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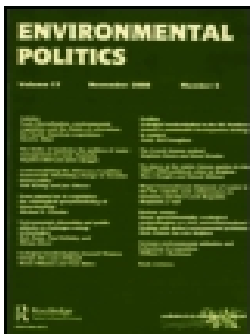
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The environmental state and the glass ceiling of transformation

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ABSTRACT
What are the capacities of the state to facilitate a comprehensive sustainability transition? It is argued that structural barriers akin to an invisible 'glass ceiling' are inhibiting any such transformation. First, the structure of state imperatives does not allow for the addition of an independent sustainability imperative without major contradictions. Second, the imperative of legitimation is identified as a crucial component of the glass ceiling. A distinction is introduced between 'lifeworld' and 'system' sustainability, showing that the environmental state has created an environmentally sustainable lifeworld, which continues to be predicated on a fundamentally unsustainable reproductive system. While this 'decoupling' of lifeworld from system sustainability has alleviated legitimation pressure from the state, a transition to systemic sustainability will require deep changes in the life-world. This constitutes a renewed challenge for state legitimation. Some specula-tions regarding possible futures of the environmental state conclude the article.

KEYWORDS Environmental state; transformation; sustainability; decoupling; transition barriers; legitimation

Introduction

In the first half century of its existence, the environmental state has pursued a rather selective agenda: in the domestic realm, many of its activities and measures have been impressively effective, resulting in the maintenance or improvement of environmental quality in several advanced industrialised countries – notably in Western Europe – despite enormous increases of economic activity. On the systemic level of the global biosphere, however, environmental states around the world have not reduced but massively increased the negative impact of their production and consumption activities (Steffen *et al.* 2015, Fritz and Koch 2016). That way, citizens of many environ-mental states have come to enjoy both, a relatively safe, healthy and clean environment as well as a lifestyle of high consumption, mobility and material abundance that proves to be spectacularly unsustainable. Thus, the state seems to have fulfilled a double function of protecting many of its citizens from direct

environmental harm *and* of protecting their material standard of living (with numerous problems of environmental inequality and injustice still remaining); but it has failed so far to alleviate those environmental burdens that are dispersed in time and space and whose negative effects are mediated through several ecosystemic feedback loops (Raymond 2004). The prime example of that category of burden is the emission of greenhouse gases, which usually do not harm anyone at the source directly, but whose negative effects return to the emitter (and everyone else) with long delays in the form of potentially catastrophic climate change. Other (and systemically related) examples include the rapid loss of biodiversity, the acidification of the oceans and the derailment of the global cycles of nitrogen and phosphorus (Rockström *et al.* 2009).

However, it is these global and systemic environmental consequences of human activity that pose the greatest challenge to humanity today and that may become a matter of survival for our species (Hamilton 2010). It becomes ever more apparent that meeting this challenge will require substantial societal transformations that go deeper than the securing of *environmental quality* in wealthy societies or the relative decoupling of environmental impact from economic growth. Instead, a near complete elimination of fossil carbon from human activity and a massive reduction of overall environmental throughput are required. Consequently, states today are charged with the task of facilitating what is variously called a *low-carbon transition, sustainability transition* or *socio-ecological transformation* of society (Foxon 2011, Geels 2011, Haberl *et al.* 2011). The important question to ask is thus whether they have the capacity and ability to initiate and steer transformations of that kind or if their transformative capacities are structurally constrained to a certain type of environmental reform that is unlikely to bring about deep socio-ecological change. Put differently, what are the chances of the real existing environmental state to develop into a fully-fledged 'sustainable' or 'green' state that makes the socio-ecological transformation of society one of its core imperatives and that has the means, capacity and legitimacy to carry out this role? Does the green state logically follow from the environmental state in terms of a gradual intensification or expansion of its eco-political agenda, or is there a more fundamental barrier between the two, a categorical difference that rules out that sort of developmental logic? Finally, has the environmental state so far perhaps even helped to *entrench* and *sustain* a type of society that is fundamentally unsustainable? What, then, would be the *prospect* of a purposive socioecological transformation to occur?

I aim to show that the further transformation of the environmental state is indeed curtailed by an invisible yet effective structural barrier that I call the 'glass ceiling of transformation'. I use the 'glass ceiling' metaphor outside of its original context, where it denotes a set of 'barriers to the advancement of minorities and women within corporate hierarchies' (U.S. Glass Ceiling Commission 1995). Like in the original context, the metaphor here refers to

a type of barrier that is invisible, unacknowledged and without legitimation. Whereas the original usage of the term connotes the structural *consequences* of gendered or racialized forms of *power*, however, the glass ceiling of socio-ecological transformation, I contend, has its origin at the level of the very *structures* of the modern state itself, which emerged in tandem with and as the institutional vessel of the fossil energy system.

