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Introduction to the special issue: reform or revolution? What is at stake in democratic sustainability transformations

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ABSTRACT

In the face of multiple crises of ecology, economy, and social equity, the question of how to democratically transform toward a more sustainable society is high on the political agenda as well as pertinent to academic research. The first part of this introductory article to the special issue provides a brief overview of contemporary interrelated debates on sustainability, democracy, and transformation. It discusses the main concepts, themes, and questions that are part of the highly diverse and constantly evolving body of literature on the topic, as well as differences regarding analytical frames and normative underpinnings. The overview shows that the literature remains largely silent about supporting theories of change, ontologies, methodologies, and principles—and/or the ways in which transformation, sustainability, and democracy are interrelated. The second part of this article introduces the contributions to this special issue. The special issue is guided by three overarching questions: what can we say about the possibilities and problems of democratically enacting changes toward greater social, ecological, economic, and political sustainability in societies? Which analytic frames are useful for evaluating change, including its democratic and sustainability quality? Where do evaluations and judgments derive their analytical and normative legitimacy from?

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Introduction

Calls for new forms of democratic sustainability and their achievement by way of a “great,” “socio-ecological,” and/or “democratic” transformation of societies have gained traction, both in academia and among policy makers (e.g., WBGU 2011; Demirović 2016; United Nations 2015). Nearly three decades after the “end of history” hypothesis took root in liberal politics, and with it the “global hegemony of neoliberalism” (Ther 2017, 125 (translation from German source)), a growing number of researchers are discussing alternatives to the existing political, societal, and economic systems.¹ As it stands, democratic societies—the focus of this special issue—are confronted with multiple nested sustainability challenges of global scale. In addition to the anthropogenic ecological and climate crises (IPBES 2019; IPCC 2019), democratic societies are facing growing inequality (UNDESA 2020; Bartelheimer and Kädtler 2012), structural transformations in the form of financialization and digitalization (TNI 2016), and fissures in trust, representation, and

respectability (Candeias 2016; Eribon 2016). The primacy of economic and monetary interests over social and political rights (e.g., European Union, see Grimm 2016), the rise of anti-democratic movements and/or political parties, and the predominance of technocratic (or environmental authoritarian) approaches to sustainability governance (Kannankulam 2016) are additional challenges hindering democratic sustainability.

This special issue, “Reform or Revolution? What is at Stake in Democratic Sustainability Transformations,” aims to contribute to the interconnected debates on democracy, sustainability, and transformation that occur in relation to these many problems, and that are basically debates about the formation and procedure of democratic sustainability transformations. The notion of “democratic sustainability transformations” serves as an umbrella term for a diverse body of literature and research agendas. The contributions of this special issue address systemic, experiential, and theoretical questions of democratic sustainability transformations by reflecting on historical experiences and empirical

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cases, and by progressing theoretical groundwork. Three guiding questions are at the center of inquiry: What can we say about the possibilities and problems of democratically enacting changes toward greater social, ecological, economic, and political sustainability in societies? Which analytic frames are useful for evaluating change, including its democratic and sustainability quality? From where do evaluations and judgments derive their analytical and normative legitimacy?

In the following section, we provide an overview of the debates on democratic sustainability transformations. We then introduce central concepts, themes, and issues of transformation, democracy, sustainability, and democratic sustainability transformations. The summary concentrates on dominant strands within the diverse body of sustainability research.² The final part of the article then introduces the individual contributions to the special issue.

Introduction to the debate on democratic sustainability transformations

In the light of historical debates on transformation spanning more than a century (Meadows et al. 1972; Luxemburg 1899; Marx 1867, 1976; Polanyi 1944), which are summed up well by Rosa Luxemburg's pamphlet entitled *Social Reform or Revolution* (1899), it appears that present discussions on democratic sustainability transformations are still in their infancy.³ While the debate has been picking up speed since the 1990s, the main concepts, assumptions, ontologies, and theories of change remain blurry.⁴ In fact, most authors barely explain what they mean when speaking of democracy, sustainability, or transformation; nor which theories inform their understanding of social change and the role of contingency in it. Moreover, the different epistemic communities (characterized by their particular conceptual frameworks or disciplinary backgrounds) involved in the debate focus on advancing the research traditions of their particular discipline and/or thematic area.

Most research on sustainability transformations blends elements of technocratic/systemic and relational approaches while placing differing emphases on the social, economic, political, or ecological dimension(s) of sustainability. Systemic assessments tend to focus on greater resource efficiency, improved technologies, harmonization of sustainability initiatives, and advancing of sustainable production and consumer choices. Democracy, if addressed at all, is subsumed under technocratic governance as a common mode of representative government, while citizens are largely reduced to their role as consumers/prosumers in market-

oriented sustainability transformations or as voters in elections. Transformative potential is ascribed to policy reforms and technological innovation. Suggested pathways toward sustainability are supported by transition management strategies. In contrast, more relational approaches seek to advance sustainability by way of (radical) democratic governance and politics, aiming for the transformation of societal and society–nature interrelations. Pathways toward sustainability emphasize the participation of society at large in sustainability governance, addressing a range of options, from citizen involvement in processes of decision making and implementation to institutionalized forms of participation in political and socio-economic reproduction. Transformative potential, as well as sustainability, relates to degrees of democratization of societal interrelations, often prioritizing democratic process over issues related to ecological performance and outcome.

Moreover, four conceptualizations of change occur in the debate. First, technological changes in the form of innovation and the development of technological solutions to environmental problems are seen as central to sustainability transformations (Larsen and Hojer 2007). Second, the technological conceptualization often concurs with a concept of market-led sustainability transitions (e.g., green economy or ecological modernization, Hajer 1995). This approach focuses on economic instruments (such as pollution taxes) and the private sector (i.e., economic and financial actors) taking the lead to bring about change. Third, the state is presumed to be the prime arena and actor of transformation, either by exercising regulatory agency and setting incentives (Duit et al. 2016) or by representing a field of struggle in which various social forces attempt to influence actions (Brand 2016). Finally, civil society is mentioned in the literature as a driving force in its capacity to mobilize for change and to develop socially viable alternatives (Leach and Scoones 2015; Seyfang and Smith 2007; Smith 2012).

The above characterization of the debate serves as an initial orientation. The remainder of this section introduces the main concepts and themes of the contemporary debate on democratic sustainability transformations in detail as part of an effort to provide a more nuanced understanding of the central issues and unresolved questions, structured under the headings of transformation, sustainability, and democracy.⁵ Scholarship in each of these rubrics makes up the broader debate on “democratic sustainability transformations.”

