well as by reference to finite environmental resources and sinks, within the global parameters defined by the aim of keeping average temperature rise by comparison with pre-industrial times at 1.5 or 2°C, the “safe” space for humanity. In these analyses, affluent groups in society drive unsustainability through “excess” consumption (Hayden 2019; Sahakian and Rossier 2022). Sufficiency is then conditional on “the affluent of the world withdraw[ing] from the excess environmental space that they occupy in order to enable others (both today and in the future) to enjoy their fair share” (Callmer and Bradley 2021, 194). Excess is also understood by reference to a theory of human need. Whereas, from the point of view of this theory, “needs” should be prioritized over “excessive wants” (Gough 2020, 2023), and consumption should provide for the former (Fuchs et al 2021, 3), it is diverted and hijacked for the latter.

This then signals a disease of societal pacts, which calls, possibly, for the moral responsabilization of the rich, and, above all, for expert healing of the whole social body, “safeguarding human and planetary health” through the definition of thresholds of well-being and ecological boundaries (Fanning et al 2021) or through guidance and procedures for collective deliberation over these objectives (Brand et al 2021). This will allegedly lead to



recovery of a renewed capacity to “enjoy” through a different, “liberating” (Paech 2012), conception of wealth and consumption, new definitions of what counts as abundance and enjoyment (Hickel 2019b), and the reordering of practices (Lorek and Spangenberg 2019).

But if excess is a disease of the social body as a whole how is the dissemination of the disease beyond the “rich” accounted for? Here scholars often like to invoke Thorstein Veblen’s theory of conspicuous consumption, and the dynamic of imitation and emulation prompted by social inequality (e.g., Wilkinson and Pickett 2009, 225; Gough 2017, 81).<sup>5</sup> For Giorgos Kallis, who does not explicitly refer to Veblen, in societies affected by high social inequality, people compare themselves to others “higher up on the social ladder,” including for mundane and everyday (rather than status-based) consumption (Kallis 2019a, 40). Having to sing to the tune of affluence, individuals “experience scarcity” (Kallis 2019a, 40). Experience of inequality both generates feelings of exclusion from affluence and the drive to strive for more, thus entrenching everybody’s desire to participate in the growth and consumption pact. In this analysis, the working class, caught in that dynamic, now appears as a crucial carrier of the current societal pact of growth and consumption. Thus, alongside their focus on affluence, sufficiency, and degrowth scholars also entertain a doubt regarding the working class in rich countries – is it not trapped into the consumerist race, and thus likely to oppose any progressive environmentalist politics?

Indeed, this is a doubt also entertained by those among sufficiency and eco-critical scholars who adopt a more structural historical approach to the inequality/unsustainability relation (Brand and Wissen 2021; Brand et al 2021). These authors offer encompassing critiques of capitalism as a system of social relations that has inequality as its very “foundation” (Brand et al 2021, 271). Yet even in such critiques of capitalism, the real problem seems to lie with the

current implicit compact that regulates majority “imperial mode of living” (Brand and Wissen 2021) in the global North. Rooted in the “Fordist class compromise” (Brand and Wissen, 2021 90), the imperial mode of living directly connects a certain democratization of growth and “social progress” afforded by access to consumption, to growing carbon emissions and more general unsustainability. The Fordist compromise moment in Brand and Wissen’s book is both decisive and ominous, as it signals a portentous shift in the content and mode of worker struggles. Breaking with struggles that had sought to halt the extension of subsumption of life under capitalism, in particular struggles against the extension of the working day, this new social pact was underpinned by a quest for “socio-economic improvement” (Brand and Wissen 2021, 70) that was geared toward the “distributive horizon of socialism” (Trentin 2012), and lured workers into mass consumerism and Western societies into collective excess. Brand and Wissen’s (2021, 90) characterization of that moment (“People surrendered a potential increase in available disposable time for the opportunity to consume more”) shows the depth of their regret at such a shift, almost a feeling of betrayal.<sup>6</sup>

The significance of this analysis for degrowth and post-growth scholars cannot be overstated, as the alleged embrace of the quest for excess by the working class leads these authors to a distrust of “struggles for socio-economic improvement, [that] have often resulted in extending and consolidating the imperial mode of living” (Brand and Wissen 2021, 70), and to contrast them with struggles against the “imperial appropriation of nature” (Brand and Wissen, 2021, 180). Their book suggests two routes from inequality to unsustainability. On one hand, socioeconomic inequality leads to struggles for “improvement” (socioeconomic equality, or rather, sharing into affluence), that increases consumption and therefore material and carbon impacts. On the other hand, colonial, gender, racial inequality gives rise to dispossession and

expropriation from the land and other means of subsistence, “and [to] the consequent erasure of Indigenous knowledge, languages, and practices as an inextricable component of biodiversity loss” (Brand et al 2021, 264). Such erasure is thus the erasure of an actually existing model of “enough,” associated with those longstanding knowledges and practices of “care” for humans and non-humans. The former kind of inequality ties individuals to the quest for unsustainable pleasures which fuel pollution on a planetary scale, whereas the latter, in depriving indigenous communities, deprives everyone from the benefits of “eco-sufficiency” (Salleh 2010).

This analysis risks leading to a dichotomic vision of capitalism, as (regulated) exploitation on the one hand and as expropriation on the other hand, and of different forms of inequality tied to each. This can have implications for who is deemed an appropriate, virtuous subject of eco-social transformation and who is not. This is in spite of the authors’ interest in renewed environmental class politics (Brandt and Wissen 2021, xxi, see also Röttger and Wissen 2017), an interest which is not easily reconciled with a socioecological politics wrought in the name of sufficiency, as I will discuss in the last part of this article.

By contrast with such a potential polarization, however, Nancy Fraser (2017), among others, has suggested that these are really two ‘exes’ of capital accumulation working hand in hand. Industrial workers are affected by ongoing expropriations and dispossession, too (De Angelis 2001), and they suffer from “lack of control over the basics of life (food, energy, land, housing, etc.)” (Huber 2022, 21; see also Barca and Leonardi 2018). Conversely, land-dependent indigenous and peasant communities are not only threatened in their rights of use of the land, which can also be understood as threatened with dispossession from their “means of production” (Arsel 2023, 86), they also often have to turn to waged work in parallel, and thus experience precariousness as labor as well.

