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European Journal of Social Theory
2023, Vol. 26(1) 24–47

DOI: 10.1177/13684310221136083
journals.sagepub.com/home/est
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# The triple problem displacement: Climate change and the politics of the Great Acceleration

**Peter Wagner**
*Catalan Institute for Research and Advanced Studies (ICREA), University of Barcelona, Barcelona, Spain*

**Abstract**
Climate change is one of the greatest challenges that human societies have ever faced. After a late start, it is by now rather intensely debated and analysed also in the social sciences and humanities, though mostly through overly generic explanations in terms of an instrumental relation to nature, of capitalist expansion drives or of the human longing for comfort. In contrast, this article concentrates on the socio-political transformations since the middle of the 20th century, which have been referred to as the 'Great Acceleration' in the use of biophysical resources and in environmental degradation. It provides an analysis of the socio-political mechanisms that brought the resource-intensive path of social development about, showing how Western democratic societies tended to 'solve' difficult social problems by means of a triple displacement: onto other societies; onto nature and the planet; and into the future. As an unintended consequence, this displacement politics led to the globalization of resource-intensive development and to a planetary situation in which, at least as it appears in much of current debate, no further displacement is possible. The article concludes with insights for a more adequate approach to social phenomena of large scale and long duration in social theory.

**Keywords**
biophysical resources, capitalism, climate change, democracy, Great Acceleration, modernity

**Corresponding author:**
Peter Wagner, University of Barcelona, Diagonal 690, Barcelona 08034, Spain.
Email: peter.wagner@ub.edu

After a late start, climate change is by now rather intensely debated and analysed in the social sciences and humanities. In particular, a variety of 'grand' explanations for climate change have been proposed and intensely debated in social theory, such as the dynamics of modernity focusing on the realization of the modern commitment to freedom through use of biophysical resources (e.g., Chakrabarty, 2021); the logic of capital emphasizing the capitalist necessity for ever further expansion and the need to control the workers (e.g., Hornborg, 2011; Malm, 2016; Malm & Hornborg, 2014); or the consequences of a conceptual separation of the social from the natural and the rise of an instrumental understanding of nature generated in Enlightenment thought (e.g., Latour, 2004, 2017; drawing ultimately on Latour, 1991). These approaches have in common that they see – in competing ways – climate change as the rather inevitable outcome of long-term socio-ecological processes, of some macro-historical logic.

Without doubt, climate change is one of those phenomena of large scale and long duration that had lent themselves to this kind of explanations in the history of the social sciences, such as capitalism, modernity and rationalization. However, recent conceptual and methodological debate also suggests that one needs to be cautious with such explanations (for a forceful critique already Boudon, 1984, ch. 1). This article will analyse climate change with a view to advancing a more adequate approach to social phenomena of large scale and long duration in social theory by focusing on the actions, interpretations, events and mechanisms through which a trajectory of social development is continued or altered.

Towards that end, a closer look will be taken at the 20th century and in particular at its second half, the period that has been referred to as the 'Great Acceleration' (McNeill & Engelke, 2014; Steffen et al., 2015). Empirically, such focus is justified, even demanded, because climate-changing $CO_2$ emissions rise significantly during that period, and in earlier periods only much more smoothly. Furthermore, this focus will lead to underlining that climate change should not be seen as an exclusively 'Western' phenomenon.[1] Even though historically the West was the main contributor to global warming, this has no longer been so for more than half a century, and an adequate analysis needs to address the recent world-regional differentiation (Görg et al., 2020). More conceptually speaking, this period witnessed pronounced socio-ecological transformations that make it difficult to speak of any persistent underlying logics of capitalism or modernity or an unchanging instrumental view of nature. A closer analysis of these transformations, furthermore, permits the identification of specific constellations in which the trajectory of fossil-fuel intensity was created and modified as well as, possibly, a more complex logic of socio-ecological change emerged.

The reasoning will proceed as follows: Following the Intergovernmental Panel on Climate Change (IPCC) and the ensuing public debate, the concentration of carbon dioxide ($CO_2$) in the atmosphere will be seen as a key indicator for climate change, and the emission of $CO_2$ as actions that cause climate change. Considering these data over the past two centuries, and in particular since the middle of the 20th century, will generate a number of questions about the socio-political conditions and causes of $CO_2$ generation. These questions, in turn, cast doubts about the existing 'grand' explanations, which will be made explicit in the next step. Subsequently, the central part of the article provides a brief narrative account of the major social transformations during the period

in focus, conceptually informed by social theory and historical sociology but with an emphasis on biophysical resources, in particular fossil fuels. While this work of conceptually driven reconstruction can be done here only in a preliminary way, the concluding section spells out the consequences for our understanding of the Great Acceleration as well as for social theory.

## Some elementary data and the questions that they raise

The IPCC emphasis on $CO_2$ emissions and concentration for the analysis of climate change is a simplification that has well served to focus international political debate, among governments as in the Paris Agreement and its follow-ups as well as among social movements such as Fridays for Future. At the same time, this is an epistemic-political step that also needs to be subjected to scrutiny, and we will come back to issues of knowledge below. Nevertheless, the step is accepted here as a point of reference that permits a more concise reasoning.

While much of the debate about the Anthropocene and climate change, understandably so, tended to immediately point to the long duration and the global or planetary dimension, a look at $CO_2$ emissions reveals important temporal sequences and world-regional differences, which need to be considered when looking for crucial events and for the mechanisms that created and sustained this resource-intensive societal trajectory. Thus, while global $CO_2$ emissions as well as $CO_2$ concentration in the atmosphere started to rise in the late-18th century, coinciding with the Industrial Revolution, they remained overall rather low until the late-19th century, at least from the current point of view. Only then did they start to increase more pronouncedly, with dips due to the recession after 1929 and the beginning of the Second World War. Furthermore, it is true that emissions were almost exclusively Western until the mid-20th century. At that moment, they start to rise very quickly in Europe and in North America, allowing them to become a key indicator of what is now called the Great Acceleration. But the exponential rise subsides in these regions at the end of the 1970s. In Europe, $CO_2$ emissions level off subsequently and start declining in the early-21st century. The North American trend is overall similar, but the steep increase already starts in the late-19th century, though with a strong 1920s dip, and emissions return to rising after a dip at the end of the 1970s, and they have witnessed a steeper recent decline. In East and South Asia, in contrast, emissions were persistently very low but have started to increase quickly in the 1980s and continue rising, in particular in China, which has become the single largest emitter within a short period of time, even though not on a per capita basis (see Chancel & Piketty, 2015; Steffen et al., 2015; there are several sources for current data, e.g. https://data.worldbank.org/indicator/EN.ATM.CO2E.PC).