The glass ceiling I aim to describe here is not absolute in terms of numbers such as tons of greenhouse gas emissions or species lost. Rather, it imposes a certain *trajectory* of change and inhibits other forms of change that might be necessary for structural transformation to happen. The glass ceiling should thus be understood as a system boundary that may be shifted within certain dynamic parameters but not transgressed without first changing the underlying structure and identity of the system itself. I explore the glass ceiling of transformation in three steps. In the next section, I rebut the widespread assumption in the literature on the environmental state that a further greening of the state were possible through the emergence of a 'sustainability imperative'. In section three, I develop the argument that the glass ceiling is associated with problems of state legitimation leading to a systemic separation of 'lifeworld' from 'system' sustainability. Section four substantiates the concept of the glass ceiling in more empirical-historical terms, while the concluding section speculates about ways to overcome the glass ceiling of transformation.

The impossibility of a 'sustainability imperative'

In past decades, environmental management and conservation policy have entered the core of state activity in advanced industrial democracies. Environmental management today 'is recognised as a fundamental part of what a civilized state should do' (Meadowcroft 2012, p. 67). This recent transformation of the modern state is interpreted as the emergence of the 'environmental state' (Mol and Buttel 2002, Duit *et al.* 2016), which Duit *et al.* (2016, p. 5–6) define as 'a state that possesses a significant set of institutions and practices dedicated to the management of the environment and societal-environmental interactions', like environmental ministries and agencies, framework environmental laws and dedicated budgets.

Scholars tend to draw a distinction between the empirically existing 'environmental state' and what they variously call the 'green state', 'eco state' or 'sustainability state' (Eckersley 2004, Meadowcroft 2005, Heinrichs and Laws 2014). While the former describes an immanent response of the state to environmental pressures within its territory, the green state is a normative-prescriptive concept exploring the possibility of a state that actively facilitates a societal transition toward strong and comprehensive ecological sustainability, including the possibility of granting precedence to ecological sustainability over economic growth. Crucially, the green state 'must be concerned explicitly

with *keeping patterns of consumption and production within ecological limits*'
(Meadowcroft 2005, p. 5, original emphasis), and thus with realigning its entire
socioeconomic activity with some absolute material boundaries. While the
environmental state has been focusing on greening the 'supply side' of capit-
alism by seeking 'more environmentally efficient ways of expanding output',
the *green state* would need to tackle the 'demand side' to reduce the flows of
energy and matter that are being processed and consumed (Barry and
Eckersley 2005, p. 262). This would most probably involve interfering with
deeply engrained notions of consumer sovereignty, choice, lifestyles and iden-
tities, and constitute 'a challenge that no state or society has adequately even
begun to address' (Barry and Eckersley 2005, p. 262).

It may come as a surprise, then, that much of the scholarship on the
environmental state deems possible the gradual transformation of the envir-
onmental state into a more comprehensively *green* state or *eco-state*, which
would make a socioecological transformation of society one of its core func-
tions (Meadowcroft 2012; e.g. Dryzek *et al.* 2003). The green state, these
authors seem to suggest, could *evolve* out of the environmental state: 'If the
maxim of the first phase of the environmental state was "clean up pollution and
protect the environment", and that of the second phase has been "promote
sustainable development", then the new motto needs to be something like
"transform societal practices to respect ecological limits"' (Meadowcroft 2012,
p. 77). Scholars adhering to this evolutionary model of the green state tend to
base their argument on the concept of 'state imperatives', which they derive
from historical institutionalism (Skocpol 1979, Tilly 2009), and from post-
Marxist state theory (e.g. Offe 1984). Dryzek et al. define state imperatives 'as
the functions that governmental structures have to carry out to ensure their
own longevity and stability (2002, p. 662–663)'. Historical institutionalists have
identified three imperatives that characterized the early modern, absolutist
state: to keep internal order, to defend against external threats and to raise the
resources to finance these first two tasks (2002, p. 662). Since then, the modern
state underwent two major transformations, each of which was associated with
the addition of another imperative.

First, with the rise of the bourgeoisie and its growing economic base, the
imperative of economic growth (or accumulation) emerged and transformed
the absolutist into the liberal capitalist state. The second transformation came
in reaction to the struggles of an organised working class, which threatened to
undermine the stability of the state. Thus, the liberal capitalist state was forced
to democratise and to provide social welfare 'to cushion the working class
against the dislocations of capitalism'(2002, p. 662). The resulting democratic
welfare state is associated with another, fifth, imperative, which post-Marxists
(e.g. Offe 1984) call the imperative of (democratic) *legitimation*. Legitimation
here means that under conditions of universal suffrage the state – and in
particular, the elected legislative and executive powers – are accountable to

the entire citizenry and need to further some kind of publicly mediated common good that exceeds the narrowly defined interests of private capital accumulation. Meadowcroft *et al.* (2012, p. 6), accordingly, call it the 'electoral politics imperative'. Together, these five imperatives – domestic order, external competition, revenue, economic growth and legitimation – define the core of the modern *democratic welfare state.*