In the second part of this article, I will seek to demonstrate that a structural analysis of the relation of inequality to unsustainability, analyzed as a *nexus* powered by capitalist processes, allows for a less dichotomic view of sources and dimensions of inequality in contemporary capitalism, and for making sense of a more and more ubiquitous condition – in Fraser’s terms, that of “expropriable-and-exploitable citizen-workers” (Fraser 2016, 176). This then leads to a different kind of politics, one in which class has to be central. Before doing so, I make a short critical detour through studies in ecological economics and political economy, and review their version(s) of the inequality/unsustainability nexus, in order to clarify both their significance from the point of view of the questions posed in this article, and my own approach.

### **Inequality and unsustainability in economics**

The relationship between inequality and unsustainability is also receiving a lot of attention from ecological economics quarters. The journal *Ecological Economics*, of which Herman Daly was one of the co-founders, has been at the forefront of the debate.<sup>7</sup> The origin of such interest can be dated back to a 1994 article by James Boyce, entitled “Inequality as a Cause of Environmental Degradation” which framed the relation between inequality and unsustainability as a question of power relations between “winners” (benefitting from economic activities that degrade the environment) and “losers” (harmed by environmentally degrading activities) (Boyce 1994; see also Boyce 2021). Since then, the debate has moved to much more abstract terms, partly because of the turn to global carbon emissions as key indicator for unsustainability, rather than the more locally situated environmental problems analyzed by Boyce, and more broadly because it is addressed from “global community” concerns (Wan et al

2022), and engages with inequality and unsustainability as two of the “challenges facing mankind” (Grunewald et al 2017), that is to say, largely from a global governance perspective.

Even though some of the contributors to this debate refer to the relationship between inequality and unsustainability as a “nexus,” what they understand by that is merely the *empirical correlation* between economic inequality and carbon emissions taken as two discrete quantities or sets of quantities, at times supplemented with regressions including potential “factors.” On that basis, this corpus of studies yields widely diverging and even partly contradictory results,<sup>8</sup> draws on often ex-post and at times contradictory interpretive theoretical references,<sup>9</sup> and is marred by considerable methodological challenges.<sup>10</sup> The initial theoretical focus adopted by Boyce is lost, as the “global challenges” themselves, crucially informed by the United Nations Sustainable Development Goals, are taken as a given, emerged from the ether. This perhaps is what is most significant of these studies: they inscribe inequality and unsustainability as two problems that are likely to be at odds with each other in the phase of “development” of any given country, and thus entrench the view that it is social progress and the reduction of social inequality that cause increased unsustainability in that phase. This is a very skewed view, not only because within-country inequality, as well as carbon inequality, is everywhere on the rise, as shown in the World Inequality Reports (see e.g., Chancel et al 2022) but also because this is based on a fantasized vision of policy as a space for benevolent mediation between economic, social, and environmental “outcomes,” very much in the tradition of the sustainable development paradigm.

The inequality-unsustainability nexus has also been explored by economists outside of ecological economics circles. For example, Eloi Laurent’s approach to environmental inequalities studies the differential environmental/carbon impact of different groups or countries

classed by income and/or wealth, their differential exposure to environmental “bads,” and access to environmental “goods” (Laurent 2011). This has led him to call for policies to address what he refers to as the “sustainability-inequality nexus” (Laurent 2021, 43), and to foster a virtuous “sustainability-justice” nexus in its stead (Laurent 2021, 32; see also Agyeman et al 2002). To cast light on distributions of environmental exposure and ask questions about environmental responsibilities seems to me to be a different endeavor from unraveling a nexus, however. Inequality is defined in the distributional approach as the distribution of risks and opportunities, as well as goods and bads, among different social groups: it is thus meant to call for adjustments and shifts through government policy as is also ultimately the case for the studies of the World Inequality Lab with which I started this article, and as illustrated for example with Chancel et al’s (2023, 12) proposed “inequality check matrix” for climate policies. Such proposals, based on extant new evidence of the spread and depth of social and carbon inequalities, are very significant, in view of the current justice deficit in the implementation of environmental policies. However, they do not present a challenge to current political economic arrangements. Rather, questions about opportunities and risks, goods and bads, inclusions and exclusions, take capitalism as a given and therefore only make sense if one accepts a capitalist framework.

A structural nexus approach, by contrast, looks into the mechanism of production of dispossessed, subaltern subjects in the first place (Velicu and Barca 2020). Distribution matters there, too, but rather than as an outcome, as a dynamic mechanism of capitalism: as I will develop in the following section, the distribution of classed, gendered, racialized statuses, leads to institutionalized and internalized hierarchies that themselves feed and power capital accumulation, which further reproduces and expands unsustainability.<sup>11</sup>

## **The inequality-unsustainability nexus in critical theoretical light**

Eco-Marxists, materialist feminists, political ecologists, and critical theorists have cast sharp light on the nexus, without necessarily naming it as such. In this section, I propose a synthesis and elaboration of those analyses, which locate the relation between inequality and unsustainability within a structural understanding of capitalist accumulation and can thus take the measure of its dynamic, self-perpetuating, and self-expanding character. Indeed, an analysis of our nexus could simply start from Marx's general formula for capital,  $M-C-M'$ , as Wainwright and Mann (2017, 100) put it, as it "tells the story as simply as possible." Class exploitation powers production, allowing for surplus-value to be extracted, reinvested into further exploitation and extraction of value, in an endless, polluting, chain. Three crucial theoretical developments have nevertheless gone quite a lot further to illuminate the beginnings of the nexus in the times of what has been called "liberal" and "imperial" capitalism (Fraser and Jaeggi 2018; Brand and Wissen 2021), and the self-perpetuating character of extractive as well as metabolic waste- and emissions-generating processes, rooted in unequal relations. I am referring to John Bellamy Foster's elaboration of Marx's conception of the "metabolic rift" (1999), Andreas Malm's (2016) exploration and formalization of fossil capitalism, and Alf Hornborg's (1998, 2003, 2021) theory of ecologically unequal exchange.

In what follows, I first combine their analyses to unpack and conceptualize further the distributed fossil/metabolic machine, which set in train the inequality-unsustainability nexus at the beginnings of contemporary capitalism. Second, I review the intensification and expansion of this machine in the period described by Jean-Baptiste Fressoz and Christophe Bonneuil (2017) as the petrolization of the world, in the middle of the 20th century. Finally, drawing on recent critical geography, social anthropology, and political ecology, I turn to today's green capitalist

regime, whose “green growth machine(s)” (Gould and Lewis 2016; Sbicca 2019), which I rename green/metabolic machine, adds to, and feeds further, the fossil/metabolic one. These machines are well known: their accumulation mechanisms have been scrutinized by the authors just referred to, and others in their wake. My point in this section is to explain how, in pursuing capitalist accumulation, they have activated, produced, and reproduced the inequality-unsustainability nexus.