Broadly familiar as such data are, they are often easily inserted into the 'grand' accounts of modernity, capitalism and colonialism, and the rise of an instrumental relation to nature. At a closer look, they raise much more specific questions: If the period of the Industrial Revolution marks the rise of an instrumental relation to nature, why do $CO_2$ emissions increase rather moderately for over a century, at least if compared with the century that follows? What, in turn, is the cause of the marked upward turn in the late-19th century, in particular in North America, if the logics of modernity and/or

capitalism impose themselves from the late-18th century onwards? Why do emissions 'accelerate' precisely after 1950 in the West (and the Soviet Union) but stop doing so after 1970? Why do emissions decline in Europe from the late-20th century onwards, and in North America slightly later, if these countries remain as modern and capitalist as they were before? And why do they rise massively in China from the 1980s and slightly later in South Asia? Economic and environmental history can give good answers to the material aspects of these questions. However, here we are interested in the socio-political aspects, which have been neglected or answered only in way too generic ways.

## Theorizing major social transformations in the light of climate change

In the broadest sense, climate change has been generated by the expansion of human activity in some way or other, whether we look narrowly at $CO_2$ emissions, at the burning of fossil fuels, or at the human use of biophysical resources in general. To explain climate change, therefore, some expansionist logic would need to be identified. Thomas Robert Malthus (1798) claimed that there is tendency of human societies towards population growth, which *ceteris paribus* would entail increasing resource use. As he also hypothesized ecological limits, his thinking remains relevant (and keeps being referred to). However, he offered a basically biological explanation, which cannot address the significant increase of per capita use of biophysical resources across the past century in some world regions. In turn, forms of social and political theorizing have also identified logics of expansion, in a number of different ways. In very broad terms again, for the sake of brevity, one can distinguish normative approaches, functional(ist) approaches, and approaches that focus on power differentials and conflict in human social organization. Between the 17th and the 19th centuries, characteristic versions of these approaches emerged, and at least from the late-18th century onwards they all tended to identify a specific logic of expansion.

Normative theories focused on freedom and considered human history as the course towards the realization of freedom. Functional(ist) approaches saw societies as historically improving the ways in which they addressed social problems, a foremost problem being seen as material well-being. Both of these modes of social theorizing are combined, with varying emphasis, in some theories of modernity and modernization. One might say that those theories that focus on freedom constitute the political theory of modernity, whereas those that focus on functional problem-solving lead into the social theory of modernity. Maybe most comprehensively, theories of functional differentiation claim that a superior form of social organization is reached by institutionalizing freedom according to the functional problems a society needs to address. Such theorizing acquires a logic of expansion by considering the onset of modernity as a liberation from constraints, including resource constraints. This view, crudely summarized, holds that pre-modern societies tied their members into prescribed customs and ascriptive hierarchies and showed only limited material development. Modernity aimed to address both problems by conjointly achieving 'abundance and freedom', to use Pierre Charbonnier's (2020) recent formula. Current critical reviews of the history of modernity in the light of climate change point to the way in which these problems were meant to be solved. In

Dipesh Chakrabarty's (2021, p. 32 [first 2009]) striking expression: 'The mansion of modern freedoms stands on an ever-expanding base of fossil-fuel use'.

Freedom and well-being are also often at stake in power- and conflict-focused theories. Critical theorists of capitalism would mostly not deny the achievement of (some kind of) freedom and functionality due to the combined political and economic revolution towards modernity. However, they underline the existing social hierarchy at the origins of modernity and capitalism, which entails an asymmetric capacity for agency, or in short: an asymmetry of power. Social problems may be very widely defined, for example, as freedom and material well-being, but they will tend to be addressed through the angle of the dominating class, for whom capital accumulation and control of workers are the key problems, entailing exploitation and oppression of the dominated class. In this view, as updated for our times, the resort to fossil fuels leads onto that way of politico-economic development that serves the dominating class (this is, in short, Malm's [2016] reasoning).

These approaches to social theory share two characteristics, one of a general kind, the other more specific. First, they operate with some notion of a determining, or at least hegemonic logic. Thus, they leave only a very limited space for human agency and historical contingency. It would be wrong to say that they do not leave such space at all; some analyses go deeply into what is seen as decisive actions. However, the point of such analysis mostly is to show that such action made sense and could hardly be otherwise because of a functional requirement or the state of competition and class relations. While there is detail and nuance in the more sophisticated historical reconstructions from either side, one will be hard pressed to find 'events', understood as 'structure-transforming occurrences' (Sewell, 2005), other than those that confirm the presupposed logic.

Second, both approaches show only limited openness to the questions as to how a problem and a need for action is defined and who does the defining and the acting. For functionally oriented social theories, there is an obvious answer. (Mainstream political theories, it may just be said in passing, link freedom to reason to determine the superior solution by theoretical fiat.) Functionally superior decisions and actions tend to be rewarded, and inferior ones penalized. Over the long run, inferior social arrangements will be abandoned, collapse and disappear, as was recently argued from this angle with regard to Soviet socialism. From this linear-evolutionist perspective, which by far has not disappeared from social theorizing, though, it is a problem that the apparently superior trajectory of increasing fossil-fuel intensity has run into a dead end. Theories of capitalism are somewhat more open because of their less monolithic assumptions. There are two key collective actors who are in conflict with each other, the capitalists and the working-class, even though one of them is hegemonic. And the hegemonic class is exposed to two key issues: the competition among their enterprises and the resistance of the working-class. These more complex as well as more conflictive assumptions invite for painting more nuanced pictures. Most importantly, they locate the dynamic of resource expansion rather directly in social conflicts.

Nevertheless, the range of problem definition and of interest of actors remains reduced and to a considerable degree predetermined in theories of capitalism. There are conceptually pre-constituted groups whose interests are basically known beforehand and

who can only encounter different constellations with a somewhat variable chance of asserting their interests, the main probability always residing with the capitalist class. The possibility that a changing constellation may require collective interpretative work at defining what problems have arisen and what action may be demanded by whom and for what purpose remains underestimated. Such approach falls short if the history of capitalism and modernity were to be more adequately understood as sequences of major social transformations the experience of which mobilized collective creativity in view of interpreting these experiences and acting in the light of those interpretations, always granting that such interpretative work is undertaken in hierarchical contexts with asymmetric distribution of interpretative agency and power (Wagner, 2008).

