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# The Politics of Sustainability and Development

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## Keywords

sustainability, development, politics, transformations, institutions, governance

## Abstract

This review examines the relationships between politics, sustainability, and development. Following an overview of sustainability thinking across different traditions, the politics of resources and the influence of scarcity narratives on research, policy and practice are explored. This highlights the politics of transformations and the way these play out under combinations of technology-led, market-led, state-led, and citizen-led processes. In particular, this review points to the politics of alliance building and collective action for sustainability and development. Transformations cannot be managed or controlled, but must draw on an unruly politics, involving diverse knowledges and multiple actors. This review highlights how politics are articulated through regimes of truth, rule, and accumulation, and how understanding such political processes has implications for institutional and governance responses. The conclusion reflects on future research priorities and the methodological stance required for an effective response to the political challenges of sustainability and development.

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## INTRODUCTION

In 2015 the world committed to 17 sustainable development goals (SDGs), and a historic new agreement on climate change was signed. These two events signal a major shift in international commitments to both sustainability and development. However, behind this seeming consensus lies much disagreement as to what the goals and agreements mean, who should benefit, and where responsibilities lie. The politics of sustainability and development are central.

The term sustainability was first used in relation to forest management in Europe in the eighteenth century, but it was only in the late 1980s that the ideas of sustainability and development were connected. The Brundtland Commission defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (1, p. 45). Especially since the first United Nations (UN) conference on environment and development in Rio in 1992, there have been a plethora of definitions, academic commentaries, and policy initiatives (2, 3). In this period, sustainability became a boundary term, connecting science and policy and diverse actors with multiple interests (4). However, pinning down what sustainability and development mean—technically, normatively, and politically—remains a challenge, despite the terms’ growing prominence in public and policy discourse. Today, we have sustainable economies, resources, businesses, livelihoods, cities, agricultures, and of course development. The boundary work for sustainability—building common understanding, embedded in epistemic communities, with joint commitments—has become a massive undertaking.

Such work is represented in major scientific assessment processes (such as the Intergovernmental Panel on Climate Change, the Intergovernmental Platform on Biodiversity and Ecosystem Services, or the International Assessment of Agricultural Knowledge, Science and Technology for Development), as well as international policy processes under the aegis of the UN on climate, desertification, biodiversity, and more. All of these are hugely political processes, centered on contests over knowledge and who can speak for whom (5, 6). Around sustainability and development concerns, networks of diverse actors have formed, alliances have been built, institutions and organizations have been constructed, projects have been formulated, and large amounts of money have been spent over the past 30 years.

But what does this all mean, and how should we conceive of these much-used buzzwords of our time? How should different actors intervene in what are now universally regarded as major local and global challenges? How can transformations to sustainability and development be achieved? This review focuses on the politics of these processes, drawing out conceptual issues from a diverse, cross-disciplinary literature. It also focuses on the politics of knowledge—and how issues are framed, definitions are arrived at, and goals are set—as well as the politics of interests—and how positions are asserted, commercial-political interests are deployed, and alliances for or against change are formed. However, debates about sustainability and development and their interconnections are frequently focused on technical-economic dimensions, and politics has often been implicit, if discussed at all. As the world moves toward implementing the SDGs and realizing the climate agreement—from global to local settings—politics will come to the fore. Having the intellectual tools to address such challenges will be vital. This review, by offering a window into a huge and growing literature, aims at providing an important resource for this urgent challenge.

The review is organized as follows. First, I offer a brief overview of sustainability thinking across different traditions and its links to development. Next, I examine the politics of resources and the influence of the narrative of scarcity on research, policy, and practice. This highlights an array of political issues, which are expanded upon in a discussion of transformations and the way these play out under technology-led, market-led, state-led, and citizen-led processes, as well as their combinations. The review emphasizes alliance building for sustainability and development. This theme is then continued in a final section on political processes, highlighting regimes of truth, rule, and accumulation as ways of dissecting these. The review concludes with an assessment of implications for politics and action, including a discussion of institutions and governance, as well as a reflection on future research and the methodological stance required for an effective response to the political challenges of sustainability and development.

## A BRIEF HISTORY OF SUSTAINABILITY THINKING

What have been the intellectual underpinnings of this explosion of sustainability thinking and practice? Ecologists have long been concerned with how ecosystems respond to shocks and stresses, and mathematical ecology blossomed through the 1970s and 1980s, with important work on the stability and resilience properties of both model and real biological systems (7). As with the original use of the term sustainability, these understandings have informed sustainable yield and resource management practices in a range of ecosystems (8). Sustainability—or alternatively resilience (9)—was defined as the ability of a system to bounce back from shocks and stresses—including offtake and harvesting—to return to stable equilibrium states.