This narrative of a gradual evolution of the state is attractive to scholars of the green state as it suggests the possibility of a further transformation through the addition of yet another state imperative. In their book *Green States and Social Movements* (2003), Dryzek *et al.* argue that the addition of new imperatives has always been the result of social classes or movements struggling for inclusion in the state. They were successful to the extent that they were able to link their 'defining interest' to an existing state imperative – such as the bourgeoisie linking their interest in profit accumulation to the imperative of state revenue and the working class aligning their interest in economic inclusion with the bourgeois imperative of accumulation. Consequently, Dryzek *et al.* (2002, p. 679) speculate that 'an emerging connection of environmental values to both economic and legitimation imperatives to constitute a green state with a conservation imperative could constitute a development *on a par* with two prior transformations of the modern state' (emphasis added). They base their hope on the empirical observation that environmental movements have already been able to push the capitalist welfare state to incorporate some core environmental tasks into its structure and to evolve into the *environmental* state. But does this observation warrant any confidence in its further transformation into a fully-fledged *green* state? I see two fundamental problems with this idea:

First, the logic of state imperatives is *cumulative* and does not permit fundamental contradictions. A new imperative can be added to the existing structure only if it can be made compatible with it in that its operation can be reconciled with the operation of the others. The accumulation imperative could be attached to the pre-existing state structure despite its revolutionary potential that enthroned the bourgeoisie and ended feudal rule, because it was ultimately reinforcing the pre-existing state imperatives through the generation of revenue. Likewise, the legitimation imperative could be added despite its disruptive potential precisely because and to the extent that it could be operationalized in a way that helped reproduce the conditions of accumulation (e.g. the Fordist welfare regime). Previous transformations of the state thus *expanded* state functions rather than *replacing* them. Accordingly, Gough (2016) speaks of a 'layering' rather than a transformation of state functions in that new functions are layered on top of pre-existing ones, amalgamating with them to form a new overall identity of the state. Importantly, the historical expansion of state functions through the layering of imperatives has invariably expanded and accelerated societies' metabolism, that is, their throughput of

(fossil) energy and natural resources (Krausmann *et al.* 2018). While the rise of the accumulation imperative was associated with the Industrial Revolution and thus with the age of coal, the legitimation imperative has been intimately tied to the age of oil and gas, which took off with the normalisation of consumerism and automobility in the democratic welfare state (Mitchell 2011, Pichler *et al.* 2020). Since the late 1940s, the Fordist mode of welfare capitalism (Aglietta 1979) has led to the 'Great Acceleration' of energy and resource use in industrialised countries, which some argue marks the beginning of the Anthropocene (Steffen *et al.* 2015). Ever since, the social metabolism of democratic welfare states has remained on a dramatically unsustainable level, which no environmental policy so far has been able significantly to reduce (Bonneuil and Fressoz 2017). The modern state has arguably co-evolved with the fossil energy system in that the availability of cheap, dense, abundant and readily available energy carriers was a precondition for both prior transformations of the state (Mitchell 2011, Hausknost 2017b).

Any putative sustainability imperative to be added would have to *revert* the historical trajectory of socio-metabolic expansion *without* entering into blatant contradiction with the existing imperative structure. It would have to pursue a near total decarbonisation of modern society, the halting of rapid biodiversity loss and the realignment of critical planetary biogeochemical systems without at the same time inhibiting the imperative of accumulation and the legitimation function of the democratic welfare state. Strategies of economic degrowth, sufficiency, and frugality, on the other hand, would tend to openly contradict the functional requirements of the state, as measures that lead to reductions in consumption, production and – by implication – employment and state revenue are toxic for all but the sustainability imperative (Hausknost 2017a).

To be sure, the cumulative structure of imperatives rarely works in perfect harmony, but is subject to the frequent emergence of *partially* contradictory developments, like the contradiction between the financially expansive legitimation imperative and the revenue imperative (which is one of Offe's 'Contradictions of the Welfare State' (1984)). These latent internal contradictions, however, are usually controlled and reconciled 'through various adaptive mechanisms of the system' (Offe 1984, p. 133) that are rooted in democratic parliamentarianism and in corporatist bargaining structures. However, these adaptive mechanisms would cease to work if one imperative *fundamentally* obstructed (one of) the others: while the legitimation imperative ultimately enhanced accumulation despite secular tensions and could thus be added to the structure, an imperative geared toward a *shrinking* economic system based on principles of sufficiency and frugality, for example, might constitute a fundamental contradiction that is not reconcilable with the pre-existing structure.

