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Key challenges to the corporate biosphere stewardship research program: inequity, reification, and stakeholder commensurability

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Non-Technical Summary. Research on "corporate biosphere stewardship" and the related concept of "keystone actor" has proliferated in recent years. We scrutinize the program focusing on issues and assumptions associated with inequality, naturalizing social processes, or reification, and characterizing corporations as equivalent stakeholders in sustainable development with other actors and organizations. As a result, we argue the program does not promote the stated claim of transformative change for sustainability. We suggest that the research program should develop a deeper analysis of social dynamics, forces, and structures, based in social theory, particularly sociological work, which can help reveal common taken for granted assumptions.

Technical Summary. We highlight important assumptions associated with the research program in sustainability science developed around "corporate biosphere stewardship" and the promise of "science-business initiatives." In doing so, we interrogate a central concept in this research, "keystone actors." We analyze the program based on associated research outputs and communications, focusing on three key challenges 1) inequities related to the concentration of political-economic power 2) concerns with naturalizing social processes, or reification, and 3) the limitations of characterizing corporations as commensurable stakeholders in sustainable development. This research program has revealed some important conditions and dynamics in relation to consolidation and concentration in global industries. However, it has been limited by insufficient integration of knowledge from social science, particularly sociology. Thus, the approach tends to undertheorize social dynamics, processes, and structures. Despite being framed as an effort at "improving the prospects for transformative change," the implications, outcomes, and recommendations that emerge from this research program may inadvertently promote increased control and power of elite actors by presenting an ostensible inevitability of corporate dominance for bringing about social welfare and sustainability. We suggest greater attention to social structural dynamics, and particularly social struggles and social movements, when considering the potential for transformational change for sustainability.

1. Introduction

There is a growing body of prominent research around the notion of 'corporate biosphere stewardship' and the promise of 'science–business initiatives' in sustainability science (Bebbington et al., 2019; Blasiak, Jouffray, Wabnitz, Sundström, & Österblom, 2018; Folke et al., 2019, 2020; Jouffray, Crona, Wassénius, Bebbington, & Scholtens, 2019; Nyström et al., 2019; Österblom, 2017; Österblom et al., 2015, 2017, 2020; Virdin et al., 2021). This scholarship highlights the benefits of sustainability researchers working closely with large corporate actors – particularly in sectors characterized by high concentration of ownership – to promote sustainable systems of production and consumption. Accordingly, 'Corporate biosphere stewardship provides a new business logic with the purpose of shepherding and safeguarding the resilience of the biosphere for human well-being' (Folke et al., 2020). From this perspective, large corporations represent an overlooked asset in the quest to 'achieve transformational change in our relationship with the planet' (Österblom et al., 2020).

Broadly, we describe the corporate biosphere research program as one that emerged largely out of the Stockholm Resilience Center and has emphasized the potential of private actors in a variety of sectors – including finance – for fostering sustainability, and working closely with large corporations in natural resource intensive sectors as essential for advancing sustainability science research. A central conceptual component that has been used by many research outputs associated with this program is the 'keystone actor' (Österblom et al., 2015). The concept is employed as a parallel to the keystone species, initially developed to analyze ecological systems, particularly food-webs. A keystone species is one that is considered essential to the

stability of the ecosystem, and therefore has a disproportionate influence on its fundamental properties (Cottee-Jones & Whittaker, 2012; Paine, 1969). The keystone actors concept maintains that human enterprises can similarly have disproportionate effects on their environment, and some social actors, that is large corporations, are fundamental to the 'social-ecological system's' structure (Nyström et al., 2019; Österblom et al., 2015).

The corporate biosphere stewardship research program stresses sensible efforts toward sustainable development, particularly in resource-intensive sectors. In order to do so, the approach suggests that identifying and working earnestly with keystone actors, and surrounding financial actors, provides crucial leverage points for achieving sustainable development goals (Folke et al., 2019; Jouffray et al., 2019; Nyström et al., 2019; Österblom, 2017). Practicality and efficiency are emphasized, given that the time window for achieving sustainability within planetary boundaries is shrinking. The corporate biosphere stewardship approach asserts that many large enterprises base their economic development on specific ecosystem resources, for example fish stocks. As such, the firms are regarded as key stakeholders within complex social-ecological systems, with strong incentives to act (Norström et al., 2020; Nyström et al., 2019).