These terms were conservative, technical concepts, which focused on a return to a status quo. Such an equilibrium view, premised on assumptions about the balance of nature, has been challenged, however, by both the ecological and social sciences, with a more complex nonequilibrium systems view emerging (10). In addition, with the growth of thinking about sustainable development, a more holistic notion was promoted, where normative, political goals concerning environment, economy, and society were applied. Here, concepts of transformation, transition, and pathway have become important, focusing on progressive directions of change toward normatively defined goals of sustainability and development. Under conditions of dynamic uncertainty, no single state can be achieved, and an approach to incremental change and adaptive management and learning for sustainability is advocated (11–13).

Different disciplinary traditions have grappled with these concepts, aiming for conceptually rigorous and operationally useful approaches to sustainable development. Neoclassical economists, for example, have drawn on the idea of natural capital (14). In “weak” versions of sustainability,

natural and human-made capital are substitutable, as long as long-term utility and well-being are maintained. However, “stronger” versions argue that stocks of natural capital need to be maintained. Others pointed to the importance of critical natural capital (15)—which performs irreplaceable environmental functions, such as providing ecosystem services. But, economists’ notions of capitals offered a rather mechanistic, static picture of complex systems, and the idea of natural capital in particular, although widely used and popular (16), has been heavily criticized (17).

Ecological economics meanwhile traced more concrete links with dynamic ecological systems, generating such fields as lifecycle analysis, energy balance analysis, ecological footprint assessment, and alternative national accounting systems, each examining how ecological and economic systems are coconstituted (18). Although offering a more ecologically attuned approach, ecological economics too can resort to mechanistic, closed-loop systems thinking, without sufficient attention to nonequilibrium, complexity dynamics and divergent outcomes (19).

In recent years, earth system scientists have offered the idea of planetary boundaries, arguing that for a “safe space for humanity” to be sustained, these must not be transgressed (20, 21) in the new epoch of the Anthropocene (22, 23). Nine boundaries are defined, based on existing biophysical data, and in recent assessments three have been argued to be transgressed, with several more at risk. This has provided a scientific backdrop for work on natural capital accounting and climate change (24) or biodiversity and ecosystem valuation (25). Since the Millennium Ecosystem Assessment, a huge amount of work has been undertaken on the valuation of ecosystems (26), as a basis for market-led responses (see Market-Led Transformations, below). These approaches too have been widely critiqued (27), because they also take too simplistic a view of dynamic ecological systems, due to the problematic assumptions often embedded in simple valuation exercises (28).

Others have taken a different approach, arguing that planetary and social boundaries have to be seen together and in more concretely normative terms. The challenge is then to navigate a safe and just space for humanity between highly dynamic biophysical and social boundaries (29). Here the requirement for a basic minimum social floor is identified, suggesting an approach to economic analysis for sustainability that takes basic needs and social justice as central. This requires negotiating particular pathways for sustainability and development, ones that are not amenable to managerial control, and must emerge through debate and political contest, not through the primacy of economic or biophysical science—although both are of course needed.

A longer tradition of integrative sustainability science has looked at natural hazards, focusing on climate change within regional geographies and linking understandings of both natural and social systems (30, 31). Recent discussions of the resource nexus—connecting food, water, and energy, for example (32)—have attempted to link across sectoral sustainability concerns through integrative analysis, although often without taking politics seriously enough (33). Adopting a more explicitly political perspective, political ecology in its varied forms has long linked resource use with wider political economy analyses (34–37), increasingly with a focus on both the politics of people, place, and the materialities of resources (38), as well as the politics of knowledge (39).

Drawing on wider popular political concerns about the relationships between environment, well-being, and struggles for social justice, political scientists such as Andrew Dobson (40) have delineated political theories that incorporated a green politics perspective. Here sustainability concerns are put at the center of a normative understanding of social and political change.

An integrative approach—starting from a complex systems analysis, but examining in particular how systems are framed, and as such understood in different ways by different people—has emerged under the umbrella of the ESRC STEPS Centre’s pathways approach (41). Linking constructivist perspectives from science and technology studies, with material political economy concerns from development studies traditions, the approach emphasizes how alternative pathways to sustainability

are constructed in different sociopolitical contexts, examining the distributional and social justice consequences. The pathways approach draws upon a variety of the literatures already mentioned, but firmly focuses on the politics of direction, distribution, and diversity in choices concerning sustainability and development (42), and as such links normative concerns with an analytical approach.