This first approximation of the glass ceiling of transformation thus reveals a rather rigid and narrow corridor of change a sustainability imperative

would have to navigate: it would inescapably have to remain within the paradigm of *ecological modernization,* which seeks to environmentally reform and optimize the processes of accumulation without disrupting or slowing them (Mol *et al.* 2010). The only available strategy of reducing the systemic unsustainability of society's metabolism within this paradigm is the attempt to 'decouple' economic growth from environmental impact by further increasing the resource and energy efficiency of the economy (UNEP 2011, Ward *et al.* 2016). In a growth-based system, however, efforts of decoupling underlie intractable rebound effects which have so far largely prevented an absolute decoupling of systemic parameters like carbon emissions and ecological footprints from production and consumption activities (Herring and Sorrell 2009, Fritz and Koch 2016). Indeed, there is accumulating evidence that an absolute decoupling of environmental impact from a growing economy at the pace required to achieve relevant sustainability goals is empirically not observable and theoretically implausible (Kemp-Benedict 2018, Schandl *et al.* 2018). The concept of an additional 'sustainability imperative' therefore remains intimately tied to the empirical reality of the environmental state with its limited transformative potential. Any deviation from this path would be likely to destabilize the very structure of the modern state.

The argument so far has certain similarities with the theory of the 'treadmill of production' (Schnaiberg 1980, Schnaiberg *et al.* 2002), which equally posits that the imperative of economic growth in capitalist societies structurally prevents a substantive transformation towards sustainability. However, the political economy of the *treadmill* grants explanatory priority to the logic of the firm, profit interests and power elites. It is concerned with a broadly Marxist conception of the accumulation imperative driving the treadmill and with corporate interests preventing a real greening of society. The theory of the *glass ceiling* put forward here, by contrast, assumes a somewhat more complicated relationship between the imperative of accumulation and that of legitimation. While the *treadmill's* explanatory logic is that of capital and thus *production*, the *glass ceiling* takes into account the legitimating and stabilizing function of high levels of *consumption*, and thus a structural tendency of modern societies (capitalist or otherwise) to develop a social metabolism that is ecologically unsustainable. There is a complicity of the accumulation and legitimation functions in the modern state, which blurs the convenient distinction between capital interests and 'society'. While acknowledging the role of vested interests and incumbent (fossil) power elites in inhibiting deep socio-ecological change, the glass ceiling perspective put forward here suggests an even deeper relationship of industrial societies with structural unsustainability that has to do with patterns of state legitimation requiring high levels of material welfare and an orientation toward economic growth. Put differently, getting rid of existing power elites alone would not necessarily lead to an ecologically more sustainable society.

My second objection to the possibility of a strong sustainability imperative is a logical implication of the first. I contend that within the logic of cumulative state imperatives it is implausible to assume that there could be *any* new addition of imperatives *beyond* that of democratic legitimation. Instead, the logic of imperatives is *completed* with that of legitimation, since legitimation is the *form* that subsumes all conceivable *contents* in terms of particular social demands. Put differently, any new social movement or demand on the state would have to be voiced *through* the imperative of legitimation and would ultimately remain a *function* of legitimation. As I will argue below, the emergence of the environmental state in the second half of the 20th century was an effect of the state's legitimation imperative and not the sign of a new, *independent* imperative to emerge. The environmental agenda of the contemporary state is a response to legitimation pressures and to growing risks with regard to continued accumulation. Within the self-referential logic of state imperatives, it can have no *external* point of reference that would bind the state to a certain behavior. The crucial question then becomes to what extent the legitimation imperative itself functions as a source or an inhibitor of transformative change . It is to this question that we now turn.

Locating the glass ceiling: lifeworld and system sustainability

In order to conceptualize the glass ceiling of transformation, I rely on an analytical distinction between *lifeworld* and *system* sustainability, in a loose analogy with the original Habermasian distinction (Habermas 1988). The phenomenological concept of the lifeworld captures a 'pre-theoretical, subjectively constituted world of perception' (Dietz 1993, p. 20, my translation). It is the world of praxis, of the everyday, of the perceptible. The lifeworld is the realm where the intersubjective construction of meaning, culture and identity takes place within a material world of experience; it is the individual's *horizon* of relevant action and communication (cf. Husserl 1954). Thus, the lifeworld is our material and cultural habitat, so to speak. Legitimation crises, Habermas points out, are always crises of the lifeworld. They occur when the textures of meaning, identity and institutional routine become ruptured. The lifeworld is thus the relevant domain of action for state legitimation.

In a conscious deviation from the established meaning of sustainability, I therefore propose to define *lifeworld sustainability (LWS)* as a subjectively desirable and comfortable state of the lifeworld. This typically involves the dimension of *material abundance* and *well-being* (often represented through monetary income and opportunities for consumption and individual mobility), as well as the dimensions of *social security* and cultural stability, including the typical health, education and social insurance provisions of a modern welfare state and the sustained reproduction of patterns of culture and identity. But it may also include, as we will see, aspects of *environmental*

quality like clean air and water, safe and affordable food, the absence of toxic substances in the immediate lifeworld and sufficiently large and diverse stretches of preserved 'nature' for recreational purposes. Finally, LWS also requires a sense of moral and rational consistency of the intersubjective structures of meaning, that is, the sense that the desirable lifeworld *can* and *should* be sustained.