### *The fossil/metabolic machine*

The story of the capitalist fossil/metabolic machine can start with Marx’s conception of the “rift” in what he saw as the metabolic relation between humans and nature (Marx 1981, 949), a rift that first arose as a result of the violent expropriation of people from the land for the sake of ever larger landed estates of the English and Scottish gentry (i.e., the process known as the enclosures and the Highland clearances). As explained by Foster (1999), expropriation meant the creation of a mass of propertyless and exploitable urban workers, newly and utterly dependent on the labor market for their income and on the market for their food provisioning. This completed the process of “so-called primitive accumulation” (Marx 1976, 915) at the origin of capitalist class relations and was then renewed in the 19th century through appropriation of land for capitalist agriculture, and its double “robbing” of the worker and the soil (Marx 1976, 637–638). A nexus thus developed here between a new form of class oppression and inequality on one hand and unsustainability on the other. As intensive agriculture resulted in the depletion of the soil and further ecological waste (Foster et al. 2011, 124) and the agricultural frontier was endlessly displaced, thus reproducing and expanding this mechanism.



In parallel, another enclosure took place for coal. This process has been conceptualized by Andreas Malm (2016, 320) as the “primitive accumulation of fossil capital,” which started the fossil-capitalist machine. This machine fed on the expropriation of people from rural areas and their exploitation as workers in ways that had not been possible before with other sources of energy, in particular water mills. Fossil energy’s lability as stockable energy, its temporal and spatial ductility by comparison with water, were crucial to free capitalists from their dependence on the limited labor pools of the water-mill colonies, where working class organization and power was shaping up in early 19th century Britain. Such abstraction from time and space constraints (Malm 2016, 307) facilitated the relocation of factories in urban centers where workers were totally and utterly at the expense of waged work. We thus have here a second impetus for the nexus, whereby the newly expropriated working class was subsumed under the Industrial Revolution, through their ever-intensified exploitation by the self-expanding and carbon-emitting fossil machine.

But the fossil-productive apparatus is voracious and demands ever more biophysical resources (materials, energy, land, and labor). Colonial relations had made another self-perpetuating process possible, studied by Alf Hornborg, as the power of countries of the “core” of the world-system commanded “time-space appropriation” in the regions and countries of its “colonial periphery.” This further expanded – and expands – the “core’s productive apparatus, leading to appropriations, resource depletion and environmental degradation in the “periphery” (Hornborg 1998, 2003, 2021), thus providing a third impetus to the nexus, this time through extraction and circulation rather than production, what Hornborg calls “unequal exchange.” Foster et al, Malm, and Hornborg together paint a comprehensive and compelling picture of the nexus: an ever-reproduced, ongoing, and expanding fossil/metabolic machine, predicated upon

class and colonial power and inequality and triggering ever more carbon emissions as well as ecological waste.

Nevertheless, the articulation between the fossil and metabolic machines needs further clarification and elaboration, as the inequalities they work with differ. Foster et al's metabolic rift and Malm's fossil-capital theories revolve around class domination, while Hornborg's conceptualization of unequal exchange is underpinned by colonial relations between countries, with labor treated as one of its objects, alongside others. The two processes are connected with each other on multiple levels, but class should really be one crucial such level. The relation between an expropriated and exploited working class in the "core" and the expropriation of populations in the various peripheries, their subjection as slaves or later as laborers under degraded statuses, needs to be made more central to the workings of the fossil/metabolic machine. Though expropriation conditioned the making of the working class both in the core and periphery, it ushered in an initially different condition of exploitation in the industrial metropolises of the "core." Thus, Nancy Fraser (2017) proposes to analyze class formation and inequality not only through the two "xes" of capitalist accumulation (exploitation and expropriation), but also through the "status hierarchy" associated with them. As Fraser puts it in her explanation of Marx (Fraser and Jaeggi 2018, 30), "accumulation through exploitation...is a legally sanctioned form of rip-off that works through – and is mystified by the labor contract," while "accumulation by expropriation...is an overtly brutal process, with no pretense of equal exchange."<sup>12</sup> The differentiation of statuses, protections, and rights in the context of colonial relations evolved under the subsequent regimes of capitalism but their articulation nevertheless continues to be constitutive of capitalist dynamics on a planetary scale.<sup>13</sup>

Capitalism thus constitutes an encompassing, but uneven “institutionalised social order” (Fraser and Jaeggi 2018), that constantly works through the production of status difference and hierarchies. This echoes what Silvia Federici saw as a dynamic at the heart of primitive accumulation, namely the “accumulation of differences and divisions within the working class” (Federici 2004, 63).<sup>14</sup> Going back to the question of how to connect the different lenses used by Foster, Malm, and Hornborg, we can now see more clearly how unequal statuses (the expropriated-then-exploited on one hand, and the nakedly expropriated on the other) formed a crucial *axis* for the operation of a *distributed* fossil/metabolic machine. These uneven statuses were distributed across the productive centers of the “core” and the extractive sites of the “peripheries” (understanding peripheries both within and across national borders), institutionalized as such and articulated with one another through class and colonial power (and here again colonial also applies to enclosures and expropriations within borders, within countries of the “core”), triggering unsustainability at each point of operation and overall.

### ***The petrolization of the world***

A second crucial turning point in the history of the nexus was what Fressoz and Bonneuil (2017, 60) have called the “petrolization of the world,” driven by the extension of fossil capital in the United States through “suburbanization and motorization” in the period running from the 1930s well into the 1950s. As explained above, this moment has been much studied and discussed, as it is seen as signaling the subjectivation of the working class toward mass consumption and individualized modes of living, by contrast with struggles that had sought to halt the extension of subsumption of life under capitalism, in particular struggles against the

extension of the working day. Was this, then, the moment of seduction of the working class into a capitalist way of life, their enlistment as carriers of “business as usual”?