This research program has been thriving over the last several years, published widely in many prominent scientific journals and endorsed by members of the private and public sectors. For example, the flagship initiative 'SeaBOS' (a collaboration between scientists and leading seafood companies) (SeaBOS, 2020) is co-funded by industry, scientific institutions, and private philanthropic foundations. Research projects associated with this program have also received public funding from prestigious Swedish funding bodies and endorsed by the Crown-Princess of Sweden.

As sustainability science is an interdisciplinary field that is problem-driven and solutions-focused, the research program rightly engages with both biophysical and social questions, and their integration (Isgren, Jerneck, & O'Byrne, 2017). It has offered insights and important descriptions of the structure of global industries that engage directly with ecological systems, such as extractive sectors and genetic resources (Blasiak et al., 2018; Folke et al., 2019). However, the explicit and tacit assumptions in the research program, particularly its interpretations of social processes and the causes and consequences of inequalities, reveal some significant analytical concerns. These issues point to fundamental obstacles with the conceptual, practical, and analytical utility of this initiative for achieving its stated goals.

With the aim of prompting a constructive discussion and debate, we provide a brief critical examination of the corporate biosphere stewardship research program, highlighting important assumptions and undertheorized postulations that undergird this approach in sustainability science. We draw on the existing research outputs in the field to support our analysis. While other works have responded to particular articles, we provide a more overarching, albeit concise, assessment of the larger program (Etzion, 2020; Schneider et al., 2020). We contend that this research program ought to be understood as a conservative or possibly reformist (not transformative) one, which at best can produce incremental improvements, but more likely reinforces entrenched social conditions, power relations, and resource management strategies historically associated with unsustainable and inequitable outcomes. These concerns stem in great part from the research program's limited incorporation of social science, particularly critical sociological, knowledge, and underutilization of social theory. We structure the paper around three issues: (1) assumptions about the consequences of industry concentration, (2) naturalizing of social processes, and (3) risks associated with scientific co-production with corporate 'stakeholders'. Finally, we outline some basic aspects of an alternative approach to sustainability research with greater potential to contribute to transformational change.

2. Power in concentration

One central tenet of the corporate biosphere stewardship research program is that major players in various sectors increasingly recognize the importance of healthy ecosystems in maintaining and advancing their earnings. For example, as stated by the signatories of the '1st Keystone Dialogue' of the SeaBOS initiative: 'We [seafood corporations] know better than anyone that the seafood industry depends on sustainable use of the ocean for long-term value creation' (SeaBOS, 2015). Researchers have also pointed to the significance of 'reputational risk management' and the 'mindsets and values' of corporate leaders (Folke et al., 2019; Virdin et al., 2021).

A second tenet of the approach is that industry concentration offers opportunities for more efficient environmental governance, which researchers should not be too comfortable or prejudiced to pass up (Österblom, 2017; Österblom et al., 2020). With a small number of companies having a 'disproportionate ability' to guide a sector, it is pragmatic for scientists to work with them in tandem (Österblom et al., 2015). Small- and medium-sized enterprises are not sufficiently global in their reach and tend to be linked to, and operate within, the purview of the larger corporate actors (Folke et al., 2020; Hileman, Kallstenius, Häyhä, Palm, & Cornell, 2020). Corporations that dominate a sector, and also potential finance capital that invests therein, provide openings for strategic 'leverage points' for sustainable management, since 'a relatively small shift in their practices has the capacity to lead to fundamental changes in the system' (Jouffray et al., 2019). Through formal participation in sustainability initiatives, keystone actors are in a 'unique position' to 'foster greater accountability' and 'fostering greater equity' (Blasiak et al., 2018). Their leadership could bring about 'cascading effects… and enable a critical transition towards improved management of… ecosystems' (Österblom et al., 2015).

Corporate biosphere stewardship researchers recognize the program's close similarity to well-known corporate social responsibility (CSR) models, but suggest that interaction with sustainability scientists and coproducing knowledge provides an important new orientation with great promise. CSR approaches are often met with skepticism among social scientists (Málovics, Csigéné, & Kraus, 2008). Generally, this skepticism is not due to simplifying corporations as inherently 'bad' actors, but results from the perspective that corporations and their leaders are bound and constrained by imperatives and rationalities that often systematically conflict with sustainability and equity goals (Banerjee, 2008; Málovics et al., 2008). Indeed, even industry insiders have expressed wariness regarding the efficacy of corporate environmental governance (Fancy, 2021).