System sustainability (SYS), by contrast, refers to the objective biophysical planetary conditions under which a given socio-economic regime *can* be sustained in the long run. SYS would be achieved, for example, if the climate goal of keeping global warming below 1.5°C by 2100 were achieved, the rate of global biodiversity loss reduced to a level near the pre-industrial background rate, oceanic acidification halted and the social metabolism of industrial societies downsized to fit within the known 'planetary boundaries' (Rockström *et al.* 2009) of human activity in the biosphere. The *system* in this definition denotes the complex biophysical interactions that connect socioeconomic activities on all scales with natural processes on the planetary level, such as the climate, water, nitrogen, phosphorus and other cycles (Bonneuil and Fressoz 2017). In a deliberate deviation from the Habermasian distinction of lifeworld and system, SYS here denotes the sustainability of the biosphere within scientifically and ethically defined parameters that ensure the long-term survival of humankind without further significant losses of non-human species beyond background rates.

The analytical distinction between LWS and SYS offered here serves to elucidate the functional logic of the environmental state and its limits. LWS and SYS are systemically related in a way that pushes the state to enact certain forms of change while avoiding others. Let me briefly sketch their relationship:

- *LWS is the politically decisive dimension, whereas SYS is the ecologically decisive one (at least on a planetary scale).* Since the democratization of the capitalist state and its transformation into the democratic welfare state, state legitimation has been dependent to a large degree on governments' ability to improve the living conditions of the electorate and thus to improve and enrich their lifeworld (Offe 1984). Environmental issues become politically salient to the extent that they become visible as a threat to the electorate's lifeworld. SYS, by contrast, is a scientific and ethical standard that does not *as such* have any political weight.
- *Systemic unsustainability becomes politically salient only if and when it encroaches upon the lifeworld, that is, when its effects endanger LWS.* In that sense, the increasingly noticeable effects of climate change in the lifeworld of citizens may lead to a certain empowerment of the environmental state to take action beyond the status quo.
- *However, state action in pursuit of SYS that would itself negatively affect LWS, for example in terms of loss of social security, income or*

> opportunities for employment, consumption and mobility, is blocked through the state's functional allegiance to LWS. This means: if environmental action does not improve but in fact deteriorate the subjective quality of the citizens' lifeworld, it is politically very unlikely to be taken.
> - Consequently, the state can pursue SYS only in accordance with its functional commitment to LWS, that is, in a way that is perceived as a relative improvement of the lifeworld and not as a deterioration thereof.
> - To the extent that the pursuit of SYS requires transformative action that would be perceived as a threat to the quality of their lifeworld by substantial parts of the electorate, state action is severely curtailed. Hence the glass ceiling of transformation.

The upshot of this logic is that the standards of SYS have no *direct* relevance for state action, if they are not in accordance with the existing imperatives of the state. Only when they are mediated through the lifeworld can they mobilize state action under the legitimation imperative. State action pursuing SYS but contradicting LWS is highly improbable.

This reading suggests that the environmental state emerged as a systemic effect of the legitimation imperative in response to environmental pressures in the lifeworld and that it remains functionally tied to the logic of legitimation and not of 'objective' SYS. As a result of pressure from environmental movements and the wider public sphere, the state started to alleviate the legitimation pressure from the environmental lifeworld domain by erecting the institutional infrastructure to combat problems like air and water pollution, forest dieback, toxic chemicals in the food chain and other 'environmental hazards'. In doing so, it saved the quality of the lifeworld of many citizens from further degradation or even improved it from a previously degraded state – without at the same time reducing economic expansion, material affluence and consumption opportunities. The state *saved* the industrial lifeworld by environmentally reforming it. This portrayal of the environmental state's successes in sanitizing its citizens' lifeworld, however, should not be read as an attempt to gloss over the persisting inequalities in the distribution of environmental burdens *within* industrialised countries. States never improved *everybody's* lifeworld – there are numerous instances where environmental risks have been shifted to poor neighborhoods, communities of colour or indigenous communities, notably in North America (Martínez Alier 2002). The overall strategy of the environmental state, however, was to release legitimation pressure by improving the environmental quality of the lifeworld of strategically relevant segments of society.