## Problem displacement: Freedom, capitalism and the logic of politics

Thus, the task is to develop an interpretive approach to social transformations that sets the identification of socio-political problems in the context of functional requirements and existing power hierarchies. Towards this end, the following account uses the term 'problem displacement' to capture the social transformations that have generated climate change. This is not a common concept in social theory, nor in the social sciences in general (even though it is increasingly used). That is why it is necessary to spell out the theoretical connections of the concept as used here and to relate it to the theories of modernity and capitalism.

The concept presupposes: an agent with objectives (or, if in some way imposed, requirements); a problem as a difficulty or impossibility to reach an objective; and then displacement is an action that enables the agent to reach the objective by overcoming the difficulty. The agent could be an individual person, but for current purposes they are more typically a collectivity of some kind (group, organization, class, society, state).[2] The objectives or requirements can be more or less narrowly defined, but there will always be some interpretative space to redefine them on the part of the agent. The starting situation is one in which the agent cannot reach their objectives on the basis of the interpretation that they hold. This constitutes the problem. A first characteristics of displacement is, therefore, the re-interpretation of the problem (which can but does not have to include a redefinition of the objectives) with a view to making it solvable.

The second characteristic is that displacement shifts the burden of solving the problem. Within the economic sciences, the term 'externality' refers to a related phenomenon.[3] However, the concept of displacement is different in at least two respects. First, coming from economics, the concept of externality refers to a calculable (monetary, financial) cost (or benefit), whereas the meaning of displacement is wider (and terms such as 'price' or 'expense' are used in the following account in a metaphorical sense) and includes 'priceless' – in contrast to just 'unpriced' – phenomena such as biodiversity, ways of life or indeed the habitability of the planet. Second, the term externality presupposes a clear boundary between the agent who externalizes (a company or organization) and its outside. In the case of displacement, the re-interpretation of the problem may involve redefining boundaries of agents. To anticipate one example which stands in the background of the following account: The Fordist-Keynesian reinterpretation of the economy transformed

the class struggle between company owners and workers into a productivist cooperation within the enhanced collectivity of the nation-state, drawing on fossil fuels. Thus, the term displacement does not necessarily refer to the outside of the agent; rather, it suggests more widely that a problem shifts (socio-ecological) place.

The third more formal feature of displacement concerns the chances of an agent of effectively displacing a problem. Most forms of human social organization are marked by social hierarchies. Social hierarchies entail an asymmetric distribution of power – not only within, also between societies. From positions of higher power, the chances of defining the problems that are going to be addressed and solved is greater than from lower positions. Moreover, it is useful to distinguish different sources of power, such as political, economic and ideological power (broadly following Mann, 1986, who in turn draws on Giddens, 1984), and allow for the possibility that the powers are variably distributed. In other words, the specific power of social groups needs to be identified, and the potential of power struggle with other groups explored.

Having briefly spelled out these characteristics of the concept of displacement,[4] we can now return to reflecting upon the most adequate ways of analysing socio-ecological transformations, in particular the trajectory of increasing fossil-fuel use. In comparison with the social theories of modernity and capitalism, our account could be said to give greater weight to political analysis. But this re-emphasis should not be understood as a claim to some primacy of politics as opposed to interest-based class struggle or functional requirements. Rather, it understands politics as the site of collective and possibly authoritative interpretation of the problems a social configuration faces.

The following historical sketch will focus on reinterpretations of major socio-political problems in the light of the changing base of societies in biophysical resources over the past century, and in particular the last seventy years, thus returning to Lewis Mumford's question 'what the encounter with an excess of energy might mean for social life' (as recalled by Clark & Szerszynski, 2021, p. 41). Doing so, the two approaches to social theory just described will be drawn upon but they will be placed in a broader conceptual frame.

## The world-historical background: Equality and the energy divide

To start with, just a brief return to the argument that the origins of the current climate emergency lie in the decades around 1800 with the rise of modernity and/or capitalism. On the one side, one may well hold that this period witnessed a 'rupture in societal consciousness' (Koselleck & Reichardt, 1988) that marked the onset of modernity and/or capitalism, depending on the conceptual angle. At the core of this new societal self-understanding was the open horizon of a future that would be marked by progress (see recently Wagner, 2016). However, this rupture would be misunderstood, as it widely was in later sociology, as bringing about a full-scale new institutional arrangement, be it the functional institutions of 'modern society' or the class division of 'modern capitalism'. Rather, the expectations of progress, not least wealth and freedom, were promissory notes (to use Björn Wittrock's [2000] term) that marked the political imaginary of the 19th century and large parts of the 20th. These promises were not realized, but they informed the social and political struggles. Saying this, means recognizing that

ideational factors, in Max Weber's (2002 [1904/1905]) sense, or ideological power, to use Michael Mann's (1986) term, are a source of social change, but obviously only one among several.

Looking at biophysical resources, on the other side, one core component of what we call the Industrial Revolution was the rapid advance on the 'first vertical frontier' of resource extraction, namely coalmining. However, this move did not yet immediately accelerate the use of biophysical resources, at least if looked at with hindsight. Rather, the preconditions for later developments were laid during this period. The more significant step in that direction is visible in the late-19th century hike in $CO_2$ emissions, as mentioned above, which is due to the move to the 'second vertical frontier' of oil and gas extraction, first crossed in the USA and Russia (e.g., Barbier, 2011; see also the comprehensive overview in Smil, 2021).

The crossing of this frontier is the material aspect of a major socio-political transformation, of the first crisis of modernity (Wagner, 1994). The newly exploitable resources became the underpinning of the Second Industrial Revolution featuring the electrical and chemical industries and, in particular, the use of the internal combustion engine. Further accentuating the 'great divergence' (Pomeranz, 2000), the crossing of the second vertical frontier created an 'energy divide' (Osterhammel, 2009, p. 936) between Western societies and all other world-regions, as Western companies tended to exploit resource sites even in other regions, in particular the Middle East (Mitchell, 2011), as oil and gas are more easily transportable than coal. In parallel, the structure of global social inequality changed drastically. By the mid-19th century, the material situation of the majority of the population in Europe had been rather similar to the one in other world-regions, whereas a strong divide had existed in Europe between the rich and the poor. Up to that moment, the politico-economic transformation often seen as the onset of both modernity and capitalism had by far not provided for the wealth and liberty that had been evoked in writings of the late-18th century.

The further one moves into the 20th century, in contrast, the main divide came to exist between the rich societies of what was to be called the 'First World' or 'Global North', on the one side, and the 'Third World' or 'Global South', on the other (for two different approaches with similar findings, see Korzeniewicz, 2018; Korzeniewicz & Moran, 2009; Milanović, 2012, 2015, 2016). Thus, the energy divide became mirrored in a global social divide, and this transformation is related to a major re-interpretation of social organization, which became effective in the North but not in the South.