Transformation

Transformation is a paradigm of social change in science and policy. Among other “coherent strands

Table 1. Transformation: one of several paradigms of social change (adopted from Schelkle and Krauth 2000).

| Paradigms of social change | Conceptualization of change | Approach | Blindspots |
|----------------------------|---|---|--|
| Modernization | <ul style="list-style-type: none"> • Social change is treated as comprehensive societal change • Emergence of modern society at the center of analysis • Functional differentiation of the society and subsystems as units of change • Often, nation and society used interchangeably • Policy-oriented interest in change | <ul style="list-style-type: none"> • Functional analysis of changes in one system induced by changes in another • Use of comparative historical case studies of particular areas, rooted in social sciences and economic history • Interest in discovering structure and complexity of societal change in what look like unrelated processes of fragmentation | <ul style="list-style-type: none"> • Retrospective analysis begins after change has occurred (e.g., modernity has taken root) • Principal distinction between “traditional” and “modern,” and related qualifiers (“stagnant” vs. “dynamic”) |
| Transformation | <ul style="list-style-type: none"> • Focus on societal change within a particular national context • Units of social change are concrete institutions and organizations within the economy • Differentiates between nation and society • Policy-oriented interest in change | <ul style="list-style-type: none"> • Rooted in economics, sociology, and political sciences • No clear analytical approaches; primary focus on how to intervene or accelerate the shift toward a different system (applicability) • Society as result of rational plans and intentions of actors • Emphasizes interdependencies of change | <ul style="list-style-type: none"> • Concept is applied to processes of change with a clear-cut goal of modern institutions (e.g., liberty, growth, welfare) • Principal distinction between “planned vs. market economy,” “political authoritarianism or democracy,” and so forth. • Pronounced actor-oriented perspective ignores structural barriers |
| Development | <ul style="list-style-type: none"> • Focus on sectoral change within nations • Development process as a dynamic of several dualisms (e.g., shift from primary to secondary activities in the economy) • Units of change are actors, defined by functions (e.g., household, firm) • Provides some policy orientation | <ul style="list-style-type: none"> • Focus on detailed analysis of driving forces, forms, and outcomes of development (e.g., Marxist development analysis) • While some focus on policy orientation, a critical strand since the 1970s questions performance of long-term development planning • Utilitarian basis, as well as affinity to behavioral sciences • Interested in looking for contributory factors for social progress | <ul style="list-style-type: none"> • Change as an orderly process or sequence of changes • Inherent (teleological) logic of changes (e.g., steps, stages, levels) • Principal distinction between “development and underdevelopment / no development,” “growth and stagnation” • Ignores side-effects of development (e.g., ecological) |
| Social evolution | <ul style="list-style-type: none"> • Focus on change in behavioral patterns/organizational and societal structures • Units of change (e.g., alternations in beliefs) similar to biological evolution | <ul style="list-style-type: none"> • Analytical outlook on change • Change as a result of innovation is a function of environmental characteristics, frequency, and quantitative importance • Affinity to quantitative social sciences • Global outlook | <ul style="list-style-type: none"> • Principal distinction between purposeful and accidental change, “coincidence and order” • Impossible to detect directionality of change |

of theorizing on social change” (see the summary in Table 1), it helps researchers to “discover a general trend of history and its meaning, thereby explaining and predicting the future” (Etzioni 1964, 3, quoted in Schelkle and Krauth 2000, 11). Consequently, the empirical-analytical study of transformation tends to be accompanied by normative judgments about what is occurring and the direction taken. The literature (implicitly) hints at reform (as a form of deliberate incrementalism), revolution (as a form of disruption and systemic shift), and evolution (lack of clarity concerning direction of change) as possible modes of transformation. The deeper question, however, is how change occurs in (capitalist) societies, provoked by human agency, generating conditions that result in profound qualitative shifts (Schelkle and Krauth 2000, 11).

Calls for sustainability transformation have increased since the 1980s at both the national and international levels. First, the Brundtland Report put

forward its influential understanding of sustainability as a process of “progressive transformation of economy and society” (WCED 1987, Chapter 2). More recently, the United Nations’ 2030 Agenda for the Sustainable Development called for “transforming our world” (United Nations 2015). These calls share a science-driven recognition of the multiple overlapping and converging ecological, social, political, and economic crises (Brand 2016). Yet, as Andreas Fahrmeir (2020) explains in his contribution to this special issue, there is no shared definition of what transformation is (and what it is not), who is in charge, who is to change, what is to be sustained, or how and in which direction change might occur. At minimum, transformation describes (more or less radical and systemic) changes of societal systems, structures, and relationships that occur together with (or in response to) ecological, social, economic, and/or political changes, influenced by some degree of intentionality over a longer period

of time—sometimes months, often years, but mostly decades (Feola 2015; Köhler et al. 2019; Markard et al. 2012; O'Brien 2012; Scoones, Leach, and Newell 2015b).

To understand more clearly the multiple meanings of transformation applied in sustainability research, it seems necessary to reflect on terminology. Sustainability transformation is often used interchangeably with sustainability transition (Hölscher et al. 2018).⁶ This conceptual ambiguity has been criticized by some scholars. Brand (2016), for instance, distinguishes between fundamental structural change (transformation) versus attempts to improve the existing system (transition) as a way to clearly communicate the ultimate goal of a particular policy, measure, or practice that is being analyzed. Stirling (2014) suggests an ideal-type distinction between societal transition and social transformation, based on the characteristics of process and scope of change. Accordingly, societal transition describes processes of change that are driven primarily by technological change, innovation, and policy, and that are directed toward predefined and presumably shared ends (e.g., decarbonization of production and consumption patterns). The governance of societal transition is theorized as a top-down, technocratic, and managerial undertaking, within the scope of existing actor configurations and relationships of power (Stirling 2014, 20). Social transformation, in contrast, describes transformative change as an emerging process of pluralistic and politically contested reconfigurations of the status quo. It is grounded in technological and social innovations, including new practices and deliberative political action and mobilization. Marginalized actors, civil society, and the mobilization of publics play key roles in this bottom-up process that aims to achieve purposeful and profound changes in social structure, cultural patterns, economic frameworks, and, ultimately, modes of living. Unlike societal transitions, social transformation takes place as an open search process without a predefined direction or end (Stirling 2014; also see Reifsig 2009, 30–65; Reifsig 2014; Brie 2015).