At the same time, the contribution of environmentally reformed industrial societies to systemic *un*sustainability continuously increased – in the form of greenhouse gas emissions, total resource and energy use and contributions to deforestation and biodiversity loss in other parts of the world. The systemic *un*sustainability of industrial societies had been gradually 'decoupled' from the

sustainability of their lifeworld in that the state 'greened' domestic production while at the same time fostering consumption and economic expansion. The carbon emissions, deforestation, ocean acidification etc. that is caused by domestic consumption does not negatively affect the industrial lifeworld – to the contrary, it is the *invisible and intangible* side effect of what is considered an integral and indispensable part of a modern lifeworld. The seemingly paradoxical consequence is that the environmental state has *entrenched* and *fortified* the systemic *un*sustainability of industrial capitalism in that it separated the trajectories of LWS and SYS.

Underneath the glass ceiling: stages of the environmental state

Building on the historical periodization suggested in Meadowcroft (2012), I propose the following model, consisting of three stages of the environmental state (see Table 1). While stage 1 focused on the securing of LWS and was characterized by policies of pollution control, stage 2 was characterized by the attempt to tackle systemic *un*sustainability by means that were compatible with accumulation and legitimation. That stage saw a marked decoupling of the trajectories of LWS and SYS and could be characterized as 'living well in an unsustainable world'. The third stage, which has arguably just begun, is dedicated to the transition toward SYS; it is at this stage that the environmental state appears to hit the glass ceiling of its transformative potential.

Stage I: pollution control

In the 1960s, after two decades of explosive economic growth, the environmental consequences of the newly established consumer society started to backlash on many citizens' lifeworld. Phenomena like forest dieback, poisoned rivers, smog and toxins in the food and water supply made the sense of progress turn sour and became acute legitimation problems for democratic states. In a climate of anti-systemic critique pervading that decade, the environmental movement emerged as a political force, building on the

Table 1. Three stages of the environmental state.

Environmental State	Agenda	Focus Domain	Outcome
Stage I *c. 1965–1990*	Pollution control	Lifeworld	Success: lifeworld sustainability System challenges evaded
Stage II *c. 1990–2010*	Sustainable development	Lifeworld (+ System)	*Entrenched* lifeworld-sustainability; *decoupling* of lifeworld from system; system challenges tackled ineffectively
Stage III *c. 2010-*	Socio-ecological transformation	(System)	Glass ceiling; only such action possible that does not revert lifeworld sustainability; transition inhibited

perceptible phenomena of ecological decay to launch a much broader attack on capitalist industrialism as such, which it perceived as self-destructive and unsustainable (cf. Dryzek *et al.* 2003, p. 58). The states thus challenged responded in a way that aimed at alleviating legitimation pressure: they enacted a wave of environmental legislation dealing with environmental problems in the *lifeworld* like air and water pollution; they built up the institutional capacity to manage these problems in the long-term und thus started to erect the environmental state. The focus was on pollution control and environmental management through technological solutions and regulation (Fiorino 2011, Meadowcroft 2012). The success of this first phase was significant: within two decades, the lifeworld of industrial societies was ecologically sanitized and refurbished to a large degree. The state showed that it *could* deal with environmental burdens and that such problems are solvable within a growth-based capitalist society. The result was a lifeworld experience that contained and unified *both*, a consumerist and expansive economic model and a relatively clean, safe and healthy environment. Issues of systemic *un*sustainability were still present in the public sphere in debates on the 'Limits to Growth' (Meadows *et al.* 1974) or the 'Gaia hypothesis' (Lovelock 1979), but the state's success in 'greening' the lifeworld managed to disconnect them from the legitimation pressures of the lifeworld. That way, the systemic dimension of sustainability became ever more depoliticized, as its links to the lifeworld of citizens weakened and as managerial environmentalism proved its ability to change things for the better. In line with this process, many environmental movement organisations switched their focus from systemic to lifeworld environmental issues, where they could gain popular and political influence in solving concrete environmental problems (van der Heijden 1997). Their role changed from being the intellectual vanguard of a systemic critique of industrial capitalism, to gaining and utilizing expert knowledge for environmental reforms. Political influence and inclusion into the new environmental state could only be gained by offering solutions to real-world problems; or, as a German federal official of the time put it, '[t]o have a reasonable concern means to have a proposal to solve a real problem' (quoted in Dryzek *et al.* 2003, p. 85).

Stage II: sustainable development

Systemic challenges did not disappear, however. During the 1980s, the issue of anthropogenic climate change emerged on the agenda, pictures of burning rain forests and stories about holes in the ozone layer unsettled the public and the nuclear disaster of Chernobyl suggested that the ecological and technological risks of modernity were increasing despite healthy-looking local environments (Beck 1992). The state had to act, but without risking the loss of economic growth or negative impacts on the lifeworld of citizens. Backed by their

successes in achieving *LWS*, states started to frame the *systemic* challenges as civilizational problems of a planetary scale that need to be solved by *all* of humanity and *all* parts of society together. The paradigm of sustainable development (WCED 1987, UN 1993) was launched as an *ethical* imperative that should guide all activities on the planet, but it was by no means a *state* imperative with functional powers.