Elevated to high symbolic level in and around the French Revolution, the question of equality became central for the dynamics of change during the 19th century. From the late-18th century onwards, the notion that political orders should and could be built on a principle of equal rights became widely diffused across the globe. It did not spread everywhere and not with the same intensity and degree of acceptance, but it became a focal point of the political imaginary, orienting much of political action (see e.g., Rosanvallon, 2011). However, the conditions for success in implementing this principle varied widely across world-regions. In Western Europe, emigration limited the population (growth), and industrialization concentrated workers in factories and facilitated their organization. In regions of European settlement, in contrast, the divide between the (descendants of) settlers and the indigenous and (in some countries) slave population

became reinforced, and hierarchical command at workplaces was enforced against a background of abundant 'labour supply' (Mota & Wagner, 2019). Claims for equality were in both settings combined with calls for democracy, as a means to enforce the will of the majority. Under those conditions, however, only in the West did the elites become dependent on the majority, due to the threat of strikes at the workplace and to the commitment to the war effort during the First World War, both in the military and at the 'home front'.

Thus, in this global constellation a specific world-regional social configuration emerged, which availed itself of biophysical resources to an unprecedented degree and, partly for this reason, was in a dominant position towards other world-regions, on the one hand, while on the other hand, the majority of its population was in a position to exert considerable, even though unfocused, power on the dominant elite. This historically new social configuration, while rich in global comparison, encountered problems that were found difficult to interpret and to handle. These difficulties resulted in a triple problem displacement, which will be discussed step by step in what follows.

## Displacement onto nature: Democracy and energy intensity

By the end of the First World War, thus, some societies had emerged in the West in which the claim of political equality went along with a considerable social power of the dominated groups. The suffrage was widened in Western societies, not least under pressure of the workers' and the women's movement, leading to the granting of universal male – and in some cases also female – suffrage. Under conditions of rapid 'fundamental democratization' (Karl Mannheim), these societies were politically volatile, and the apparently successful communist revolution in Russia encouraged a variety of transformative projects. 'Fordism' has been analysed as a response to an accumulation crisis in US capitalism (Aglietta, 1976). Its connection of mass production technology with significant wage increases for industrial workers, however, needs to be seen in broader socio-political terms. Also referred to as 'White socialism' (Gottl-Ottlilienfeld, 1924), it satisfied democratic demands for equality by raising the material standards of living widely throughout society, with the corollary though of increasing the use of biophysical resources.

Over the medium-term, this energy-intensive transformation driven by egalitarian-democratic pressure proved to be the most radical political project of the first half of the 20th century, even though it failed to consolidate and remained crisis-driven. It showed some degree of continuity only in the United States and the United Kingdom and in its social-democratic version in Scandinavia. Elsewhere, the short-lived democratic commitments collapsed and gave way to the clerical-authoritarian regimes of Portugal and Spain, the totalitarian regimes of fascism and Nazism in Italy and Germany, and Bolshevism in the Soviet Union turning into Stalinist totalitarianism.

At the end of the Second World War, those latter regimes were militarily defeated (Germany and Italy), accommodated (Portugal and Spain) or 'contained' (the Soviet Union). But the experience of uncontrollable mass mobilization and the collapse of democratic institutions led Western elites to the conclusion that such institutions could only survive if due attention was given to the living conditions of the majority of the

population. The issue had already been clearly identified at the end of the 19th century, when it had been called the 'social' or 'labour question'. But now it seemed that an answer to this question had become available that would not endanger social hierarchies, namely combining resource-intensive 'economic development' with efficient redistributive social policies to enhance 'political legitimacy', to use Seymour Martin Lipset's (1959) terms. One may well say that this formula worked temporarily in some parts of the globe, leading to what has been called the 'Golden Age' of capitalism (Marglin & Schor, 1990), the 'thirty glorious years' (Fourastié, 1979, referring to France), or the 'economic miracle' (referring to Italy and West Germany, see also Lutz, 1989).

But the formula had three core features that turned out to be highly problematic and came to undermine the adequacy of this answer. First, in *material* terms, as emphasized from the outset here, it was built on accelerated growth in the use of biophysical resources without regard for their limited availability and the environmental consequences of their use. To be discussed further below, second, in *spatial* terms, it was a formula that was developed and applied in one world-region only without adequate consideration of its global conditions and applicability. Third, in *temporal* terms, it was assumed that the socio-political arrangement could be perpetuated over time – 'consolidated', as one should come to say for democracy – without adequately reflecting on its temporal conditions. Taking these features together, one recognizes a triple process of problem displacement: in material terms, as already argued, problems are displaced onto nature and the planet by exploiting the very ground on which human life is only possible; in spatial terms, problems are solved in Western societies by displacing them to other world-regions; in temporal terms, problems are solved today by displacing them into the future. These displacements were to become problematic at different times and in different combinations, generating the political historicity of the Great Acceleration.

## Displacement in space: Disentangling the social from the colonial question

During the 'glorious years', an influential view in sociology and in public debate in Western societies held that these were advanced 'modern societies' and that other societies would follow the established path in processes of 'modernization and development' (for a classic statement Parsons, 1964). This view has been criticized on a variety of scholarly and political grounds. Even if one accepted that 'modernization and development' was a desirable direction of history, it would be highly questionable to assume that societies move independently in parallel in this direction, some ahead of others. *Prima facie* it had always been more plausible to consider that the fact of being 'ahead' or 'behind' impacts on a society's possibility for action and change.[5] Placing these conceptual considerations in the historical context, two observations stand out: By the end of the Second World War, first, large parts of the globe, in particular in Africa and Asia, were still under colonial domination; those societies, thus, could not develop and embark on their own strategies for change. Indeed, the theory of modernization was developed, without making this explicit, for a decolonized context of a globe consisting of formally equal states. And while many world-regional settings were marked by scarcity, second, resource constraints were not in any way seen as globally significant.

Despite the devastation they brought, the two world wars and totalitarianism rather appeared to give testimony to the enormous human capacity of mobilizing social and biophysical resources for specific purposes. As the report *Science: the endless frontier* (Bush, 1945), presented to the US President in 1945 had it, the problem was only to redirect this capacity towards socially beneficial purposes (see below for further discussion).