There is acknowledgment among advocates of the program that 'Market concentration and corporate power are often regarded as roadblocks to social progress given the business priority of economic profit over non-market values' (Folke et al., 2019). Thus, environmental risks and inequalities associated with corporate sectoral concentration are correctly recognized (Folke et al., 2019; Virdin et al., 2021). However, there is little within

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the analyses developed by the research program to suggest that these fundamental problems are fully appreciated, as they are not thoroughly interrogated. Therefore, a central conclusion within the research program is that these risks can be largely overcome by harnessing the power of large enterprises through more science–business initiatives. A genuine recognition of these matters would more directly address the existing critical concerns around this and other CSR-type approaches, which can raise serious doubts regarding corporate stakeholder collaboration as an entry point of transformative sustainability research. Instead, skepticism regarding the role of corporations in sustainability transformations are, in the end, set aside as 'stereotypes that abound in science […] that industry is bad' (Österblom et al., 2020).

A key point in our examination of the corporate biosphere stewardship research program is that the approach is built on a misreading of how political-economic power structures tend to work. As other scholars have noted, 'Concentration of power and resources (particularly economic wealth) in the hands of a few facilitates them polluting and degrading the environment with impunity, exacerbating inequity, influencing economies and regulations in their favour' (Leach et al., 2018). Concentration and consolidation in industries has been shown to be a factor driving socioecological problems (Havice & Campling, 2017; Longo, Isgren, & Clark, 2021a). It is simply not the case that corporations have it in their inherent interests to sustain ecological conditions for the common good. This, again, is recognized within the research program, yet it does not effectively inform the approach (Schneider et al., 2020). As stated, private corporations' *primary* impetus is to make profits and accumulate capital, rather than to produce social values, such as biodiversity – and the two frequently clash (Hinton, 2020; Leach et al., 2018; Longo, Clark, Shriver, & Clausen, 2016). For example, large corporate seafood enterprises are motivated to maintain the most economically marketable species, not necessarily an array of species; just as large timber companies seek to maximize timber volume of marketable tree species, not diverse forest ecosystems (Foster, Clark, & York, 2010; Longo, Clausen, & Clark, 2015). Unsurprisingly, corporate actors have shown themselves to be more interested in developing sustainable markets than sustainable ecosystems (Ponte, 2012; Willer, 2021). These are not simply questions of morals or values of business leaders, but structural dynamics and dictates, which require rich applications of social theory and research for analysis.

From a sociological perspective, the individual views of managers and executives (and the non-binding voluntary sustainability declarations that they sign) matter little in relation to the social structural imperatives and institutional dynamics related to, for example, rationalization, social stratification, commodification, and growth (Polanyi, 1944; Weber, 1913). These are dynamics that have been examined at depth in environmental sociological research, as well as other areas of social science (e.g. Carrillo & Pellow, 2021; Foster et al., 2010; Gunderson & Fyock, 2021; Longo et al., 2015; York, 2017). Indeed, the concentrated power of key corporate enterprises is often used in a manner that, directly or indirectly, circumvent equity and sustainability goals (Dunlap & Brulle, 2015; Pellow, 2007). This is done through government influence, impeding technological development (e.g. away from fossil fuels), magnifying environmental inequalities, externalizing costs, dominating cultural institutions (e.g. mass media and universities), consolidating public wealth and resources, among other processes (Howard, 2016; Longo et al., 2021b).

Other related matters are time horizon and spatial scale. Due to the very structure of present-day market economies, corporations focus on relatively short-term profits, not long-term sustainability. For example, if a corporation can extract valuable timber at a rapacious pace that undermines the long-term sustainability of the forest ecosystem, it is not necessarily a bad business decision (Willer, 2021). The capital gained from rapid logging can be invested in other business propositions, which promise high returns. Corporations are not inherently tied to any particular resource or ecosystem (the way that, e.g. indigenous communities or small-scale fishers are), since they can and do shift capital investments regularly. Those investment shifts can occur within the specific sector (e.g. from fishing for one species to fishing for another species), or between sectors (e.g. from timber to other financial assets), or to another geographic location. Furthermore, many corporations are conglomerates with diverse subsidiaries. Capital is entangled in international networks and can be shifted as needed (Hymer, 1972). Thus, corporations – especially transnational corporations – are unlikely 'engines' of sustainability transformations (Österblom, Bebbington, Blasiak, Sobkowiak, & Folke, 2022a).