The term transformation also fulfills different functions in the debate, being used prescriptively, strategically, and analytically. The prescriptive use presents a normative vision of the kind of change that would be deemed desirable (by the actor or author) and outlines strategies and agents for it to be realized (e.g., WBGU 2011). The strategic use of transformation—also referred to as metaphorical use (Feola 2015)—cheers on “the idea of fundamental, systemic or radical change” (Feola 2015, 379) in policy, modes of living, and/or governance. However, related research does not engage with the details of

transformation, such as steering and administration, or other realities such as ambiguities, unforeseen dynamics, and unintended effects. Finally, analytical uses of transformation are characterized by their empirical interest and conceptual efforts in studying patterns, units, and processes of transformation. Empirical-analytical studies treat transformation as an emergent process of change, or as a solution-oriented approach, proactively steered by particular actors and strongly concerned with feasibility (Feola 2015). Patterson et al. (2017) further observe four main conceptual frameworks informing the empirical-analytical study of transformation, namely socio-technical transitions, social-ecological systems, sustainability pathways, and transformative adaptation. Moreover, Scoones et al. (2018) differentiate between structural, systemic, and actor-oriented approaches in empirical-analytical research on transformation. Accordingly, structural approaches emphasize change in the underlying foundations of politics, economy, and society; systemic approaches focus on particular system features such as policies, actors, or institutions in a given field; and (complementary) actor-oriented approaches are interested in a transformative agency—mostly involving civil society or marginalized voices.

The remainder of this section discusses four overarching themes that run through these different research communities and conceptual approaches in the debate on sustainability transformations, namely socio-technical, socio-ecological, and socio-economic changes, respectively; the equally important theme of socio-political change will be elaborated further in the subsequent section on democracy in transformation.

First, the literature that discusses the socio-technical dimension of transformative change refers largely to the issue of sustainable production and consumption.⁷ It departs from the shared diagnosis that unsustainable production and consumption patterns of socio-technical systems (e.g., energy, mobility, food/agriculture) are the root causes of ecological problems (Elzen, Geels, and Green 2004; EEA 2017; Grin et al. 2010; Köhler et al. 2019).⁸ Sustainability transitions are understood as “long-term, multi-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption” (Markard et al. 2012, 956).⁹ Transitions are presumed to be purposefully directed toward certain ends: they are being initiated and governed, yet they may take different pathways (Frantzeskaki et al. 2012; Geels and Schot 2007; WBGU 2011). Analyses focus mainly on technological and social innovations as sources of change.

A major critique of related approaches has been their neglect of the politics of systemic change (Avelino et al. 2016; Geels 2011; Meadowcroft 2009; Scoones, Leach, and Newell 2015b), social practices (Shove and Walker 2007), and the persistence of wider societal and economic structures (Feola 2020). In what Johnstone and Newell (2018) call “the political turn,” the “Sustainability Pathways” framework, for instance, includes issues of politics, power, and agency in the assessment of systemic changes toward sustainable societies (so-called “green transformations”): “Politics and power are important to how pathways are shaped, which pathways win out and why, and who benefits from them” (Scoones, Leach, and Newell 2015b, 4). The “Sustainability Pathways” approach assumes different sources of (potentially) transformative agency that are competing as well as coinciding in developing socially viable alternatives to the status quo (including technology, the state, the private sector, and civil) (Leach and Scoones 2015; Seyfang and Smith 2007; Smith 2012; Leach, Scoones and Stirling 2009). With regard to technology, the contribution by Arora et al. (2020) in this special issue scrutinizes the principles underpinning the politics of technology, uncovering control as a dominant tenet, and calling for a reorientation toward care and conviviality for sustainability transformations.

Second, the socio-ecological dimension of sustainability transformations refers to society-nature relations and/or social-ecological systems. The society-nature debate traces back to Marx and Engels as “forerunners of human, political and social ecology” (Järvikoski 1996, 74). Assuming a dialectic relationship, related research assesses the instrumental use of nature by human society and related transformations of humans and society, as well as nature. Environmental degradation is seen as a function of capitalist production disturbing the “man-nature metabolism” through technological and organizational means and by “sapping the original sources of wealth—the soil and laborer” (Marx 1952, 249–250, cited by Järvikoski 1996, 77).

The dominant approach in the socio-ecological theme of transformation, however, stems from social-ecological systems theory (SET). This empirical-analytical research body investigates systemic, large-scale (e.g., global), and long-term (decades to centuries) change of social-ecological systems (Fischer-Kowalski and Haberl 2007). It perceives transformation as a non-deterministic and open-ended process. Since SET builds partly on socio-ecological systems theory, the potential to steer societal transformation is considered a challenging endeavor and is not the focus of prior research. Instead, transformation is treated “as a transition from the

present socio-metabolic regime into another one, on the same level with major transitions in history, such as, for example, the ‘industrial revolution’” (Fischer-Kowalski and Rotmans 2009, 4).¹⁰

The SET literature has been critiqued for its tendency to remain inconclusive about objects (e.g., biophysical units, societal relations, or institutions), subjects, and drivers (e.g., technological innovations or state-led activities), as well as the scope and scale of transformation. Largely in response, critical SET approaches began to include issues of power, class, and equity in assessing society-nature relations, while promoting forms of public participation in political and economic decision making, including alterations of property relations, as a remedy to concentration, marginalization, and other forms of inequity (e.g., Görg et al. 2017; Pichler et al. 2017). Along these lines, Velicu and Barca (2020) argue in their article in this special issue that transformations should be understood as a “transition out of the logic of unequal relations—rather than just out of fossil fuels.” Considering the democratization of society-nature relations an essential step in this process, they further contend that it “implies questioning models and methods of socio-ecological relations.” And it implies widening of analytical frameworks beyond common approaches’ focus on recognition and redistribution, and recognizing unsustainability engrained in everyday practices and globalized patterns of exploitation, previously termed “shadows of consumption” (Dauvergne 2008) or “externalization society” (Lessenich 2016).