States created a range of 'new environmental policy instruments' (NEPIs) stimulating environmental innovation, resource efficiency and public education (Jordan *et al.* 2003). As curtailing consumer choice and economic growth was not an option, they relied on strategies of voluntariness, incentives and innovation, with some elements of taxation in the mix. A particular emphasis was given to market-based instruments and voluntary labelling schemes that offered environmentally conscious consumers an 'informed choice'. That way, niche markets for organic and other eco-products emerged as an addition to conventional, lower-priced products. Environmental non-governmental organisations (NGOs) were increasingly involved in the participatory practices of *environmental governance*, which collectivized responsibility across the public, private and state domains (Hysing 2015). The overall strategic approach of this era of 'sustainable development' was that of ecological modernisation, based on the belief that industrial modernity as such can be made ecologically sustainable in line with economic growth through means of institutional, technological and market innovation (Mol *et al.* 2010).

A quick look at empirical data suggests that the entire era of sustainable development achieved very little in solving the problems of systemic *un*sustainability, however. While pollutants with immediate and regional impact followed the Environmental Kuznets Curve (EKC) and declined with rising economic prosperity (Stern 2004, Raymond 2004), 'systemic' indicators like greenhouse gas emissions or the ecological footprint per capita could at best be relatively decoupled from economic growth or even continued to grow monotonically with prosperity (Fritz and Koch 2016, Schandl *et al.* 2018). What has been decoupled in absolute terms, instead, was the environmental quality of citizens' lifeworld from the ecological state of the earth system. Environmental risks, as Kirk Smith has famously shown, have historically transitioned up from the household via the community to the global scale (Smith and Ezzati 2005), where they no longer constitute a direct legitimation problem for the state. To use a stark metaphor, citizens of advanced industrialized democracies have increasingly come to be cossetted like embryos in a womb, supplied and 'tele-coupled' (Lenschow *et al.* 2016) with unsustainable levels of fossil energy and natural resources through the umbilical cord of world trade. This externalization of the burdens of systemic unsustainability from the own lifeworld to lifeworlds in other parts of the planet has been identified as the key mechanism of an 'imperial mode of

living' that has characterised the era of 'sustainable development' in advanced industrial democracies (Brand and Wissen 2018, Lessenich 2019).

Stage III: socio-ecological transformation

In the new millennium, the issue of global warming gained new urgency (IPCC 2007, Stern 2008). It became apparent that the task of attaining 'sustainability' cannot remain a casual long-term vision, but is instead a time-bound project, if critical climatic tipping-points are to be avoided. The international community agreed on the goal of keeping global warming below 1.5°C by 2100, compared to pre-industrial temperatures (UNFCCC 2015). In order to reach that goal, industrialised countries need to decarbonize their economies almost completely by 2050. Consequently, terms like *low-carbon transition, energy transition* or even *socio-ecological transformation* started to appear in policy papers on the national and supranational level and increasingly replace the focus on sustainable development (EC 2011; e.g. HM Government 2009, UN 2015). The pressure is now on the state to facilitate and lead these transformative processes (Bäckstrand and Kronsell 2015). It may be too early to speak of a third stage of the environmental state, but the shifting priority from sustainability as a long-term goal to a time-bound socio-ecological transition is noticeable.

The state, however, now seems to be hitting the glass ceiling that has already been present during the sustainable development phase: it can enact only such measures that do not inhibit economic growth and that are not openly impinging on the quality of the citizens' lifeworld. Although the public in most countries seems to share concerns over climate change and to support state activities to mitigate it, empirical studies show that support tends to end where the subjective lifeworld begins and that those social strata with the highest environmental awareness are at the same times those with the largest carbon footprint (Meyer 2015, Moser and Kleinhückelkotten 2018). The measures necessary to complete a low-carbon transition within just three decades, however, may well necessitate substantial interventions in the lifeworld of citizens that could be perceived as restrictive. An 'imposed' shift of dietary habits, modes of transportation, consumer choices and deep-seated social practices that are all standardly perceived as 'private' domains, would most probably incur massive legitimation and accumulation problems (Barry and Eckersley 2005, p. 263).

At this stage, the environmental state finds itself in an actual dilemma: it needs finally to deliver on the level of SYS while remaining bound to its functional imperatives of sustaining economic growth and keeping citizens happy. In the phase of sustainable development, the state could afford to keep its focus on LWS (as this is the politically decisive realm) while engaging in modest and rather ineffective strategies of *ecological modernization* at the

systemic level. The new transition stage, by contrast, would force the state to turn around its priorities and to focus on systemic change even if at the expense of LWS. This, however, is precisely what the state is unable to do by virtue of its functional structure. The dilemma pushes the state to a continued and intensified reliance on strategies of ecological modernization, including 'ecological-economic stimulus programs' like the 'Green New Deal' (Barbier 2010) in combination with large-scale technological solutions for carbon capture and storage (CCS) technologies (Bäckstrand *et al.* 2011) that would allow for an extension of the lifespan of the fossil age. While this is not the place to assess these strategies' prospects of success in any conclusive way, one may wonder if the strategic options of the state are sufficient to meet the challenge of a comprehensive socio-ecological transition.