3. Naturalizing social processes

The keystone actor concept was originally developed in relation to research on marine systems, and later extended (Folke et al., 2019; Österblom et al., 2015). Regarding marine resources, keystone actors are predicted to 'not only have a disproportionate ability to steer the direction of the seafood industry but also to shape the world's marine ecosystems and how they are managed' (Österblom et al., 2015). Generally – analogous to how keystone species warrant particular attention given their disproportionate role for the structure of ecological communities – 'identifying these key actors is a critical step toward encouraging innovation, fostering greater equity, and promoting better ocean stewardship' (Blasiak et al., 2018).

This conceptual approach risks reifying corporate power and naturalizing social hierarchies (Dale, 2021). That is to say, it essentially turns a socially constructed phenomenon, a corporation, into the equivalent of a biophysical one, an organism, as a basis for broader sustainability. The keystone metaphor also leads to a fundamental misreading of how corporations operate. Unlike a keystone species, which serve important ecological functions that, for example, can help maintain biodiversity, corporations tend to suppress competition and monopolize resources and power, thus reducing diversity of social forms. As such, they are not at all like keystone species. Corporations are not ecological categories, they are social – more specifically economic – entities. Indeed, within the parameters of the current social order, they tend to appropriate disproportionately from common pool resources, and concentrate the benefits within a small group of social actors. The research program is based on one that emphasizes 'social-ecological systems', but it must be careful not to reify socially constructed aspects of these systems.

The naturalization of social processes, conditions, and institutions is a frequent problem associated with applying 'common sense', but not theoretically informed, notions to social phenomena (Gramsci, 1971). By doing so, existing social conditions are accepted as givens, rather than as historically contingent forms that are thereby alterable. In a striking example, Folke et al.

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(2019) argue that 'Reality presents us with dominance', and thus 'the global dominance of TNCs [transnational corporations] is a reality of the Anthropocene'. TNCs may be dominant, but they became so through contingent and ongoing social processes and struggles, and have very recent historical origins. Indeed, TNCs can be transformed through human decisions and plans. Thus, they develop in a manner unlike the evolutionary and ecological processes that give rise to keystone species. Their dominance can decline through future social struggles and structural changes – also in the 'Anthropocene'. The keystone actor model instead implies that historically developed, social structural circumstances are given, fixed, and essentially unchangeable. This 'common-sense' social analysis stems from an ahistorical starting point, lacking in the wealth of knowledge from social science, and particularly the rich insights from historical sociology (Longo et al., 2021b). In terms of social theory, it takes the current social order as a functional necessity and results in positing a 'false necessity' to social conditions (Calhoun, 2003). This is essentially a Panglossian view, where 'all is for the best in the best of all possible worlds', a common conclusion in functionalist interpretations (Olsson, Jerneck, Thoren, Persson, & O'Byrne, 2015).

4. Scientific cooperation and the commensurability of stakeholders

The corporate biosphere stewardship approach acknowledges that prior versions of corporate environmental and social responsibility have not been very effective (Folke et al., 2019; Österblom, Jouffray, Folke, & Rockström, 2017). Nevertheless, with the help of the scientific community, this tide may be turning (Österblom et al., 2022a, 2022b). More and more, corporations are voluntarily recognizing the need to incorporate sustainability into their agendas, understanding that they are among the many 'stakeholders', with an interest in sustaining earth systems (Österblom et al., 2020). Through collaborating with scientists, 'pioneering companies' can increasingly incorporate sustainability standards, forcing both upstream and downstream actors to grapple with them (Folke et al., 2019). The vital importance of healthy ecosystems can thus reverberate throughout the production chain. The feasibility and expediency of the approach appear self-evident. Large corporations, like others who rely on ecosystem services, are stakeholders. Scientists' cooperation with these keystone actors provides great potential to advance 'transdisciplinarity and co-production of knowledge', two popular trends in sustainability science research (Österblom et al., 2020).