Third, the socio-economic theme of transformation research dates back to Polanyi, Marx, and Luxemburg, and has been prominent in multiple disciplines of development studies, political science, sociology, history, and institutional and/or ecological economics. Related issues concern the relationships between society and economic structures as a constituent factor of (un)sustainability—including Marx’ argument of capitalist production as a source of environmental degradation, exploitation of labor, or *unequal development* in view of globalization (Samir 1976). At the same time, authors leaning more toward Polanyi’s work on the *Great Transformation* (1944) tend to question the degree to which economic transformation can be steered.¹¹ Overall, however, Polanyi’s analytical work has not received similar attention to (neo- or post-)Marxist approaches, even though it could be instructive concerning the dynamics in capitalist market economies, such as the destruction of biophysical and societal bases through economic activity, or the rise of authoritarian populism (and authoritarian government) at a time of global economic crisis (Blühdorn 2019, 87).

Current socio-economic debates on transformation focus on the interrelation of economic (de)growth, work, welfare, and sustainability (Victor 2008; Barth et al. 2019; Büchs and Koch 2017; Jackson 2009). This line of research points to the need to critically engage with the structuring effects of capitalism on societal dynamics (Dörre et al. 2019; Feola 2020; Haas 2019). The de- or post-growth literature discusses practices, strategies, actors, and institutions that could yield deep and radical change of capitalist structures and “increase ecological sustainability and social justice” (Asara et al. 2015, 377), including by way of radical democratization of the economy (Demirović 2016).¹² The underpinning emancipatory understanding of democratic transformation ascribes transformative agency to subaltern actors and their practices, assuming that they prefigure alternatives and challenge established constellations of power. The state, trade unions, and other institutional configurations (e.g., international agreements on trade or climate) are treated both as arenas and targets of change. For example, scholars explore ways to design welfare policies that could satisfy human needs within ecological limits, and across generations and geographical boundaries (Büchs and Koch 2017; Koch 2020). Furthermore, narratives, social imaginaries, and other ways in which socio-economic alternatives are envisioned, framed, and constructed are also being studied. Examples include the solidarity economy, basic income initiatives, and workers’ cooperatives (Taylor 2004). Further, Velicu and Barca (2020) discuss how the construction of workers as political subjects needs to be altered in “Just Transition” discourses, which largely leave aside the capitalist relations between nature and labor.

While providing ample empirical insights and rich analyses, the socio-economic literature raises several questions that remain unanswered. For instance, transformation and radical democratization, understood as overcoming of capitalist structures, is argued to address injustices and other unsustainable conditions of and within societies. Yet, how does radical democratization of economic relations supposedly contribute to ecological sustainability; at what scales should these transformations occur; and how would different levels (community to supranational) interact? From a historical perspective, it also remains unclear what is to be sustained, for how long, and for/by whom (see Fahrmeir 2020). As discussed by Marcus Böick (2020) in this special issue, history also asks us to consider the relevance of contingent processes, unintended outcomes, and unforeseeable long-term side effects of transformation in and for democracies. At the same time, “old” sociological questions

require theoretical groundwork. In transformations, how are structure- and agency-related factors interconnected (Koch 2020)? How should we think of transformation in view of the fact that societies are constantly changing?

Democracy

Debates on transformation are closely related to issues of governance, power, and politics, and thus, democracy. The review above shows that research on sustainability transformations engages with the democratization of socio-technical, -economic, and/or -ecological relations within and across societies as an essential part of and/or technique toward sustainability. Democracy may be referred to explicitly (e.g., Just Transition debates; Velicu and Barca 2020), or implicitly (e.g., Geels 2010). While there exist multiple understandings of democratization or democracy, most analyses tend to favor forms of direct or deliberative democracy (participatory formats, local self-government) (e.g., Dryzek and Niemeyer 2019; Hammond and Smith 2017; Wright 2010; Demirović 2008; Machin 2020; Hammond 2020), or—with regard to economic activities—institutionalized forms of co-determination.¹³ Some authors also propose more radical forms of self-governance in the form, for example, of worker-owned cooperatives (Wright 2013; Demirović 2017), or “multi-stakeholder cooperatives” whose “management structures ... allow for the direct participation of more than one category of stakeholder” (e.g., worker-consumer cooperatives, Cohen 2017, 379). At the same time, we see the research that disregards democratic issues involved in the process, governance, and/or practices of transformation, instead framing political issues as technicalities (Hendriks 2009). Each approach has implications for the democratic quality of the process of sustainability transformations, as well as the quality of democracy more broadly, as democratic culture, institutions, and systems are impacted by how sustainability transformations are governed and practiced (see Böick 2020). In the following paragraphs, we will focus on three dominant themes concerning the democratic element of sustainability transformations: questions of governance, directionality, and intentionality; issues of participation and deliberation as drivers of change; and democratization as a form of transformation.

First, questions of governance, directionality, and intentionality are at the heart of transformation debates. However, it remains unclear how to democratically advance sustainability transformations (Bohmann and Muraca 2016). The debate on socio-technical sustainability transitions, for instance, tends to neglect democracy as an end and an

essential element of the process of transition (Hendriks 2009; Köhler 2019). Instead, technocratic approaches focus on implementing and managing particular transition goals, based on the presumption of a consensual and clear-cut view among the members of the public, government, and private sector regarding what needs to be done (problem definition) and how (solution) (Hendriks 2009). Critics have pointed to a loss of democratic quality due to the depoliticized nature of such technocratic and consensus-oriented approaches of sustainability governance in reaction to ecological imperatives (Kenis et al. 2016; Swyngedouw 2005, 2011). They have argued that the presumption of consensus in environmental governance and/or members of the public is illusory in view of the plurality of perspectives involved (Machin 2013, 2020). These critiques—as we showed earlier—led to a “political turn” in the sustainability transitions literature. For example, the “Sustainable Pathways” framework recognizes the existence of multiple contested trajectories (Scoones, Leach, and Newell 2015b). Regarding the issue of governance, directionality, and intentionality: democracy here becomes an organizing principle because “ecology by itself cannot pinpoint the way or the normative ground on how to reach the desired social-ecological transformation” (Asara et al. 2015, 377).