At a closer look, this new purpose becomes recognizable as the broad commitment towards enhancing domestic social well-being, later to become known as the welfare state. There were calls, maybe most explicitly by the Swedish scholar Gunnar Myrdal, to organize social solidarity globally, to create a world-system of welfare states. However, the key actors were mostly colonial powers who did not consider the colonized peoples on equal terms, and their key concern was to stabilize the metropolitan societies, not least in the face of totalitarian threats to liberal-capitalist settings, both in the form of prior fascisms and in the ongoing Cold-War context (Moyn, 2018, ch. 4). Thus, the resource-intensive industrial welfare state was created with strong boundaries to sustain the difference in material well-being towards its outside.[6] As a consequence, the claim on the global biophysical resources was limited by sustaining these boundaries.

As decolonization proceeded further and post-colonial states were established, new actors made claims for global solidarity and political responsibility for colonialism (see recently Getachew, 2019). The Asian-African (Bandung) conference of 1955 (e.g., Umar, 2019), the United Nations Conference on Trade and Development (UNCTAD) created in 1964 and the New International Economic Order (NIEO), approved by the UN General Assembly in 1974 (e.g., Gilman, 2015; for part of the debate Marklund, 2020), were key foci for this attempted re-interpretation of global politics. However, these attempts were largely rejected or only formally accepted by the Western powers. Rather, one can observe a gradual process of abdication of political responsibility of the colonizing states for the former colonies, which are more and more charged with taking care of themselves (Karagiannis, 2004). This is reflected, in terms of highly abstract political theory, in the distinction between 'well-ordered societies', within which just institutions exist, and 'burdened societies', towards which the former have only very limited obligations (Rawls, 1971, 1993). By the 1970s, therefore, the divide between the 'First' and the 'Third World' was well entrenched, with the former achieving social and political goals while exceeding planetary boundaries of resource use by far and the latter failing to reach social and political goals while living way below their 'share' of biophysical resources, to employ a language that came into use only recently (O'Neill et al., 2018). The 'First World' had apparently successfully solved its socio-political problems by spatially displacing them to the 'Third World'.

## Displacement in time: Enabling and constraining knowledge

This spatial displacement was paralleled by a displacement in time. The 'resource' permitting this displacement was to be found in knowledge, in particular scientific knowledge of different kinds. The approach was explicitly outlined, as indicated above, in the report *Science: the endless frontier*, which from its title onwards suggested that there were ultimately no resource limits because human ingenuity would in principle be

able to discover or create new resources. During the 'glorious years', two examples of displacement in time stand out, Keynesianism and the 'civilian use of nuclear energy'.

Broadly based on John Maynard Keynes's macro-economic theorizing, demand management through deficit-spending in times of unemployment became the hegemonic approach to economic policy-making in the West from the end of the Second World War to the end of the 1970s. Employment became the key policy variable, and full employment the policy objective, again in the light of the interwar experience that high unemployment could lead to political instability. The basic idea was that unemployment could be overcome by financing public employment programmes through raising the state debt. This meant mortgaging the future, as an English expression has it, but the move was sustained by the calculation that the increase in employment would lead to an increase in tax return. Thus, the repayment of the debt seemed secured, and the imagined future (Beckert, 2016) considered rather certain. In the current context, it should be noted that Keynes himself saw the collective labour power as a key characteristic of a national economy. His reasoning, thus, had a 'material' base, even though – importantly – in people rather than nature in general. Later Keynesianism, in contrast, having merged with neoclassical reasoning, worked with a view of the economy as constituted by interacting flows, without any material roots (see, e.g. Schmelzer, 2016).

As the conversion of an originally military project, the civilian use of nuclear energy followed directly the reasoning of *Science: the endless frontier*. At the heyday of the development of nuclear power stations, it was expected that this innovation would liberate human societies from resource constraints, as small amounts of uranium would supposedly generate abundant electricity at low cost. For some time, this view was widely shared in those societies that embarked on the nuclear-energy path, but opposition mounted from the early 1970s onwards and increased after the major nuclear accidents at Three Mile Island (US, 1979), Chernobyl (Soviet Union, now Ukraine, 1986) and Fukushima (Japan, 2011). In the present context, however, it is less the dangers in operating the power plants that is the key issue, but rather the fact that radioactive waste from them needs to be safely stored for thousands of years. Thus, current decisions commit future societies over periods that completely escape human foresight, and even more so control. Concerns of this kind were raised early, but they were ignored. Even though the amount of biophysical resources needed to generate nuclear energy is tiny, and in addition these resources are not particularly scarce, their usage is a prime example of mortgaging the future, hubristically assuming that the capacity to maintain storage sites can be guaranteed over unforeseeable periods. (In the current context, it should be added that a larger share of nuclear power for generating electricity, as in France, decreases *ceteris paribus* $CO_2$ emissions.)

In both these cases, scientific insights and discoveries were employed for solving social problems. For purposes of action, the knowledge was divided into insights that enable the course of action one prefers, which is selected to guide political decisions, on the one hand, and insights that pose constraints on action, which tend to be sidelined or discarded, on the other. This selectivity came to be a key operating mode for the resource-intensive trajectory of late-20th-century societies.

The report *Limits to Growth* (Meadows et al., 1972), published by the Club of Rome in 1972, was designed to change the attitude towards the knowledge-policy link.

Emerging from the margins of the Organization for Economic Co-operation and Development (OECD), which was the intellectual site to enshrine the economic-growth paradigm (Schmelzer, 2012; more generally Lane 2014), this report aimed at changing the prevailing understanding of scientific knowledge: Rather than endlessness, it emphasized limits. While it was meant to be enabling, the enablement consisted in recognizing and adapting to constraints rather than overcoming them. With hindsight, one can say that the call was heard but not heeded. Subsequent action aimed at turning the report into a self-defeating prophecy, though not by adapting to the limits, but by aiming to discover new sites of biophysical resources and new methods for extracting them. In this sense, the response was quite successful, and the global exploitation of biophysical resources continued unabated, even continued to accelerate in some world-regions. However, this entailed that the problem was displaced from the limited availability of resources to the consequences of resource use, reaching from pollution and environmental degradation to climate change, which came to be the globally most important concern.

A brief anticipatory note on what appears as the epistemic strategy of the IPCC is in order here. Clearly, the IPCC emphasizes boundaries of human activities that should not be crossed and insists that climate change needs to be addressed by mitigation and adaptation. Singling out the connection between $CO_2$ levels in the atmosphere and the maximum permissible increase in temperature serves this purpose. Thus, it aligns with the 'limits' approach of the Club of Rome and is part of the more recent focus on planetary boundaries with a view to providing 'a safe operating space for humanity' (Rockström et al., 2009). Vice versa, it appears to reject the 'frontiers' approach, which sees current limits not as rigid boundaries but as malleable lines that can be transgressed by human power and ingenuity. However, the situation is not as clear-cut as it seems at first sight. Primarily led by economists and welcomed by eager politicians, the notion of 'innovation' is increasingly hailed to show a way out of the climate emergency, even though the claim is empty in substance, as the effective climate impact of the supposed, but not yet known, innovations cannot be named.