In sum, there is something like a dialectic between lifeworld and system going on, which pushes the state to take more action the more the effects of systemic unsustainability invade the lifeworld. However, this pushes the state ever closer against the glass ceiling where its options become ever more limited as it needs to sustain too many things at once: economic growth, the prosperity of its citizens and the life support functions of the biosphere. In order to attain the latter, it would arguably have to let go of the first (growth) and radically redefine what prosperity means (Jackson 2009). This, however, is precisely what the existing imperative structure prevents.

Conclusion: and the future?

What, then, are plausible trajectories for the future of the environmental state? Will it be possible to shift or even break that glass ceiling or are we trapped in a golden cage of *un*sustainability?

I can think of three speculative answers to these questions, with some potential overlap between them. First, it is conceivable that the accumulating negative consequences of systemic unsustainability like more frequent and devastating forest fires, draughts, floods, and harvest failures will increasingly haunt and distress the lifeworld also of environmentally reformed high-income countries. That way, the decoupling of LWS and SYS, which had been the major *political* success of the environmental state, may collapse to some extent and the state might be pressed to enact more stringent measures of SYS in order to improve the degrading lifeworld. One should be cautious with this possibility, however, since a deteriorating lifeworld might primarily legitimate *adaptive* instead of *mitigation* measures, as mitigation will require ever more radical measures, the deeper we enter the climate crisis. In addition, once the lifeworld of environmental states deteriorates to such an extent that the electorate legitimates radical transformative action by the state, it may well be too late to avert catastrophic climate change.

A second avenue of thought concerns the nature of the lifeworld and what it means to 'improve' it. Thus, a viable strategy of action may be to devise possible low-carbon transition scenarios that may by themselves be perceived as *improvements* of the lifeworld. This includes attempts to disarticulate the growth imperative and the legitimation imperative by offering visions of life-world-improvement that do not rely on material growth (Jackson 2009). In order for this strategy to work, however, it might have to cut that link quite radically and offer alternative conceptions of work, welfare and social security (Koch and Mont 2016). For example, it is conceivable that a disarticulation of the growth and legitimation imperatives would require the abdication of *wage labour* as the central organizing principle of the capitalist state (Habermas 1988, Schor 1993, Kallis *et al.* 2013). Such disarticulation, however, would mean to remove a central pillar of the capitalist state in that large parts of social reality would no longer be coordinated by anonymous market mechanisms but repoliticised to become issues of societal decision-making. This would hardly be compatible with the structures of liberal democracy and necessitate a new, perhaps more republican model of democracy (Barry 2017, Heidenreich 2018). Thus, what starts as an innocent reflection on 'alternative lifeworlds' might ultimately cascade into the collapse of the modern (capitalist) state's functional architecture. While this may turn out to be a necessary condition for anything like a sustainability transition to happen, its far-reaching consequences may not be to everybody's taste.

Lastly, if representative governments find themselves in a difficult position to enact changes that may negatively impinge on accumulation processes and on citizens' lifeworlds, then one obvious place to look for a way out is the search for *alternative models of democracy* that do not exclusively rely on *representation*. Although it seems likely that citizens of *any* conceivable model of democracy will be reluctant to *deliberately* reduce the material-energetic furnishing of their lifeworld, it is still plausible to assume that citizens may be willing to support more radical and transformative measures in such fields that do not directly impinge on their lifeworld, but that are blocked by vested interests and accumulation imperatives. Examples would be standards of production and trade like organic farming, fair trade, the democratic regulation of what resources are to be allowed in production processes and so on. That way, controversial resources and production processes could become subject to deliberative and direct decision-making (Hausknost 2014, Hammond and Smith 2017), thereby circumventing the legitimation dilemma of the state. On the other hand, more direct and deliberative forms of decision making in fields of socio-ecological transition may undermine policy coherence (Nilsson *et al.* 2012) and increase the role of 'populism' in these fields (Beeson 2019, Blühdorn and Butzlaff 2019). Nevertheless, there might be quite some scope for the development of a more 'transformative' model of

democracy that would be able better than the existing ones to deal with the inevitable transition of societies to a post-fossil socio-metabolic regime.

In sum, the analysis presented here suggests that the glass ceiling of transformation is deeply embedded in the very structures of the modern state. Consequently, the question of its overcoming is inherently entwined with the fate of the modern state, of democracy and of the mechanisms of legitimation that stabilise both. Predictions about their future are necessarily speculative, but rigorous efforts better to understand the conditions of possibility of a transformative type of democratic state are urgently needed.

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