Second, democratic theorists are debating the essence and role of democracy in transformative change, focusing on issues of participation and deliberation. This emphasis traces back to the deliberative democracy community, in particular, which has been highly influential in these discussions, including in the policy realm (Zanella et al. 2018). Central theoretical propositions of this literature include a consensus orientation and the assumption of an ideal speech situation (Kapoor 2002; Machin 2020). Related theoretical advances rely “on reasoned and inclusive public deliberation that is geared to reaching consensual decisions” as a driver for sustainability transformations (Kapoor 2002, 460). Most prominently, Mouffe (2000, 2013) (among others) set out to challenge this influential understanding of democracy and democratic transformation, putting forward an “agonistic pluralism” approach. Accordingly, “the lack of closure in politics, the “ongoing confrontation,” is to be seen not in a negative light but as a marker of the vibrancy and pluralism of democracy” (Kapoor 2002, 465; Mouffe 2005, 1999; Van Bouwel 2009). The approach recognizes the plurality of pathways and visions (Mouffe 2000), and queries the rationalist perspective of deliberative democracy that tends to discount passions or collective identifications—all of which play an important role concerning social change (Safran

and Greenberg 1991). It also identifies a non-reconcilable “constitutive tension” between liberalism (i.e., rule of law and individual liberty or human rights) and democracy (i.e., participation, and majority rule, equality among citizens): “nonnegotiable human rights will always limit the exercise of popular sovereignty, and the inclusions and exclusions necessary for the constitution of a people will always limit the reach of universal human rights” (Tully and Levy 2002, 863, referring to Mouffe 2000). This tension (including incidents of struggle and disagreement) has been neglected by deliberative democracy theorists and proponents due to their liberal democratic outlook (Tully and Levy 2002, 863; Mouffe 1999, 2000; DiSalvo 2010; Wilson and Swyngedouw 2014).

Tensions within liberal democracy have also emerged elsewhere as a theme of sustainability transformations. Environmental sociologists describe the problem of “the collaborative management of sustained unsustainability” (Blühdorn and Deflorian 2019). That is, the emancipatory project of new social movements (and emancipatory research) has always been one that saw ecological sustainability and democratization as complementary. However, various forms of participation in environmental governance might have been (mis-)used by liberal consumer societies to manage their inability and unwillingness to bring about the socio-ecological transformation that scientists and environmental activists say is urgently required.¹⁴ Moreover, with hindsight from democratic environmentalist politics, Schlosberg et al. (2019) refer to Goodin’s (1992, 160) argument that the tension between democracy and sustainability is one of a conflict between procedure and outcome:

[T]o advocate democracy is to advocate procedure, to advocate environmentalism is to advocate substantive outcomes: what guarantee can we have that the former procedures will yield the latter outcome? There is no guarantee that democracies will necessarily bring about ecological and sustainable ends, and more authoritative processes of attaining those ends could undermine democratic ideals and legitimacy. (Goodin 1992; see also Schlosberg et al. 2019, 1)¹⁵

Similar concerns emerged in recent debates about “planetary boundaries” (Rockström 2009) within which societies must function within the age of the “Anthropocene” (Crutzen 2006). Dobson (2016) argues that “[a] key point of contention over ecological limits is whether they unduly restrict citizens’ freedom to choose among different societal goals (e.g., economic growth), tipping the balance in favor of green outcomes and thereby undervaluing democratic procedures” (Dobson 2016; see also Pickering et al. 2020, 10). However, it is important to note

that the outlined tensions of (liberal) democratic sustainability do not presuppose the effectiveness of environmental authoritarianism (Shahar 2015). Rather, they challenge the assumption, among some authors, that democratization will—quasi-automatically—yield ecological sustainability.

In view of these many (liberal) “democratic paradoxes” (Mouffe 2000) or democratic transformation conundrums, some scholars suggest prioritizing democratic means over green ends (e.g., Machin and Smith 2014). In fact, the Brundtland Report’s (1987) definition of sustainability reminds us that the revitalization of democratic institutions is a central part of sustainability transformations. Many strands of emancipatory research understand transformation as democratization in the sense of shifting power relations in favor of citizens, communities affected by climate change, or consumers in institutions of liberal democracies, capitalist markets, and states (Scoones, Leach, and Newell 2015a; Smith and Stirling 2017; Wright 2013), and/or recognize contestation as a central aspect of transformation (Scoones, Leach, and Newell 2015b). For example, Amanda Machin’s (2020) article in this special issue proposes sustaining political disagreement over energy technologies as a means of fostering a democratic techno-politics of sustainability transformations. Also, emancipatory approaches now call for theoretical advances “on how to collectively establish limits and alternative institutions and practices for a deep social-ecological transformation” (Asara et al. 2015, 377).

It follows from the above that honest and hard-headed assessments are required, concerning the question of what different elements and forms of democratic sustainability may achieve, and the obstacles with which they are confronted. Let us take the example of the global proliferation of institutionalized forms of democratic innovation and/or decision making in various governance arrangements.¹⁶ Research suggests that these institutionalized forms have system-reinforcing (instead of transformative) effects and implications, and are often part of reformist approaches to sustainability (Pickering et al. 2020; Bua and Escobar 2018; Gleckman 2018; Hammond 2020). In this special issue, Marit Hammond proposes democratizing deliberation by reconceptualizing it as “disruptive deliberation,” one that is emerging from the bottom up and challenging dominant power structures.

At the same time, the strong focus on procedures of decision making in the democratic transformation debate is remarkable. Transformation extends well beyond policy making, including questions of implementation, political economy, interrelation of democracy and capitalism, and politics of knowing

(Arora et al. 2020; Kocka and Merkel 2015). In addition, questions remain about the possibility of deliberately steering sustainability, particularly from a historical perspective, where changes in environmental governance are largely a function of reaction, contingency, and political economy rather than planning and foresight (Fahrmeir 2020; Böick 2020; Marks 2007). Theoretical groundwork is needed on democratic sustainability and transformation in view of who gets to decide, who brings in new ideas, and what transformation means for democracy (Böick 2020). Addressing these aspects seems essential to better understand why, for example, the democratic state seems to be hitting a “glass ceiling of transformation” (Hausknost and Hammond 2020), as well as to account for alternative practices and discourses of democracy (Hammond 2020).

Sustainability

The contemporary understanding of sustainability traces back to the Brundtland Commission (1987). The report merged ecological sustainability with socio-economic issues of development, stating that “[s]ustainability is a balanced integration of economic performance, social inclusiveness and environmental resilience, to the benefit of current and future generations” (Savaget et al. 2019, 882). Not only does this understanding challenge the long-standing dualism of nature and society, and perceptions of economy and nature as being on contradictory terms (Cato 2011); the ensuing report also called for a transformation of society as we know it (Savaget et al. 2019).