Fraser shows how the relative elevation of status of the exploited white working class in the United States went alongside the new participation of Black people in the exploited labor force at the same time as their continued expropriation as second-class citizens. This period also saw the subsumption of parts of the populations of ex-colonies into the fossil machine, while the rest of the population remained “excluded” from this process, simply and nakedly enduring expropriation for the sake of “development” (Fraser and Jaeggi 2018: 105-106). The white working class of the “core,” typically in the United States, cannot be placed fully at the “merely exploited” end of the axis of statuses, however. In particular, the embrace of the consumerist way of life by the white working class was not a straightforward affair. As argued by Brand and Wissen (2021) in a revealing and crucial chapter bearing on “Imperial Mobility,” such embrace was at the very least supported and fueled by the very determined and sustained expropriation of and from collective arrangements for everyday life, notably municipal (e.g. “streetcar”) transport. Simon Gunn tells a similar story for the UK (which, he argues, would also be relevant to other Western countries and Japan): trams were still the dominant mode of urban transport in the immediate postwar years and into the 1950s, but local authorities (especially Labour) abandoned this system of transport, opting to “accommodate mass automobility” (Gunn 2013, 236). Gunn shows that the usual association of motorization with ideas of middle and working class “affluence” and sub-urbanization overlook persisting and strong class and gender hierarchies. Thus in many “older working-class districts, especially those linked to staple industries like textiles, heavy engineering and mining, cars were slow to reorder everyday life” (ibid., 232), which, in a country where transport was reorganized in favor of the “car system”,

with also more than 2,000 miles of passenger railways closed at the beginning of the 1960s, for example, amounted to latent or obvert dispossession.

More generally, Matt Huber (2022, 152) has shown that the New Deal was a massive and determined program of demobilization of the working class through the application of public investment to the wholesale “privatization of everyday life.” A good illustration is that of a public program launched in the mid-1930s to salvage the housing market hit by the Depression, which ushered in individual, credit, and thus debt-based, “modern homeownership society” (Faber 2021, 1070). Black people were doubly dispossessed as they were denied the mortgages that became available for the white working class to move to suburbs (Faber 2021; Huber 2022, 150–151), and were confined to undermaintained urban neighborhoods, adding to more general neglect and state retrenchment from funding for social reproduction (healthcare, housing, public infrastructures). Expropriation from collective arrangements through the mobilization of public funds thus again operated unevenly, according to an axis of inequality that here followed a clear racial criterion. It did so in ways that spurred the privatization and petrolization of everyday life at one end of the axis, and undermined social and physical urban infrastructures at the other end, with compounding effects for climate-disaster events (Illner 2020). However, it is also important to see how dispossession and expropriation occurred *on both ends* of the axis, albeit in uneven ways. Such processes of expropriation through the skewed application and use of public funds and public action in the sphere of social reproduction were revived under neoliberal capitalism from the 1980s onward, and are very much ongoing today, underpinning continued further indebtedness, relegation, and exposure. I return to this below when I address green capitalism.<sup>15</sup>

The differentiation of statuses on the exploitation-expropriation axis that powers the fossil-metabolic machine also takes an internal colonial form. Stefania Barca and Emanuele

Leonardi (2018) have illustrated this vividly with the siting of polluting industries in Southern Italy. The transformation over time of these sites into sacrifice zones was underpinned by colonial planning, in the name of the “modernizing ethos,” and by the internalization of “subalternity” by the local population, arrived to industrial work from peasant misery (Barca and Leonardi 2018, 492–493). The differentiation between the working class of Northern and Southern Italy, this colonial within-class inequality, separating the expropriated and exploited subaltern from the exploited with more status, not only organized and distributed the Italian territory into would-be modern and “clean” industrial regions and dirty metabolic backyards, but arguably also in this way provided the engine for the distributed machine to continue and expand. Furthermore, Barca and Leonardi poignantly show that the doubly-dominated condition of the subaltern harbors dramatic internal contradictions, as, for example, maintaining one’s job security as a breadwinner may make one reluctant to defend one’s life environment, undermined by the industrial activities of the employing company. These contradictions, redoubled by the sexual division of labor, add to the “hidden injuries of class” (Sennett 1973) and hollow out any sense of class unity and power. They allowed simultaneously for the powering of the fossil machine by male workers and, for a long time, for the relegation of community concerns over local metabolic extraction and waste and their consequences for children’s health. Barca and Leonardi’s study thus encapsulates in emblematic fashion how colonial and gender inequality underpinned the distribution of operations of allegedly “clean” vs. contaminating production, extraction, and waste – as well as the self-perpetuating character of the fossil/metabolic machine enabled, precisely, by this distribution.

### *The green/metabolic machine*

This type of uneven territorial distribution has been taken further now that environmental reproduction itself has become valorized and associated to the “sustainability transition” promoted by green, neoliberal, capitalism. It matters to unpack the mechanisms of the nexus in detail here, as they are particularly paradoxical, with a new, green driver of inequality triggering unsustainability that ends up canceling out whatever gains have allegedly taken place through “cleaner” technologies and lifestyles. This also allows me to develop the nexus approach a bit more as a method, that could inform further studies of inequality-unsustainability nexuses and perhaps also inform political organization across them.

I draw here on research done by critical geographers and political scientists on “climate-friendly cities” (e.g., Rice et al 2019 on Seattle), whose sustainability strategies lead their peripheries to instead bet on a “counter-sustainability fix” (as shown by Miller and Moessner 2020 for Freiburg and Calgary). Under current conditions of neoliberal capitalist real estate and elite labor, as well as international higher education markets, green credentials send a signal of quality of life to upper-income professionals (as well as wealthy students), and assurances that their “symbolic sustainability capital” (McClintock 2018) will be nurtured and further enhanced. The climate-friendly city attracts, concentrates, and reproduces wealth, and thus carbon-intensive and environmentally-damaging consumption (through a sheer volume effect), but also carbon-intensive investment (Chancel et al. 2023).<sup>16</sup> The study of Seattle by Rice and colleagues shows how the carbon obsession of city authorities, combined with the workings of urban land markets, brings about this outcome. As they most cogently sum up, “capitalist land markets presently allocate desirable density in such a fashion that its ecological benefits are not realized precisely because of the affluence that makes living in such places possible” (Rice et al 2019, 152).<sup>17</sup> A

consumption perspective on green initiatives helps bring out their questionable environmental sustainability as well as their implications for social inequality (Rask 2022).

In addition, rising housing prices in these green hubs lead to the displacement of low-income residents and their relocation in towns of the wider region or metropolitan area which have opted for “counter-sustainability” development, heightening exposure to current and future environmental hazards. As ever with the capitalist machine, the redirection of public money toward investments in the new green urban arrangements, away from equipment and amenities for all (Rice et al 2019, 160), is the central operator and engine of the nexus. Such “parasitic” steering of public funding (Ferrerri 2021), directly and singlehandedly for green accumulation purposes, is but a contemporary version of so-called primitive accumulation.