## Planetary boundaries and Western deindustrialization: The Asian Great Acceleration

Briefly back to the 1970s before fully moving to the present. Despite the undermining of the Club of Rome's intentions, the 1970s came to mark a transformation in the global pattern of resource use, for several reasons: Even though the notion of resource scarcity was sidelined, the negative impact of resource use on human living conditions became recognized. The 1972 UN Conference on the Environment in Stockholm was the first international step towards this recognition. In parallel, national governments introduced environmental agencies, policies and protection laws. Second, while the developing countries' call for a New International Economic Order was turned down in substance, the decision of the oil-exporting countries to raise the price of crude oil in 1973 and again in 1979 showed that political action on key biophysical resources can have global economic impact, triggering the first postwar recession that affected all Western economies. In relation to both, third, the debate between so-called developing and developed countries shifted towards resource concerns: 'Ecologically unequal exchange' and

'environmental justice' became keywords; and the issue found at least formal acceptance in the principle of 'common but differentiated responsibilities' that should guide global resource and environmental debates further on. Thus, the failure to establish a principle of global political responsibility for material well-being up to the 1970s went along with the gradual emergence of such a principle for environmental and resource matters from the 1970s onwards, in particular since the 1992 UN Earth Summit in Rio de Janeiro, at which the UN Framework Convention on Climate Change was signed. The period from the early 1970s to the early 1990s can therefore be seen as an interim, an extended moment of transformation, which is reflected in the data that were referred to at the beginning: the end of what we may call the Western Great Acceleration in terms of $CO_2$ emissions and the gradual build-up of what should become the Asian Great Acceleration.

Beyond international discourse and debate, namely, we need to consider the material and socio-political underpinnings of this transformation. Looking first from the perspective of Western democratic-capitalist societies, one recognizes a 'problem-squeeze' (adapted from Glyn & Sutcliffe, 1972). Faced with domestic environmental concerns, rising cost for imported biophysical resources, and unmet expectations of further enhanced material well-being, the connection between welfare state and mass loyalty eroded and these polities faced 'legitimacy problems' and a 'crisis of governability' (Crozier et al., 1975; Habermas, 1973). Unable to address this squeeze, governments tried to lower expectations through the discourse that became known as neo-liberalism, while in parallel resource- and labour-intensive production was relocated to other world-regions. These moves improved domestic environmental quality and stabilized $CO_2$ production emissions but divided these societies through rising inequality and increased economic dependence from other world-regions. Looking, in turn, from the perspective of those other world-regions, these moves created economic opportunities, which were increasingly seized, in particular in Asia, enabling the exploitation of apparently cheaper social and biophysical resources in a more closely connected world economy. The second leap of the Great Acceleration, from roughly 1990 to the present and with its core in Asia, can therefore be seen as a regional political response to Western problem displacement given the absence of any globally negotiated solution to either social justice or environmental justice. As we now see clearly, and as was in principle known at the time, this transformation further accelerated global resource use and emissions, to the degree that planetary boundaries of sustainability have been approached and partly crossed.

In other words, when Western societies faced this combined politico-economic-ecological crisis during the 1970s, they tried to address it by the tried-and-tested mechanism of problem displacement. The accumulation of debt as well as the hope for technical fixes for environmental issues were ways of 'buying time' (Streeck, 2014), without though having at hand any credible 'imagined futures' (Beckert, 2016) any longer. In parallel, the relocation of major sections of industry to other world-regions served to reduce local pollution and greenhouse gas emissions as well as to limit the bargaining power of the working-class. The displacement in time gambled on a highly uncertain future, defying the already available knowledge on climate change because of its overly constraining character. In turn, the displacement in space has had two unintended (and possibly unforeseen?) consequences: On the one hand, it enabled economic development

in other world-regions. Thus, global relations of interdependence emerged for which Western societies, accustomed to unquestioned hegemony, were unprepared. On the other hand, this globalization of resource-intensive production and ways of life accelerated climate change and, thus, limited further the option of problem displacement in time.

## Present and future of climate change

The outlook is uncertain but not bright. Given the ever more dire analyses of the IPCC and, probably more importantly, the fact that climate change is more and more experienced in all world-regions including the North, one cannot rule out that governments will start honouring their commitments and rapidly implement decarbonization measures across all walks of production, transport and consumption as well as finally transfer long promised resources from the rich countries to those that do not have the capacity to protect themselves from climate change. But, as Vaclac Smil (2021, p. 290) drily remarked, these are 'promises that yet have to win any election'. It is more likely that, globally, climate mitigation will stall, temperatures will keep rising, and extreme weather events will become more common. In turn, those societies that have significant capacity will place emphasis on climate adaptation measures to protect their own population and, in small addition, give some minimal subsistence help to 'burdened societies', leaving the latter under the 'double exposure' (Leichenko & O'Brien 2008) of material poverty and environmental destruction. We are not likely to face the end of the world within the next century or two, even though such projections also exist. But we will face the end of any prospect of a more just and equal social world, prospects that had been raised with some degree of realistic hope time and again during the past two centuries and a half.

## Towards a social theory *cum* historical political sociology of climate change

In conclusion, the course of the analysis will be retraced in three brief steps: First (1), to summarize the rather complex historical account, a descriptive chronology will be provided. With this aid, second (2), the account can be interpreted in terms of attempts at problem-solving, including processes of problem identification and problem displacement. Finally, third (3), this interpretation will be referred to, and compared with, the existing socio-theoretical approaches to climate change, as set out at the beginning.

(1)

- During the 20th century, Western democratic societies moved to address key problems that it had encountered – economic crises, class struggle, collapse of democracy – by embarking on a development trajectory of increasing fossil-fuel intensity, thus *displacing* the problems outside of their present domestic context: onto other societies; onto nature and the planet; and into the future. This triple problem displacement leads to the *first or Western Great*

*Acceleration* (roughly 1950–1972), with rapid growth of fossil-fuel use in Western countries.