This aspect of the research program is challenged for three major reasons. First, it casts the approach as transformative transdisciplinary knowledge co-production, but underplays the obvious risks of industry cooptation and reinforcing elite dominance. Researchers are careful to emphasize that the motivation to engage with keystone actors is their objective importance, not political conviction. They recognize the risks associated with private funding in terms of perceived legitimacy, assuring that researchers act as independent scientists and that the research is not directly funded by the corporations (Österblom et al., 2017, 2020). However, avoiding *direct* financing of the scientific work by participating corporations does not necessarily guarantee independence or objectivity. Assuming so signals a serious underestimation of the complexity associated with transdisciplinary research in regards to power relations and agenda-setting (Fritz & Binder, 2020). That is to say, as co-production of knowledge is designed to do, close interaction with these 'stakeholders' has significant influence on the types of research questions that get asked and the analytical direction the research project takes. Additionally, there is insufficient deliberation when it comes to the financial support provided by philanthrocapitalist foundations (about SeaBOS, 2020; Haydon, Jung, & Russell, 2021). These foundations are becoming increasingly influential in research and policy on environmental (and other) issues, but their tendency to champion market-based solutions over community control, undermine participation, and leverage public resources for private gain highlights the need for a high degree of reflexivity on account of researchers (Gruby, Enrici, Betsill, Le Cornu, & Basurto, 2021; Haydon et al., 2021; Holmes, 2012; Thompson, 2018).

Second, the approach is ultimately rooted in an information-deficit understanding of unsustainability, which poses that it is lack of knowledge (in this case, among corporate management) that stands in the way of sustainable practices and effective CSR work. In this view, the central driver of corporate actions, that is profit maximization and accumulation, is seen as easily incorporated into sustainable decisions and practices once properly informed by science. Indeed, once managers are enlightened, the drive to secure profits is even framed as the cure. However, as discussed above, this lacks a deep engagement with social theory that emphasizes the influence of social structure and social forces in shaping decisions and actions of individuals and the enterprises they run. Organizational structure and institutional arrangements can and do significantly affect the ways in which enterprises interact with ecosystems (Fancy, 2021; Grant, Bergesen, & Jones, 2002; Waddock, 2020).

Third, elite corporate actors are framed as just another in the long line of stakeholders that sustainability researchers ought to collaborate with in transdisciplinary knowledge co-production (Norström et al., 2020), alongside (for example) indigenous communities and other marginalized groups on the one hand, and democratically elected representatives on the other. These actors are much too heterogeneous in terms of political influence, economic resources, and the 'stakes' they have in sustainable use and management of specific ecosystems, to all be gathered under one umbrella term. The largest and wealthiest enterprises in the world, for example transnational seafood companies, are not equivalent stakeholders to small-scale producers, for example artisanal fishers. As discussed above, the power asymmetries are extraordinary. Putting them broadly on the same plane, again, misses the accumulated power of the largest actors and the vast influence that they have over the political-economic and cultural landscapes. In particular, the corporate biosphere stewardship approach does not sufficiently stress the undemocratic nature of this power, which is likely further reinforced through the offering of scientific legitimacy. The clarification that science–industry collaboration should not be seen as an 'expression of support' (Österblom et al., 2017) indicates awareness of this problem, but is not enough to avoid it. This would be of less concern if it were historically the case that 'keystone actors' inherently operate in the interest of long-term sustainability. We have argued that they do not, and indeed, it is well known that corporate actors – and the economic logic under which they operate – have played a large role in creating the environmental and social problems the research program suggests they can help solve (Clapp, 2018; Clark & Longo, 2021; Hinton, 2020; Mallin & Barbesgaard, 2020; Schneider et al., 2020).

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5. Conclusion: sustainability science for just transformative change

Framed in the language of pragmatism and urgency, the corporate biosphere stewardship research program implies that sustainability scientists do not have time to ignore the potential for rapid global impact that working directly with large corporations can have for 'shepherding' a sustainable transition. Such statements evoke the 'grand challenges' narrative associated with philanthrocapitalism, which tend to marginalize questions of participation and process in favor of the 'pace and scale of impact' (Brooks, Leach, Millstone, & Lucas, 2009). While the sense of urgency is justified, such narratives can obscure alternative pathways which may seem slower, but have very different implications in terms of who is empowered or disempowered or what kinds of social changes are deemed reasonable or practical (Marcuse, 2013). The latter is crucial when the goal is system transformation, as many sustainability scientists deem is necessary and indeed some researchers within the approach have implied (Österblom et al., 2022a). Therefore, situating this research program within efforts for transformative change risks hollowing out the notion. At best, the corporate stewardship approach represents a reformist research program that takes the given circumstances as the most practical way to address sustainability challenges (Mathevet, Bousquet, & Raymond, 2018). Without sufficiently interrogating the theoretical assumptions within the research program, in the process, it may block avenues for truly transformative change by entrenching and legitimizing existing and inequitable social conditions (Leach et al., 2018).