Thus, the green/metabolic machine too needs to be analyzed as a self-perpetuating capitalist mechanism: sustainability and counter-sustainability fixes mutually feed each other, and are powered by an axis of distribution of class, and often racial, inequality. Such distribution is doubly and dynamically generative of unsustainability, as the concentration, reproduction, and expansion of wealth in green hubs generates consumption and financial capital investments with massive associated carbon emissions (which would arguably be less without the multiplier effect of the hub); while relegated areas opting for a “counter-sustainability” fix generate their own carbon emissions and environmental degradation. Finally, the climate-friendly city reaches out further afield, also to rural hinterlands, as its sustainability fix demands provisioning (in renewable energy, organic, or otherwise sustainable food) and offsetting (for energy uses deemed un-decarbonizable) (Diaz Vidal et al 2022). In all cases, this is more land dragged in for servicing the “green” metabolic reproduction of urban hubs, which in turn spurs further inequality-unsustainability mechanisms in the countryside and across national borders. Overall,



the nexus approach casts light not only on the injustices of green (and counter-green so to speak) urban initiatives, but also on how these injustices generate absolute growth in carbon emissions and environmental degradation.

Green capitalist nexuses are not just happening through territorial “fixes,” but also through sectoral and financialized ones. Critical scholars in studies of global value chains and networks contribute to casting light on sectoral nexuses – in particular through the incorporation of analyses of class relations, labor regimes, frontiers of accumulation, and “green upgrading and downgrading” into their work (e.g., Baglioni et al 2022; Krishnan et al 2021). As is the case for territorial nexus approaches, sectoral nexus analyses of supply chains would allow scholars to go beyond questions of scope of emissions, which are only able to capture the linear carbon reach of firms’ operations, not their damaging self-perpetuating *dynamics*. Furthermore, a whole stream of studies in social anthropology and political ecology has looked into “accumulation by restoration” (e.g., Huff and Brock 2017), contributing in turn to illuminating the nexus taking place through green finance. I cannot develop an analysis of these further forms of the green nexus here but fully clarifying and specifying their operations is a necessary task for addressing the inequality-unsustainability dynamics produced by the green/metabolic machine.

Finally, the provisioning and servicing of green amenities and commodities for the eco-professional, eco-managerial, and eco-capitalist class relies on the expansion of a class of “expropriable-and-exploitable citizen-workers” (Fraser 2016, 176), working in green hubs but likely to live in the cities of the “counter-sustainability fix” and other “peripheries.” Nancy Fraser has drawn attention to the diffusion and increasing prevalence of this figure in contemporary capitalism more generally. As we saw under previous regimes of capitalism, there never was a neat distinction between the “exploited” of core industries and the dispossessed or

expropriated of the peripheries: rather the working class as a whole is the expropriated class, structurally so (Barca 2020: 42; Huber 2022, 188). Nonetheless, Fraser's phrase conveys the contemporary *simultaneity* of the two conditions, for the vast majority of workers, and across all regions of the world, as labor-market exploitation becomes generalized at the same time as expropriation, due to the extension of commodification to social and ecological reproduction labor, and to the workings of capitalist urban and rural land markets. The generalization of this figure suggests both an extension and a deepening of the contradictions experienced by the working class (Barca and Leonardi 2018). It is these contradictions, and the axis of inequality that generates them, that very much uphold and feed the inequality-unsustainability nexus, in both its green/metabolic and fossil/metabolic versions.

Overall, in this section I have sought to argue about the need to conceive of environmental unsustainability as being always enmeshed in a nexus with social inequality, understood as class inequality compounded by race and gender, and I have gone some way toward theorizing such a nexus. I have proposed an analysis of the production of inequality through three tightly intertwined processes of exploitation, expropriation from means and conditions of existence, and differentiation of statuses. I have shown how this three-pronged inequality is itself a generator of unsustainability, as the uneven distribution of the operations of the fossil/metabolic and green/metabolic machines alongside the inequality axis generates, upholds, and multiplies unsustainability. I have also started operationalizing the nexus lens, showing more concretely what it affords, on top of this general level of theorization, for a more fine-grained analysis of mechanisms of generation of unsustainability. I illustrated the mechanisms of a "green" territorial nexus, but such analyses would also be required for sectoral nexuses as well as for nexuses involving the financial sphere. Analyses of sectoral nexuses are

particularly needed in sectors corresponding to basic means of existence – food, housing, energy, transport.<sup>18</sup> Such studies would lead to emphasizing a type of materialist relations and dynamics for understanding the ongoing and escalating generation of unsustainability that centers inequality – in my view a much-needed social scientific task.<sup>19</sup> But the most pressing task today is perhaps above all to gain clarity for discerning meaningful environmental political paths and alliances, and possibly also to help articulating them, bearing in mind, of course, the gap between a theorization of inequalities and an expanded conception of the working class, on one hand, and mobilization for a politics of equality and sustainability supported by and joined by such a working class on the other hand.

### **Sufficiency or equality? Drawing the lessons of a nexus analysis**

The title for this last section of the article, which seeks to address some of the political questions raised by the above analysis, is of course not meant to stage an opposition between relations to nature and its “boundaries,” and social relations, which would be an absurd and abstract question, but rather to oppose two political framings of relations with the natural world and social relations, as well as two different approaches to political strategy.

Kohei Saito’s (2022, 237) notion of “degrowth communism” considers such opposition as a non-topic, and seems to offer a politics that embraces both framings as non-antagonistic – indeed the sensation caused by the notion arguably comes from such bridging of the tensions between an equalitarian and a degrowth horizon. But two very distinct proposals are perhaps conflated here. The penultimate chapter of *Marx in The Anthropocene* lays out “five reasons that communism increases the chances of repairing the metabolic rift” created by capitalism<sup>20</sup> – which seems to offer a route out of the inequality-unsustainability nexus studied above through a