- Such problem displacement resorted to new forms of scientific and technical *knowledge*, but for purposes of action the available knowledge was divided into knowledge that enables the course of action one prefers, namely transgressing existing *frontiers*, which is selected to guide political decisions, and knowledge that poses constraints on action, by pointing to limits and *boundaries*, which tends to be sidelined or discarded.
- This problem displacement entrenched the global divide, in which between-country inequality became much more pronounced than within-country inequality, expressed in distinctions between First and Third World and more recently Global North and Global South. The *energy divide* created a *social divide*, linking resource use, and climate change, intrinsically to global social inequality.
- From the 1970s onwards, international politics increasingly thematized the link between planetary boundaries and global social inequality. Still under Western hegemony, though, the interim outcome is a *shift of attention from social to ecological concerns*, because the latter became increasingly salient also in Western societies, whereas the former did not (yet). None of the two were effectively addressed, as the social objective called 'development' remained opposed to the ecological objective of 'sustainability', only glossed over in the formula of 'sustainable development' (roughly 1972–1992).
- In the absence of any globally negotiated solution, the problem-displacement politics in Western societies created developmental opportunities in other world-regions, in particular in Asia, enabling the exploitation of apparently cheaper social and biophysical resources in an increasingly connected world-economy. This *second or Asian Great Acceleration* (roughly 1990–present) can be seen as a regional political response to Western problem displacement given the lack of any global solution.

(2) The moves of key actors that created these steps towards a fossil fuel-intensive society can be interpreted – in a 'functional' way, broadly understood – as attempts at finding solutions to key socio-political problems, as follows. The take-off of the 'original' Great Acceleration, limited to the West, coincides with the end of the Second World War and the defeat of Nazism. Thus, it occurs at a moment in which socio-political relations are domestically reshaped in many countries and international relations as well, for example, with the end of colonial rule in India and with the beginning of the Cold War. Significantly, this original Western Great Acceleration was most forcefully embarked on in democratic societies after the experience of failure to consolidate democracy in large parts of continental Europe during the first half of the 20th century. This observation leads to one significant conclusion: *The creation of the fossil-fuel regime of the Western Great Acceleration was a response to unresolved political problems of the pre-Second World War era.*

As such, the first or Western Great Acceleration lasted not more than three decades, but it is succeeded, after a brief interim, by the second or Asian Great Acceleration. From this observation one might infer that there has been a trend towards the globalization of the socio-political model created in the West earlier. Or as a general insight: *The politics of Great Acceleration uses the technological possibilities of fossil fuels for the purpose of political consolidation*.

While not entirely invalid, this step would mean jumping to an overly general conclusion. It would mean applying a diffusion model according to which problem-solving arrangements created in one society would subsequently be emulated in others. While in the footsteps of modernization theory, it would underline paradoxes of modernization, namely suggesting that a solution to one problem generates a counter-vailing effect (for a discussion, see Honneth et al., 2022). More in the tone of Theodor W Adorno, we could also speak of negative modernization, in which the negative consequences by far, and disastrously, outweigh the normative gains.

However, such conclusion would take state-bounded societies unproblematically as the unit of analysis, separate and independent of each other, even though driven by a similar logic of modernization. During much of the period in question, though, large regions of the globe were in a dependent status under Western colonial or neo-colonial domination. Even after the creation of the current global institutional set-up of mostly formally equal states, economic, political and ideological power is highly asymmetrically distributed (and the Russian war against Ukraine reminds of the significance of military power). Thus, a comprehensive analysis of climate-changing problem displacement needs to include a consideration of international politics that recognizes both the global power differentials and the agential capacity of existing states. From such an angle, one can understand how a world-region can first be a site towards which problems were displaced and subsequently become the site where increasing state capacity can lead to reducing, if not yet entirely eliminating, power differentials with the West.

The prime – but not only – example for such a world-region/state is China. A look at the combination of resource and emissions exchange between China and Western societies from the 1980s to present can show both why the West decelerated and Asia started to accelerate during the same period. The coincidence of these two changes suggests that Asian societies did not just happen to emulate Western ones at this moment, but that there was a fundamental shift in global constraints and opportunities. Thus, the general conclusion that fossil-fuel intensity has been increased for the purpose of political consolidation remains valid, including *mutatis mutandis* for China. Given the post-Second World War 'world order', however, this initially Western strategy *deconsolidated* a highly hierarchical global political constellation, dominated but not controlled by the West. Or, more briefly, *domestic consolidation was reached at the price of international deconsolidation, and both at the expense of endangering the living conditions on the planet.*

(3) Finally, introducing more explicitly considerations of hierarchy and power differential will make it possible to relate this interpretation to the more common

socio-theoretical approaches to climate change. Western societies in the early-19th century were rather hierarchical with the sources of authoritative power concentrated in a small part of the population, including capitalists, but also aristocrats (with the exception of North America) and state officials. Given this hierarchy, the dominant elites could reap the resource benefits from exploiting the first vertical frontier in Europe and the horizontal frontier of plantation agriculture in America without ceding significant amounts of resources to the majority of the population. This social configuration, therefore, contributed relatively little to climate change. However, the situation changed with the increasing political power of the majority population in Western societies from the late-19th century onwards, visible in effective demands for material resources in terms of 'the social question' and for political resources in terms of suffrage extension. The dominant elites ceded somewhat to these demands, visible in slightly rising $CO_2$ emissions, but kept showing considerable resistance, leading in some countries to the destruction of the just emerging democratic institutions. After the Second World War, the elite view was that a repetition of such collapse should be avoided. The complex mechanism to achieve this consisted in: providing material well-being to the population in the metropoles; extracting fossil fuels through the second vertical frontier for this purpose at low cost; and maintaining the boundaries to the population in the colonies and, internally, to the majority in the 'settler societies'. This new global regime led to the Great Acceleration in $CO_2$ emissions, but over the medium-term it transformed the issue from a domestic one to one of global international politics. At this time, Western societies were internally based on formal equality, and the elites' power of problem definition was limited by the diffuse power of democratic political participation. Externally, the economic and military superiority of the West was still intact in the late-20th century, but its political and ideological superiority had declined in the wake of full decolonization and the greater assertiveness of regional powers such as China, India and Brazil. Under social and ecological domestic pressure, the Western elites de facto enabled the rise in economic power of non-Western states in a further attempt at problem displacement.