Therefore, across these large areas of cross-disciplinary literature (only briefly reviewed here), we have multiple versions of sustainability: broad and narrow, strong and weak, dark and light green, technical-economic and political, and more. Some focus solely on environmental change, whereas others take the more inclusive stance of Brundtland, connecting environmental, social, and economic dimensions. Which version of sustainability, and so what direction of transformation, is chosen, is of course down to politics. This makes the politics of knowledge, interests, and wider political economy contexts central to sustainability thinking. These are themes that are taken up in depth in the subsequent sections.

## **BEYOND SCARCITY: RETHINKING RESOURCES**

Much of the contemporary sustainability debate—from debates about limits to growth (43) to the more recent discussion of planetary boundaries (20)—has been framed in terms of resource scarcity. Relative scarcities in resources between people and places are assumed to drive economic incentives (indeed define the discipline of economics) and in turn provide the justification for implementing market solutions and the construction of tradable commodities (44). Equally, relative abundance or scarcity results in resources curses (45), conflict (46), and potentially war (47); although there are many critiques of securitization and environment-conflict discourses (e.g., 48). A renewed (neo-) Malthusian narrative relating populations to resources has thus evolved in recent years (49), with narratives of scarcity at the core (50).

Particularly since the confluence of multiple food, fuel, and financial crises in the late 2000s, this has resulted in a range of “grabs,” as corporate actors, state elites, and local alliances have enclosed and appropriated resources—whether land, water, conservation areas, carbon, or minerals—around which there has been an explosion of literature (e.g., 51–54). This in turn is facilitated by the financialization and commodification of resources in markets, with new financial instruments being used as different resources gain value (55, 56).

Although the rush for commodities has tailed off, with changes in the global economy, the overall dynamic of global hubs of capital seeking out opportunities for accumulation to satisfy consumption and growth needs remains (57). This is of course not a new phenomenon and indeed is how capitalism has long functioned, most especially in a globalized, liberalized world (58). Transformations to sustainability require transformations of this system, as ecological Marxists and others have long argued (59, 60). This in turn requires a move beyond the scarcity discourse to a relational, political understanding of resources and sustainability (61). Although not rejecting the material realities of resource limits and the dynamics of the Earth’s systems, a hard look at the political relations implied in scarcity debates is urgently needed (62).

In this view, scarcity is not a fixed feature related to the amount of a commodity and its price in a global market, but has to be understood politically in relation to historically specific patterns and forces of production, distribution, and consumption. Resources are always constructed; they are generated through social and political processes and produced by people in different places (63). Resources as assemblages (64) with varying forms of sovereignty (65) are not just things, but are wrapped up in social and political relations (66). Just as humans are part of nature (67), interlinked through complex “metabolic” relations and processes of accumulation in capitalism (59, 68), so too are resources, which are therefore mutually constituted with society and economy. Such a political

perspective on resource scarcity thus links our understandings of sustainability to wider political-economic dynamics, operating within the global capitalist economy. It allows us to understand grabs and questions surrounding the resource nexus in this broader political economy context—as part of the current moment of capitalist expansion, rather than a momentary phenomenon associated with a particular crisis (57).

This suggests ways of responding. Rather than focusing on economic instruments, narrow institutional responses, or draconian control measures, including the securitization and militarization of resources (69, 70), this perspective highlights the importance of restructuring the relationships between resources, the state, markets, and society. This requires paying attention to how resources are distributed. Scarcity for one person may be abundance for another. Scarcities are generated not only through absolute limits, but also through unequal access. If scarcities are constitutive of social, political, and economic relationships, addressing environmental and resource questions is centrally about such relational politics (50, 71–73).

Class, gender, age, ethnicity, and inherited histories of location in a globalized world all become relevant in understanding scarcity in context. With this, ideas of social justice become the core of the debate, thus recasting our understandings of sustainability and development (74). The idea of “just sustainabilities” (75, 76) is therefore central to this reframing. As a result, we need to be clear about the political consequences of scarcity-driven interventions on the relations within a society, as an intervention to conserve a resource or protect a planetary boundary may have far-reaching distributional and social justice consequences.

As mentioned above, there has been a growing literature looking at sustainability issues in this vein, drawing on the intellectual traditions of political ecology, historical and political geography, social anthropology, and some strands of political science. This helps us understand scarcities in their social and political contexts, getting away from a simplistic Malthusian relationship. Timothy Mitchell (77) argues that resources and their politics are inevitably constructed in relation to a particular historical moment and its political economy. He argues that in relation to energy sources, the age of oil and coal can only give way to an alternative renewables future if the wider configurations of power—involving states, corporations, and labor unions, but also the associated knowledge, expertise, and infrastructure—are fundamentally refashioned. What Ben Fine (78) refers to as the minerals-energy complex for South Africa is intensely powerful in many parts of the world, taking on different forms. Its unraveling requires new alliances to form and powerful interests to be challenged.