communist, in the sense of fully equalitarian and democratic, reorganization of society. In such a society, “associated producers” decide how to provision for their “communal needs and communal purposes” (Marx 1973, 171, quoted in Saito 2022, 241). Such communal, equalitarian character of social life determines provisioning in a necessarily totally different way from a system based on inequality and capital accumulation, arguably allowing for ongoing social and ecological replenishment. Suggesting, as Engels did, that a socially and politically equal society could very well seek to expand its production indefinitely, is based on a model of infinitely desiring individual that only exists for the fantasized abstraction of *homo oeconomicus*. Kindling desires is no small task within capitalism, and the experience of inequality as scarcity described by Gorgios Kallis is a key mechanism for it. Yet Saito (2022, 237) himself seems to rally Engel’s vision, though of course not sharing the latter’s enthusiasm, but rather warily noting that “while the earth has biophysical constraints, social demands are potentially limitless.” Such “potential limitlessness” of social demands appears a very abstract consideration, detached from the form of society shaping relations and demands. Nevertheless, it is this model that Saito (2022, 242) paradoxically seems to espouse when he suggests that degrowth is a condition for a renewed communist project (“Taking into account these five transformations that Marx demanded as conditions of socialism, one may wonder *how they could be achieved without degrowth*” – my emphasis).<sup>21</sup> If, conversely, one starts from the view that social organization shapes demands and desires, then the fight for political and social equality becomes the horizon, against which other projects, the lasting habitability of the planet, care for all its inhabitants, in short, the social and ecological reproduction called for by Marxist feminists and ecofeminists, as well as segments of eco-socialism and degrowthers alike, can be deployed.

Here it is worth returning briefly to an interesting piece by André Gorz, “Political Ecology: Expertocracy versus Self-Limitation,” published in the *New Left Review* in 1993 (and previously in *Actuel Marx* in 1992). Gorz’s ideas of sufficiency and self-limitation were key sources of inspiration for Brandt et al’s 2021 manifesto, and the reasoning encapsulated there very much resonates with that of the sufficiency movement today. Interestingly, Gorz first grounded the notions of sufficiency and self-limitation in Marx’s idea of communist society, in which “socialized man, the associated producers, govern the human metabolism with nature in a rational way” (*Capital* volume 3, quoted in Gorz 1993, 60), where “rational” management implies “the upkeep of the ecosystem, combined with the development of means of production capable of being mastered by the associated producers, who would manage themselves instead of being dominated by industry’s gigantism and complexity” (Gorz 1993, 61). Sufficiency, which Gorz defines as the norm where satisfaction meets effort, thus arises in the context of a radically democratic and equal society.<sup>22</sup> However the systematic dispossession of workers from their means of production (and eventually from their “living environment”) at the core of capitalism has triumphed in his view over both this political possibility, and the more traditionalist brakes on work and accumulation. Nevertheless, Gorz (1993, 65) proposed that, in today’s “complex industrial societies,” “self-limitation” could become a political project as such, to collectively define and aim for “sufficiency,” which itself would be transformative for social relations, in other words toward “more autonomy and more existential security...for everyone.” Such a project, he surmised, was attracting more and more class segments, including in the governmental and managerial classes. Such cross-class adhesion to the desire of contributing to protecting and repairing the health of the planet may be taking shape today, notably across Europe and the UK, and Brandt and colleagues (2021, 281) also associate this to a form of

emancipation as well, – “freedom rooted in taking responsibility for the social (and environmental) impacts of actions on others.” In a move of high significance for today’s degrowth movement, Gorz, in this little text, staged a possible coalition around collective self-limitation as a source of emancipation of each and every one, substituting it to Marx’s idea of rational social and metabolic planning, which could only materialize once communism had been fought for against the capitalist ruling classes. No class conflict is needed anymore: rather what obtains is a “conflict without an enemy” (Arsel 2023, 89), through a new reflexivity and “transformative self-struggle” extended to a whole society.

Self-limitation stages a unified majority, a cross-class political body, disposed to discuss a societal and governance pact according to conceptions of collective excess and restraint, and for which questions of responsibility, justice and repair are framed along such parameters, for example leading to the “deprivileging” of some (Sommer and Welzer 2014, quoted in Brandt and Wissen 2021, 189) and the reshuffling of “winners” and “losers.” But while the degrowth agenda is certainly spreading, and to some extent becoming a mainstream “conversation,” this is taking place against the fall-out of the “Fordist compromise,” in a context, therefore, in which the notion of “responsibility” can only be divisive. The formation of new alliances toward the new responsible and just planning and administration of budgets, caps, taxes, consumption and production corridors (Schmelzer and Hofferberth 2023; Fuchs et al 2021; Bärnthaler and Gough 2023) is likely to be trapped in the divides which have multiplied and grown in that context, between urban and rural, metropolis and periphery, consumers and producers, and, to top it all, between, on one hand, ecologists, vegans, and other alleged left-wing elites and, on the other hand, workers seeking to maintain a livelihood. Questions of responsibility and justice are likely to fall prey to an endless ballgame between polarized factions seemingly identifying

with/identified through their lifestyle, which unfortunately suits the “class war” waged from above very well.

A lot of clarification work is fortunately taking place regarding class positions, interests, and conflicts in view of environmental politics. Recent work, for example, by Stefania Barca, Matt Huber, and Murat Arsel, has been pointing to different ways in which class has to be placed at the heart of environmental politics: in my view a much more promising work to look the inequality/unsustainability nexus in the face. Indeed, Markus Wissen, in a piece for the *Luxemburg Zeitschrift* cowritten with Bernd Röttger in 2017, and entitled, precisely, “Ecological Class Politics,” put forward the need to politicize inequalities, provided we take an encompassing view of them. An analysis of class interests and positions on such basis pierces through the above-mentioned divides, showing them to be artefacts of the “growth compromise” gone awry, and that keep it alive. Precisely delineating, understanding, and articulating class situations and interests, by contrast, serves to highlight the real, profound class antagonisms, compounded by racial and gender hierarchies, that the capitalist machines feed on and entrench further; and the divided, split character of communities and workers themselves under capitalism, as Barca and Leonardi’s study vividly illustrates. Starting from the stern diagnosis of these splits at the very least shows what needs to be “worked through” for meaningful political construction, and to clarify the decisions at hand (which side to join in socio-ecological struggles against the capitalist logic). Putting class at the heart of the analysis also obtains for peasant and Indigenous struggles, including in the “global South.” Indigenous communities are too often addressed from, precisely, a “community” perspective that obscures how class is at play there, too, in their confrontation with capitalist logics (Arsel 2023, 86). Recent work on the Plantacionocene has led to calls for a renewed approach to agrarian struggles, that embeds them

in broader anti-capitalist struggles and, conversely, also grounds the latter in the former (Borras and Franco 2023). Acknowledging the weakness of farmworker, peasant, and smallholder-class positions and devising the political work to do from there seems preferable to a potentially reifying construction of Indigenous people as unsplit subjects of ecological transformation, on the “margins” of capitalism (see also the first section above).