It may be noticed that the term 'capitalism' hardly appeared in the preceding paragraph. This is not meant to deny that much of what is described happened under what one can call 'capitalist conditions'. Importantly, a component of the dominating group is well characterized as 'capitalists'. However, theorists of capitalism tend to assume that everything is affected by 'capitalism' once the overall 'conditions' are capitalist. In turn, our argument is that the use of fossil fuels, though partly promoted by private enterprises (not exclusively, see, e.g. public electric utilities or railways), was increased due to pressures from the majority population under increasingly democratic conditions, and this in particular after the Second World War. Still, the key decisions were taken by elites, including capitalists, as the diffuse political power of the citizenry rarely takes decisions of such a kind; and citizens did not ask for more fossil fuel. However, they were taken as what was perceived as a suitable response to citizen demands without endangering the elite status. Thus, what is operating here is a logic of

democratic politics.[7] From the 1970s onwards, citizen demands in the West increasingly integrate ecological concerns without though abandoning social concerns. Democratic politics becomes an ever more difficult balancing act, in which displacements of all three kinds become more common. But displacements also become more difficult because of the rising power and resistance of states in other world-regions. Thus, a logic of international politics enters into the analysis, in addition to the logic of domestic democratic politics. Again, it does not seem helpful to delegate all explanatory force to a concept of 'global capitalism'. Chinese businesses operate successfully on global markets following the rules of global trade agreements, but they do so under tutelage of the state. At international climate negotiations, therefore, the Chinese government cannot plausibly be seen as the mere executive committee of a supposed Chinese bourgeoisie, but rather as a political actor with its own concerns.

What then about material well-being as the 'driver' of climate change, as in some way suggested by critical theories of modernity? Inhabitants of New Delhi may well need private air-conditioning in their housing to avoid suffering from heat, and they may use the first occasion to install one, despite the fact that air-conditioning further heats the air of the city as well as contributing to general climate change (Chakrabarty, 2021, ch. 4). However, observations of this kind hardly lead to the conclusion that the quest for enhanced material well-being brought 'modern' societies on the trajectory of increasing fossil-fuel intensity. Across the 19th and much of the 20th centuries most human beings, arguably, were concerned about material well-being in terms of avoiding scarcity, in particular of food and shelter, which can be decently reached with limited biophysical resources in most circumstances. For the resource-intensive consumer society, which we know today, to emerge, an extended chain of political and economic decisions was required, which were driven by the perception of problems reaching from capital accumulation to citizen dissent, as outlined above, and in which the experience of scarcity played a limited role.[8] It is significant that abundance and freedom have been connected in the history of European political thought, but rather than seeing this connection as straightforwardly confirmed by the problematical rise of the resource-intensive society, we need to underline its contingent emergence and its tenuous nature. As it has turned out, some stories of the house of modern freedoms have been built on fossil fuels, but not by necessity. Other forms of freedom were and are possible (Baucom, 2020, p. 49; Charbonnier, 2020, p. 419).

In other words, concepts of freedom, material well-being, and of capitalist power asymmetry are all relevant for understanding the rise of our resource-intensive societies that have generated climate change. But in the way they are deployed in current social theory they are insufficient because they neglect or at least underestimate the human capacity to re-interpret their situation in the light of problems, and the logic of politics in socio-ecological transformations, both democratic domestic politics and international politics, part of which is collective work at re-interpretation. May this be considered as an invitation for further debate.

## Acknowledgements

I would like to thank Angelo Pichierri and two anonymous reviewers for comments that have helped me to make the reasoning clearer.

## Authors' Note

Peter Wagner is also affiliated with University of Central Asia.

## Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## ORCID iD

Peter Wagner https://orcid.org/0000-0003-4416-718X

## Notes

1. As a shorthand, the term 'Western' (from now on without inverted commas) is used here to refer to societies whose economies industrialized from the 19th century onwards, mostly located in Western Europe and North America.
2. Niklas Luhmann (1970) used the term 'problem displacement' (*Problemverschiebung*) as a general expression for the process of making problems manageable, drawing on organization studies.
3. Stephan Lessenich (2019) used the term 'externalization' for the way in which Western societies deal with the globally negative side effects of their way of life.
4. A fuller conceptual elaboration is maybe desirable, but until now we have preferred to elaborate the concept further by using it (first in Wagner, 2016, subsequently already with regard to climate change as well as the recent pandemic in Wagner, 2020 and 2022). The term has also been used by Pineault (2021) in an article that forms part of a recent special issue of *Anthropological Theory* (Reitz et al., 2021) on growth politics in Western societies (see also Blühdorn, 2021; Eversberg, 2021) and more loosely by Charbonnier (2020, pp. 49, 382).
5. A key question across different approaches has been whether the situation in other regions mirrors the one of the West, possibly with a time-lag (critically discussed by Chakrabarty, 2021, ch. 4); deviates from it either for institutional reasons (Acemoglu & Robinson, 2012) or through systemic dependency (as in world-systems and dependency theory); or shows a parallel yet entangled trajectory (Mota & Wagner, 2019).
6. The need for brevity precludes nuance. Let it just be noted that these boundaries have not always been state boundaries. Apartheid South Africa created a welfare state for the White minority only; and the US had colonial features through the way it segregated its native American and African-American population from the WASP citizenry. See Korzeniewicz (2018, pp. 21–22) for a reflection on the setting of boundaries to maintain welfare differentials, going back to Adam Smith.

7. Some of these issues can fruitfully be analysed with regard to the relation between democracy and capitalism (Streeck, 2011; Wagner, 2011). However, this should be done in terms of the different sources of power that are or can be mobilized, not under the assumption that the logic of capital always prevails, or at least always prevails in the long run.
8. Brand and Wissen's analysis of the 'imperial mode of living' (2017) merits a brief separate discussion, not least because the approach may, at first sight, seem to overlap considerably with the account given here. While firmly based in the critical theory of capitalism, it has the merit of focusing on the benefits that a capitalist economy provides to those who participate in it, in the form precisely of the 'imperial mode of living', and this without resorting to concepts such as 'false consciousness' or 'mass loyalty'. At first, because of the term 'imperial', the reasoning appears as an analysis of displacement of a problem in space, resembling Lessenich's 'externalization' argument. At closer reading, though, it rather considers the 'imperial mode of living', once it exists in one place, as diffusing across the globe because of its attractiveness. There may be some validity to such analysis in our current era of global commercial mass communication, but much less so for earlier historical periods, up to even the middle of the 20th century. From our angle, the absence of any political analysis is striking. Capitalism and the 'imperial mode of living' appear to move hand in glove, without any connection through political decision. Paradoxically, Brand and Wissen's apparent generalization of the 'wish for a fundamentally better life' (p. 94) and the 'possibility of a materially more comfortable life' (pp. 108–109) brings their interpretation close to Chakrabarty's connection between modern freedoms and fossil fuels – paradoxically, because, in contrast to Brand and Wissen, Chakrabarty downplays the role of capitalism in this process.

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## Author biography

**Peter Wagner** is Research Professor of Social Sciences at the Catalan Institute for Research and Advanced Studies (ICREA) and at the University of Barcelona. Currently, he is also lead investigator in the research cluster "Modernity in Central Asia: society, identity, environment" at the University of Central Asia.