While it is beyond the scope of this short paper to thoroughly elaborate an alternative research program, we propose an approach that contrasts of the corporate stewardship program in two fundamental ways. First, it is essential to engage earnestly with social science scholarship on corporate power, social structure and agency, social forces, and social change, rather than taking a casual, 'common-sense' approach, which assumes that maximum impact can be had through collaborating with elite actors. For example, there is a wealth of research in environmental sociology that has elucidated the complex ways corporate actors have thwarted climate sustainability goals. Second, it is vital that sustainability scientists foreground that environmental challenges cannot be neatly separated from other social processes. Environmental degradation is intricately connected with social inequalities and injustices (Leach et al., 2018; Mohai, Pellow, & Roberts, 2009). Thus, in many cases, achieving sustainability goals requires challenging existing power structures to develop truly democratic systems (Pellow, 2007, 2017). This means acknowledging that sustainability is deeply political, and there is no way to sidestep social struggles by simply informing, or being informed by, elite actors. Thus, when considering the role of large corporate enterprises, sustainability science research should fully incorporate a careful social science analysis of the structural forces associated with, for example, commodification, the economic growth imperative, capital accumulation, privatization of the commons, and environmental inequalities and how these conditions and dynamics affect individuals and institutions (Foster et al., 2010; Gould, Pellow, & Schnaiberg, 2015; Longo et al., 2015). These are not marginal matters that can be overlooked without analytical consequence, and require theoretical acuity. Touching on the risks to sustainability associated with corporate actors is not enough. These risks demand deep socioecological analysis as the implications are enormous.

Our examination is not, by any means, a call to abandon the solution-oriented agenda of sustainability science in favor of critical analysis. Rather, the two can and must be combined, as previously argued by Jerneck et al. (2011). In order for sustainability research to be meaningfully solution-oriented, it must also be *problem*-driven – that is, it must entail systematic, theoretically informed analysis of what ultimately causes and perpetuates sustainability challenges (Harnesk & Isgren, 2021). This does not wholly rule out the possibility of scientists in various ways engaging with private sector actors. However, considering the analytical issues above, we hold that science–industry collaboration with the largest corporate actors makes for an improbable starting point for transformative sustainability research. We propose that the starting point for developing solutions should focus on understanding the social drivers and dynamics that result in sustainability problems, not which actors currently have the most resources and power.

Thus, within the current unsustainable social dynamics, solutions-oriented, potentially transformative research asks: are there alternative ways of organizing the political-economic conditions which better align ecology and economy, and less likely produce unsustainable outcomes? What social actors are engaging in collective action toward 'non-reformist reforms', that is, those which open up opportunities for transformative change (Asara, Otero, Demaria, & Corbera, 2015; Harnesk & Isgren, 2021; Temper, Walter, Rodriguez, Kothari, & Turhan, 2018)? What sustainable alternatives are limited due to the further entrenchment of existing and highly unequal political-economic relations (Crews, Carton, & Olsson, 2018)? Theoretical foundations and methodological heuristics for research along these lines have been elaborated elsewhere (Harnesk & Isgren, 2021; Longo et al., 2021b).

In short, instead of focusing on the potential of the largest corporations and market mechanisms, such as 'shareholder activism' or brand reputations, for advancing sustainable transformations, we suggest that sustainability science pay closer attention to social structural dynamics and power struggles, and, as a result, the critical potential for social movements and civil society to bring promising solution pathways to the fore. While not inevitable, it is well known that some social movements have had consequential effects on societal development in ways that have advanced well-being. For example, labor, racial justice, anti-war, gender, and sexuality movements have made progress toward achieving more equal and just societies by effecting changes in economic conditions, policy, institutions, and culture (Giugni, McAdam, & Tilly, 1998). Thus, research on sustainable transformations can better emphasize the need for larger systemic changes, driven from the bottom up, rather than top-down corporate reform.

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