The most promising movements today indeed place class at the center of their struggles for livelihood and for a livable planet: amid the chaos of current farmer protests all over Europe (January-February 2024), relayed and amplified by a venomous and fascistic right, unions of peasants, farmworkers, and some farmer unions, many of which belong to the international umbrella organization *Via Campesina*, present in the global North and the global South, have put the redevelopment of the peasantry in European societies at the heart of their demands. This goes together with calls for proper livelihoods and policy/infrastructural support, including guaranteed minimum prices, market regulations, environmental and social brakes on free-trade agreements, and support for agroecological methods. This means asking for more fully supported environmental regulation, not less of it.<sup>23</sup> Joint struggles with larger agro-industrial farmers have thus only been a small and short-lived part of the story. In France, the *Confederation Paysanne* has clearly designated the leadership of the majority union as belonging to the exploitative agro-industrial class.<sup>24</sup> This rift is longstanding and had been shown with particular clarity in the previous struggle, against the *mega-bassines* (water reservoirs enclosing scarce water resources mainly for the sake of industrial agriculture).<sup>25</sup>

In the UK, similar, though less publicized protest, took place in October 2022, with “farm workers and environmental activists march[ing] through central London” together, to demand “a ‘right to food’ to be put into UK law, more Government support schemes for young people and



marginalised groups to enter farming, and a bigger budget for agricultural support schemes with Environmental Land Management subsidy schemes.”<sup>26</sup> In a highly significant and welcome interview for the *Journal of Peasant Studies*, Morgan Ody, general coordinator of *La Via Campesina International* (and a long-standing militant of *Confederation Paysanne*), pointed out the need to restate the debate in class terms.

We should make sure that the political framework changes because that’s where we have a big, big problem. We’ve not been spending enough time on this even at the level of farmers’ organizations. We’ve been spending a lot of time on being perfect, and we’ve been building small niches of organic farming and selling directly; or worrying that my farm is not perfectly sustainable... We don’t care! That’s not the problem. The problem is that there are still 50 billion Euro every year given to the big industrial farming system. That’s what we should change and what we should struggle for (Ody and Shattuck 2023, 552).

With energy and food giants parading as protectors of energy and food security, or even, as we have seen, of sufficiency, such struggles instate a sense of the “two,” that is to say a sense of antagonism as an essential condition for clearer political direction.

Such political and politicizing “splitting into two” (see Hutteau and Marano 2023, in an implicit allusion to Alain Badiou) certainly is very situated – depending on class interests and on the strategies of social and ecological movements in each situation. However, it is always underpinned by a will to put “social limits” to capital accumulation (De Angelis 2001, 18). Indeed Karl Polanyi (1957), who is often invoked in pleas for self-limitation (e.g., Brand et al

2021, 281), was actually talking about social regulation and putting limits to the “market system,” not about “society’s” self-limitation. It is such limits that can put a halt to inequality-unsustainability nexuses and the capitalist machines that power it.

Overall, then, there is a real risk that the sufficiency approach may be caught into moralizing, rather than politicizing, inequality. Unpaired from a structural analysis of inequality, it frames a struggle of sufficiency and sobriety against affluence and fails to sufficiently take the measure of the dynamics of class domination underpinning the alleged societal endorsement of affluence. Reordering production and consumption in more equal and sustainable ways is no doubt urgently required; however, in spite of sufficiency, degrowth and post-growth scholars and activists’ interest in reclaiming the public, the collective, and the commons for such reordering, the framework for this is a “space of moral and political deliberation in the face of the ecological crisis” (Brand et al 2021, 274), that arguably places the debate on the level of the hegemonic compact, instead of targeting its underpinning structure. Finally, the sufficiency movement hails the practitioners of current “alternative” practices as the virtuous potential subjects of an (as of yet abstract) transformation process toward such sufficiency politics, which does not recognize the pervasiveness of capitalism and the contradictions in livelihoods experienced by all communities.

By contrast, emphasizing the primacy of equality calls on environmentalists to join social struggles against precariousness and exploitation, for reclaiming means and conditions of existence as shared common, and building alliances across labor statuses, across production and reproduction workers, and among the expropriated, the exploited, and the very extended and diverse “class of expropriable-and-exploitable citizen-workers” (Fraser 2016, 176). Such struggles largely overlap with demands from the sufficiency movement, especially regarding the

reclaiming and restructuring of provisioning for means of existence (land, housing, food, mobility, and energy in particular). The structural and strategic prioritization of equality, however, would lead to gathering political momentum while already putting brakes on accumulation, and thus create a political process conducive to the systematic questioning, reimagining, and reorganizing of life in common and the habitability on the planet. To be sure such an equalitarian horizon appears very pale and distant in the present conjuncture of disorientation, but as I have argued, it is also not completely ethereal either. Marx's famous note of caution from *The 18th Brumaire of Louis Bonaparte* ("Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past") obtains more than ever, reminding us that change not only requires delineating such horizon as a possibility contained in current struggles, but that it demands strenuous, determined, and persistent political work to keep and deploy the egalitarian axiom.

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## Notes

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<sup>1</sup> The term is often attributed to Wolfgang Sachs (1993) yet can also be traced back to André Gorz's 1992 essay on "the sufficient" and "self-limitation" as a political project (Gorz 1993) (today the more frequent equivalent in French is *sobriété* – *sobriedad* in Spanish).

<sup>2</sup> See <https://www.veolia.com/en/our-media/news/estelle-brachlianoff-sufficiency-true-path-desirable-ecological-transformation>

<sup>3</sup> Their own article is written on a programmatic and highly general level. It provides a rationale for such an approach, linking various scales, but does not enter into the analysis of inequality as "driver" of unsustainability (except to suggest that inequality and the injustice that goes with it "weaken (or preempt) effective social interrogation of the scope and scale of production-consumptions systems").

<sup>4</sup> I use the term machine here not in Alf Hornborg's specific sense but in a broader way, to refer to capitalist mechanisms and operations of extraction, production, distribution, and consumption as they are deployed through the fossil technology, or, by contrast, in the green transition. In both cases metabolic flows are also required for the functioning of the machine.

<sup>5</sup> Veblen's theory of conspicuous consumption and emulation is often simplified (and referred to as the "Veblen effect" by economists). He viewed this dynamic as a structural feature of modern capitalism – as a structure of desire, associated with capitalist exploitation (Cassano 2009). Thus, while the desire of the propertiless and working classes to emulate the excess of the propertied classes to uphold their own status and standard of "decency" (Veblen 1994, 103) binds each and every one to hegemonic growth and sustains such hegemony, it is first anchored in the capitalist class structure. This is obscured in analyses of the inequality/unsustainability relation relating inequality to affluence only.