The debate on sustainability transformations often overlooks aspects of integration, balance, or equity. For instance, many studies recognize the massive ecological degradation and environmental crises of modern development, yet neglect the social and economic dimensions of sustainability. We have also highlighted that research often lacks the transformative impetus, by treating sustainability as a matter of technical solutions (Stirling 2014). At the same time, new concepts such as the Anthropocene tend to promote a post-political use¹⁷ of sustainability.¹⁷ However, unless we presume the possibility of an optimal equilibrium, and/or the “neutrality” of science and institutions, then fundamental questions remain: who gets to decide what the “good” balance is between these dimensions? Who gets to transform? What is to be sustained? What kind of knowledge matters? These are just some of the normative and highly political issues at stake, regarding both relational and systemic changes.

The debate on democratic sustainability transformations could be further classified in accordance with strong and weak sustainability approaches, a

classification developed by environmental economists (e.g., Neumayer 2003; Solow 1993, 1986, 1974; Hartwick 1977). Proponents of weak sustainability argue that natural resources can be substituted by human or physical capital (meaning that ecological degradation can be balanced by economic growth). In contrast, those that favor strong sustainability approaches insist on a so-called constant natural capital rule, negating the possibility of substituting natural capital through human or other forms of capital. Instead, the natural environment and its resources are perceived as a system that has ultimate limits within which society and economy must fit (Dietz and Neumayer 2007; Daly 1996; Meadows et al. 1972). Political ecology and ecological economics have pointed toward the political dimension and the social construction of such limits and/or nature-society relations: limits and nature-society relations are context-specific and set by humans, and only make it onto the political agenda when—and according to the ways in which—they resonate within society (Spash 2011; Gendron 2014, 245–246). Moreover, political economists have emphasized that sustainability issues involve questions of distribution, participation, and access in relation to natural resources (Feindt and Newig 2005, 13–15).

It is noteworthy that a significant amount of the literature discussing sustainability transformations abstains from the concept of sustainability altogether, associating it with widespread post-political uses, including neoliberal policies and technocratic environmental governance. This can be said for emancipatory approaches in the literature (e.g., Stirling 2014; Gottschlich and Bellina 2017). Ultimately, sustainability debates are characterized by a diversity of perspectives regarding problems, solutions, and adequate processes. This implies that ideas, concepts, or visions of sustainability (and related questions of what is to be sustained, how, by and for whom, and for how long) remain inherently normative, even if the topic were to be treated as a technical issue or in a technocratic manner. Consequently, this normativity can only be addressed methodologically, be that with regard to research approaches and/or the configuration of forms and procedures of collective action. Basically, the normativity involved advises those engaging in the debate and practice of democratic sustainability transformations to remain self-reflexive, open, and (regarding the democratic state) permeable in view of competing assumptions, ongoing struggles, and evolving constructions of sustainability both in analysis and/or political process. This point is variously discussed in several of the contributions to this

special including those by Frederick Bird (2020), Marit Hammond (2020), and Amanda Machin (2020).

Synthesis of democratic sustainability transformations

Parallel to the many sustainability crises faced by modern democracies worldwide, there has been a semantic shift from sustainability to sustainability transformations within policy and science debates (Blythe et al. 2018) and vivid discussions about transformation, democracy, and sustainability. This special issue has a two-fold starting point for inquiry into democratic sustainability transformations: first, it aims to enhance understanding of evolving issues pertaining to sustainability transformations. Particularly, it focuses on the democracy of sustainability transformations and the sustainability of democratic transformations. Second, it seeks to foster interdisciplinary exchange on how to deliberate and address the many interrelated social, ecological, political, economic, and—not forgetting—normative and epistemological issues that are at stake in democratic sustainability transformations.

The summary presented here of the central arguments on transformation, democracy, and sustainability highlights that the debate remains inconclusive concerning both the democracy of sustainability transformations and the sustainability of democratic transformations. It is often blurry with regard to central concepts, presumptions, and—ultimately—about “what is at stake in democratic sustainability transformations.” This verdict applies equally to terminology, heuristics, research puzzles, and practice. Considering the context within which all research, debate, and terminology is placed, Blühdorn’s (2019) argument comes to mind. He states that the semantic shift from sustainability toward transformation is a function of the poor performance of more than two decades of sustainability research and governance. Transformation is used strategically to signify a fresh start, a greater level of ambition, as well as a radical pathway for social change (Blühdorn 2019). Thus, the verbatim shift from sustainability to transformation might be the attempt to leave those “old” criticisms behind—which is not the same as thinking anew. Adding to this argument is our observation that transformation often seems to be conflated (i.e., used interchangeably) with other paradigms of social change, namely modernization or development (see Table 1). In fact, development and modernization tend to remain the dominant policy paradigms in

sustainability governance. However, both have been criticized by critical theory and empirical evidence as inapt paradigms for guiding sustainability transformations, with the hindsight of their epistemic and cultural violence (modernity), the ecologically and socially problematic (economic) growth orientation, and the continued dualism of society-nature (e.g., Oksala 2010; Daly 1996; Arce and Long 2000; Haila 2000; Goetz 2019).

Other presumptions and questions regarding democratic sustainability transformations also remain unresolved. For instance, while there seems to be growing recognition of the need for *democratic* social change in sustainability transformations, it remains unclear what the central premises of “democratic” are. If anything, the democratic factor points to their political dimension, including the diversity of perspectives and pathways involved, the importance of power politics, the absence of any “neutral” institutions in the process of transformation (Swyngedouw 2011), and the resultant necessity for democratic institutions and agents to remain self-reflexive and permeable in the face of struggles over sustainability. It is within this context that there has also been an increasingly active debate about the role of knowledge and science in processes of societal change (e.g., Jasanoff 2004; Stirling 2014). On the one hand, scientific paradigms, research approaches, and methodological innovations are being reevaluated regarding their empirical-analytical and applied potential to prescribe and contribute to sustainability transformations (Lang et al. 2012; Schöpke et al. 2018; Cohen 2006). On the other hand, the proactive role of science and research in politics of social change has been criticized, questioning its part as a critical and autonomous observer in what is happening (Blühdorn et al. 2018); or referring to the democratic implications of an emergent “expertocracy” (Trentmann, Sum, and Rivera 2018).¹⁸ Regarding the latter, understood as “rule by experts,” the particularities of scientific reasoning are deemed to conflict with democratic debates by ordinary people and/or regarding the complex realities of public reason and interest (e.g., Craig 2002). Ultimately, the review highlights the heterogeneity of epistemologies and ontologies (including metaphysical values, and the fact that researchers partaking in these debates have themselves very different normative aims and convictions that place methodological questions in the limelight (see Bird 2020). This observation is further underlined by historical research, where transformations are embedded in ongoing processes of societal change in the form of reform and revolution, and result from semantic struggles over what

is, could, and should be (including semantic shifts or different framings of problems).

About the special issue

The special issue “Reform or Revolution? What is at Stake in Democratic Sustainability Transformations” consists of three parts. The first two articles discuss the possibilities of democratic change and democratic sustainability from a historical perspective, including problems of democratically enacting changes toward greater social, ecological, economic, and political sustainability in societies.

Andreas Fahrmeir’s article “Democracies, Change, Sustainability and Transformation: Historical Perspectives” reflects on incidents of transformative change during the nineteenth to the early twentieth century. The article argues that semantic shifts and alternative framings of problems are often central to historical transformations. The historical perspective points to unexpected outcomes of steered processes of change and the degree of contingency involved, such as the democratic fiscal reforms that turned out to be democratic “revolutions” as a result of medium-term change in political subjects and culture (including government). The historical perspective also scrutinizes the time horizon of contemporary democratic sustainability transformations, namely when to solve which “sustainability” problem, and for how long.

Marcus Böick’s article “In from the Socialist ‘Cold’, but Burned by the Capitalist ‘Heat’? The Dynamics and Long-term Effects of Political Revolution and Economic Transformation from Plan to Market in Eastern Germany after 1990” analyses the *Treuhandanstalt* (“Trust Agency”), the central actor that steered the process of economic reconstruction at the intersection of politics and economy following German reunification—and its role in political and socio-economic transformation of and in East Germany. Tracing political steps, actors, arenas, modes of decision making, and their long-term effects, Böick argues that the *Treuhand’s* organizational set-up enabled economic experts to enact the “shockwave” policies of economic reconstruction, and served as a “shield of protection” for the political class and institutions. However, the “dramatic sociocultural consequences of closures and mass unemployment” led to a particular form of “East German memory culture open for populist campaigning,” and might undermine the sustainability of democracy itself.

The next four contributions are involved with theoretical groundwork to advance the analytic framework of evaluating change as well as the democratic and sustainability quality of change.

First, Max Koch's article "Structure, Action and Change: A Bourdieusian Perspective on the Preconditions for a Degrowth Transition" starts from the premise that moving away from economic growth as a central paradigm in policy making is the first step toward a degrowth transition to re-scale economy and society to match ecological boundaries. Drawing on Pierre Bourdieu's practice theory, the article discusses the interrelations between structure, habitus, and action, and points to the category of habitus as an entry point for transformational change. Koch argues that a new praxeology is needed that involves questioning, playfulness, experiencing, imagining, and embodiment of alternative modes of living to those of the status quo. Whether this yields transformative change depends on how alternatives (and related policies) are linked to people's experiences of the past and present and their expectations of the future. Koch introduces deliberative citizen forums that allow for co-developing alternative imaginaries to the growth-oriented policy paradigm and also broaden the social basis of alternative initiatives.

Second, Irina Velicu and Stefania Barca's article "The Just Transition and its Work of Inequality" engages critically with the Just Transition discourse of the International Trade Union Confederation due to the narrow focus on waged workers' interests. Based on theoretical propositions of Jaques Rancière's "method of (in)equality," the authors argue that socio-ecological justice is not only about a fair redistribution of goods or the recognition of workers' rights. Transformative change can only be achieved on the principle that political agency belongs to workers as subjects in their own rights. Any predetermined category or identity ascribed to workers reproduces the logics of inequality in capitalist society, which led to social and economic crises in the first place. Velicu and Barca propose new processes of emancipatory subjectification for democratic sustainability transformations.

Third, the article "Control, Care, and Conviviality in the Politics of Technology for Sustainability" by Saurabh Arora, Barbara van Dyck, Divya Sharma, and Andy Stirling scrutinizes how the three principles highlighted in the title of their contribution inform sustainable development politics and shape technologies, practices, and institutions. Based on ethnographic research on the "Green Revolution" in India and agricultural biotech politics (related to genetically modified organisms) in Belgium, the article argues that ambitions to control materialized into technologies and the creation of fictitious hierarchical dualisms, such as culture vis-à-vis nature and modernity vis-à-vis tradition. The authors propose alternative principles of care and conviviality

to guide social agricultural practices and societal visions, respectively. The outcome of sustainability transformations depends on "whether technologies, practices and institutions are constituted by ambitions, values and hopes" of control, care, or conviviality.

Fourth, Amanda Machin's article "The Agony of Nuclear: Sustaining Democratic Disagreement in the Anthropocene" challenges eco-modernist claims that technological innovations make for a smooth and uncontentious sustainability transformation. Drawing on Chantal Mouffe's concept of agonistic pluralism, the article utilizes the contested case of nuclear energy to develop an ecological agonistic approach that allows researchers to assess the specificities of technologies in relation to their socio-ecological impacts in space and time. Machin's approach highlights that there is no "best" solution regarding which technology to use in the face of conflicting perspectives, interests, and contexts. She argues for prioritizing the democratic conditions allowing for (agonistic) politics vis-à-vis technocratic approaches to sustain socio-ecological and economic conditions.

Finally, the special issue includes two contributions that deal with the normative legitimacy of evaluations and judgments, specifically regarding methodology and process. From where do evaluations and judgements derive their analytical and normative legitimacy?

Frederik Bird's article "A Defense of Objectivity in the Social Sciences, Rightly Understood" starts by dissecting the widespread perception that objective research implies "disinterested investigations that are free from any kind of evaluative judgments and seems overwhelmingly to favor quantitative research" and big data. In contrast, the article shows how researchers can satisfy the norm of objectivity and at the same time be engaged observers that put forward value judgments in their research, and assume qualitative studies. Drawing on classical sociological theory, Bird argues that objectivity denotes particular rules for understanding and reporting on research, whereby reporting is construed as an intelligible, reasonable, and inherently reciprocating public activity. Vice versa, these norms also establish procedures for collecting and interpreting research data.

In the last contribution in this special issue, Marit Hammond's article "Democratic Deliberation for Sustainability Transformations: Between Constructiveness and Disruptions" addresses current theories and debates of deliberative democracy, considering democratic decision making in the context of ecological crises and structural power imbalances. It asks how deliberative democracy's "original

critical potential can be harnessed better so as to meet the radical implications not just of any sustainability-oriented governance, but sustainability transformation.” The author argues for democratizing deliberation by re-conceptualizing it as “disruptive deliberation” that emerges from the bottom up, outside the political system, and that challenges dominant power structures. Disruptive deliberation is a broad, messy, and open-ended process, yet remains committed to normative ideals of inclusiveness, fairness, and democratic reflexivity.