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<sup>6</sup> Interestingly, Ingolfur Blühdorn (2022) has criticized the article I am referring to here for opposite reasons, arguing that the authors' traditional conceptions of emancipation are in the way of the governance of sufficiency. Yet Ulrich Brand and Markus Wissen's book, which informs the article by Brand et al (2021), does criticize such conceptions in its analysis of the Fordist compromise I have just discussed here.

<sup>7</sup> The *Journal of Cleaner Production* has also published much on this issue.

<sup>8</sup> As summarized by Chancel in 2020, "of forty-two recent empirical studies on the relation between inequalities and environmental quality, fifteen show that inequalities harm the quality of the environment, nine show the opposite, seven arrive at results that depend on the level of income...and eleven find no statistical relationship between these two dimensions" (Chancel 2020, 34). More studies have been added since then, and they are as divided.

<sup>9</sup> For example, interpretations of correlations of opposed sign for poorer and richer countries draw on marginal economic behavior for the former and political economy approaches for the latter, despite opposed ontologies and modeling of the wealthy's influence (e.g., Grunewald et al 2017). Additionally, Berthe and Elie (2015, 199) contend based on their review of 14 econometric studies in this field that the "theoretical pathways" provided to formalize the transmission mechanisms translating inequality into unsustainability are often not sufficiently reflected into the methodologies adopted, thus preventing their empirical assessment.

<sup>10</sup> Most studies address inequality as income inequality only, and choose the Gini coefficient for this, which is poor for capturing changes in the composition of income distribution, a key issue today given the carbon significance of the "1%" (Alvarado et al 2018). Per capita emissions are not always adjusted for trade (this requires an input-output analysis), and emissions related to "investment" are not considered. Given the global character of carbon/greenhouse-gas emissions,

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and the significant degree of offshoring by high-income countries as well as the international reach of investment, these are considerable limitations even from these studies' own perspective.

<sup>11</sup> Anke Schaffartzik and colleagues have developed a distributional approach to metabolic inequality that is more dynamic than the studies on carbon and environmental inequalities referred to above, as it draws on and links up with unequal exchange approaches (discussed below in the article). See, for example Schaffartzik and Krausmann (2021).

<sup>12</sup> The analysis of capitalism along two ongoing dynamics of accumulation – not only exploitation but also “expropriation,” also called “dispossession,” is based on an extremely productive reinterpretation of Marx’s account of “so-called primitive accumulation,” which started in the 1990s with the work of the Midnight Collective, and was also pursued by Marxist geographer David Harvey (through the notion of accumulation by dispossession, which inspired countless further developments). Nancy Fraser’s version of the axes of accumulation is thus one among many, but I find her theorization of the corresponding axis of class statuses very illuminating for my purpose here.

<sup>13</sup> Following Jason Moore, Fraser refers to the “cheap provisioning of the center” without which exploitation would not have been profitable. Fraser’s approach to the exploitation/expropriation nexus nevertheless points to the importance of the difference between statuses for the extraction of surplus value, rather than to cheapness as such, which I see as more consistent with her critical theoretical approach.

<sup>14</sup> The division of the people through differentiation of statuses is of course a more general and fundamental feature of any system of domination, capitalist or otherwise.



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<sup>15</sup> It is instructive to read John Bellamy Foster’s analysis of the “Fetish of Fordism,” which tears the very concept of a Fordist compromise to pieces. I learned about the piece through Huber’s book.

<sup>16</sup> Rice et al.’s study highlights the effects of the wealthy’s consumption for this canceling out effect, but Chancel et al.’s recent work has demonstrated the importance of taking into account financial investments from the wealthy’s savings as well.

<sup>17</sup> The benefits referred to here are from the point of view of city authorities and their carbon targets. The question must be looked at also on a more global level, as I seek to do below.

<sup>18</sup> Such prioritization also applies to the analysis of finance nexuses (offset schemes for example directly impact land uses and land prices with direct and indirect effects on provisioning of food and housing conditions).

<sup>19</sup> Anke Schaffartzik’s and her colleagues’ work, referred to above, analyses how transnational material flows depend on and further contribute to “metabolic inequalities” between countries (see e.g., Schaffartzik and Krausmann 2021). By relying on input-output accounts for a variety of material flows, the authors provide a precise overview of these inequalities and their persistence/change over time. Such an approach could also be used to show how distributions of extraction and consumption not only perpetuate metabolic inequality but dynamically contribute to the overall increase in global unsustainability. However, as far as I know, they do not/cannot address inequalities within countries, and they do not consider the class axis of unequal statuses as key operator for the production and reproduction of these flows and material/metabolic inequalities.

<sup>20</sup> Saito’s full sentence is “There are at least five reasons that communism increases the chances of repairing the metabolic rift compared with capitalist production,” which sounds an odd

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comparison – is there any possibility at all that capitalist production could proceed to such repair? It is an ontological impossibility!

<sup>21</sup> Saito further argues, as many before him, that growth can take place in a socialist system and is equally problematic as in a capitalist system. This is fine except such a socialist system of State accumulation has nothing to do with the equal and democratic association of producers in communism. The massive expansion of industrial production under Stalin, for example, is not evidence of the risk that a more socially equal society might be as polluting as a less equal one. The Stalinist regime reintroduced income differentiation, competition among workers, and the possibility of status consumption (Gronow 2004).

<sup>22</sup> Gorz's definition of sufficiency in the context of Marx's society of associated producers is surprisingly quantitative – comparing need satisfaction and effort expenditure. He also refers to the reluctance to work for the sake of ever more gain, in pre-capitalist “traditionalist” societies, drawing on Max Weber's and Karl Polanyi's well-known analyses, though the meaning attached to work in these societies and the kind of rational collective management referred to in *Capital* are radically different.

<sup>23</sup> See <https://www.greatitalianfoodtrade.it/en/ideas/confederation-paysanne-and-free-farmers-the-reasons-for-the-protest>.

<sup>24</sup> See <https://www.greatitalianfoodtrade.it/en/ideas/confederation-paysanne-and-free-farmers-the-reasons-for-the-protest>.

<sup>25</sup> For an illuminating analysis, see Hutteau and Marano (2023).

<sup>26</sup> See <https://www.independent.co.uk/climate-change/news/london-pembrokeshire-farm-government-buckingham-palace-b2203517.html>.