In conclusion, we hope that this special issue contributes to a deepening and broadening of the scholarly debate on democratic sustainability transformations. The featured contributions highlight the need for critical (self-)reflection as a precondition for future theoretical and empirical advancement. Specifically, the assembled articles show how important it is to scrutinize and discuss the current premises, principles, and ontologies that are part of research traditions and tend to preconfigure problem definitions, agency, and trajectories of change. The contributions also point to a need to revisit research methods and questions in order to accommodate contingency, complexity, and (long-term) side effects in the study of democratic sustainability transformations. And they call for scientific investigations and practical operationalization to sustain the democratic quality of sustainability transformations by accounting for the political nature of democracy. This undertaking needs to encompass several dimensions including the politico-economic issues of (in)equity, power, and conflict; the inherent tensions of liberal democracy; the improved understanding of practices pertaining to democratic transformation in the sense of reflecting, questioning, experiencing, and embodying alternatives. Ideally, future research in the field should address (more) explicitly how democracy, sustainability, and transformation interrelate on conceptual, analytical, and practical levels; make transparent the normative and epistemological standpoints shaping assessments; and formulate investigations that consider aspects of these issues that have been neglected to date.

Notes

1. Francis Fukuyama famously argued in his essay (and subsequent book) entitled *The End of History* (1989) that with the cessation of the Cold War and the collapse of the Soviet Union, there would be no future challenges to liberal democracy. With the triumph of (neo)liberal democracy, humankind had concluded its ideological evolution and embraced the ultimate form of government. The “end of history” hypothesis has since been repeatedly challenged, not least with the subsequent rise of

right-wing movements and authoritarian populism (Ther 2019).

2. We use the term to indicate that we have focused our attention on scholarship that analyzes or prescribes transformations, sustainability, and democracy in view of the aforementioned environmental, economic, social, and political problems facing democracies.
3. A good summary of the debates is provided by Baars (2011).
4. See, for example, Google Books Ngram Viewer’s interactive chart on the co-emergence of the volume of papers mentioning “transformation,” “sustainability,” and “democracy” (available at https://books.google.com/ngrams/graph?content=democracy%2Csustainability%2Ctransformation&year_start=1800&year_end=2019&corpus=26&smoothing=3#). It illustrates that all three terms have gained increasing popularity in the past decades: democracy particularly since the late 1970s (e.g., with the end of the Vietnam War), sustainability since the publication of the Brundtland Report in 1987, and transformation has gained attention again since 1995.
5. Clearly, this summary of the highly diverse body of literature on democratic sustainability transformations does not cover all aspects of the many contiguous literatures that tackle questions of social change in view of sustainability (e.g., Cohen 2019). Nor does it seem conceivable to provide for such an extensive review by way of an introductory article to this special issue. We also acknowledge the existence and frequent overlap of different uses, approaches, and understandings. However, we wish to introduce the central issues of the debate as a way of providing context.
6. We use the term sustainability *transformation* to describe systemic-, structural-, and agency-related forms of societal change. Where the literature talks about sustainability *transitions* (but uses the term interchangeably with transformation), we use that same terminology in our review.
7. We refer mainly to dominant theoretical frameworks of the debate, such as strategic niche management, transition management, technological innovation systems, and the multi-level perspective. For a comprehensive introduction to novel research on sustainable production and consumption, see Cohen (2019).
8. Generally, socio-technical systems are understood as co-evolving and mutually interdependent social and technical configurations, including technological artefacts, policies, social behaviors at different scales, scope, and range (e.g., global or local, nation states, or cities.). See Savaget et al. (2019).
9. Used interchangeably with transformation.
10. According to the Vienna school of SET, a socio-metabolic regime refers to “a macro-a ‘landscape’ – level,” and describes “a dynamic equilibrium of a system of society–nature interaction” (Fischer-Kowalski and Rotmans 2009, 4).
11. Polanyi (1944), in essence, told the story of twentieth century capitalism and the commodification of society and nature as the root cause of unsustainability (social inequity) but also trusted in law as a source of control and improvement of processes of capitalization, whereas for Marx, from a structural perspective, it is not possible for law to

- function separately from—while still regulating—capitalism. See Baars (2011).
12. Radical democracy does not mean a new form of participation (e.g., direct democracy). Rather, it implies that political democracy is to be extended from the political sphere to all social spheres (e.g., work, the sphere of production), subjecting these to public decision making and control.
 13. Deliberative democracy includes forms of direct decision making, as well as consultative and participatory fora in representative democracy, that serve to legitimize government decisions, transfer information, and foster exchange between citizens and the state and/or private sector, and ultimately contribute to social coherence within society. It emphasizes public discourse and deliberation in decision making over mere voting.
 14. In this context, Beck (2003) argues from a sociological perspective for reflexive governance in the sense of a civil culture of responsibility across borders.
 15. Goodin (1992) writes that any institutional environmental economic theory of value has to be “natural resource based.” On the limitations of such economics-based philosophies, see Brennan (1995).
 16. Democratic innovations are most commonly understood as “institutions that have been specifically designed to increase and deepen citizen participation in the political decision-making process” (Smith 2009, 1). In the context of global governance, new initiatives and forms of democratic decision making (particularly in the inclusion of multiple stakeholders in the policy process) have emerged since the 1990s (e.g., multi-stakeholder participation in the United Nations, Zanella et al. 2018; Bäckstrand 2006).
 17. The concept post-political critiques technocratic approaches in science and governance. It underlines that these foreclose political conflict and alternative perspectives on what the problem is and how it should be solved. Thus, the description of something as post-political questions the portrayal of a phenomenon, institutional arrangement, political process, or policy direction as “reality” rather than choice (by some), and points to the depoliticization of what are fundamentally political matters regarding particular social, economic, political, or environmental issues. A good overview of post-politics debate in the context of environmental politics is provided by Wilson and Swyngedouw (2014, 1–24).
 18. Again, this criticism is far from new and was for instance advanced by Hayek (2010) in *Studies on the Abuse and Decline of Reason*. Hayek wrote this collection of essays in the 1930s, but they were not published as a collected work until 2010.

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