As Lyla Mehta (79) argues in relation to water, the constitution of the resource, the cultural and social values that it imbues, and the sociopolitical processes that govern access all point to a much more nuanced understanding of resource control. A focus on access, control, property, and rights become central in this view (80, 81), requiring processes of negotiation between actors over who gains what and under which institutional and political conditions. Often a simple solution to complex resource management and control problems is evasive, and an institutional bricolage (82) must be constructed. In the same way, debates about land revolve around access and rights in highly differentiated populations, where often tense, sometimes violent, competition over resources occurs. Conflicts between external investors, the state, (para)military groups, and local people in the context of the so-called land rush raise questions of tenure rights, gender access, and wider land administration systems and their political economy. This in turn shifts attention from questions of land availability to the negotiation of access and control, and the need to develop institutions that address this process.

In the push toward a low-carbon economy, there is also another type of politics emerging, which is focused on individual and collective politics of responsible consumption (83, 84). Politics is enacted through the measurement and monitoring of carbon accounts, footprints, certification

and lifecycle assessments, and facilitated changes of diet, travel, and lifestyles (85–87). Resource politics thus becomes more individualized, within a new politics of sustainable consumption.

## TRANSFORMATIONS TO SUSTAINABILITY

As noted above, a central theme of the growing literature on sustainability is the focus on transformation processes. Although there has been a growing consensus on the end points of sustainability, combining environmental, social, and economic goals—now parsed in terms of circular, low-carbon, or green economies (88, 89)—there has been less discussion of how to get there and of the social, cultural, institutional, and political challenges that arise (90). This is a theme continued in the final section. Before this, the review focuses on understanding the contexts for transformation and the politics that arise. Drawing on other typologies (e.g., 91, 92), four overlapping processes of transformation can be identified (62), each articulating different ways of theorizing transformations and their politics.

### Technology-Led Transformations

The narrative that silver-bullet technological solutions are the solution to the world's problems is a familiar one and is part of the modernist imaginary of development. As a response to the limits to growth arguments of the 1970s, techno-optimists argued that science, technology, and innovation would release us from environmental limits (93). A version of this view can be found in recent contributions, most notably *An Ecomodernist Manifesto* (94), sometimes linked to grandiose geo-engineering solutions to global climate change. Such views have been widely criticized for their naivety about the promises of new technologies and the potentially draconian politics implied (95); although, as with discussions about the Anthropocene (96, 97), there has been some encouragement for critical social science to engage with the debate (98).

By contrast, an alternative technology-focused narrative emphasizes small-scale, appropriate technology and a more bottom-up, grassroots approach to innovation (99), echoing earlier appropriate, intermediate, or socially useful technology movements. The potentials for low-cost “leap frogging” with cheap, small-scale appropriate technologies, such as solar photovoltaics linked to community energy systems (100), is emphasized, for example. Here the challenge is to develop the capabilities—among technology suppliers, brokers, credit providers, servicers, and repairers—for a move to an off-grid rural electricity supply (101).

Groups supporting this type of technology-led transformation are likely to be more socially embedded and located in communities or workplaces, and the process ends up with an array of technological solutions. Today, initiatives such as the Transition Towns movement in the United Kingdom are examples in which low-carbon technologies are integrated with architecture and design in restructuring urban environments for sustainability (102). Alternative lifestyles and livelihoods are promoted, marking an alternative social and technological vision that is rooted in different production-consumption relations with alternative economic values and a new politics. The digital economy and the ability to redesign work arrangements mean that in many cities there is a flourishing new economy, focused, for example, on maker-/hackerspaces and fabrication labs (103), offering sustainable design and innovation. Wider grassroots networks can also mobilize alternative technologies for sustainable transformations, such as in India with the Honey Bee Network or the All India People's Science Movement, or in Latin America around movements for social technologies (104). A key argument of such movements is that for technology to be transformative and sustainable, the process of technology generation must be accountable and democratized.



In historical analyses of such sustainability transitions (105), multiple factors always combine. Some conceive of such processes as occurring across multiple levels simultaneously, with innovations occurring in niches, transforming regimes, and being conditioned by landscapes (see also 106). Transitions management attempts to provide guidance on how to facilitate such changes deliberately (107), although experiences in European settings have shown how changing power structures and relations is essential, alongside sociotechnical design (108). Innovation for sustainability transformations thus must take into account politics, shielding, nurturing, and empowering local-level niches that might challenge wider incumbent regimes as part of a political process (109, 110). However, as with any transformation, the wider conditions of democratic politics for successful, radical innovation and sustainability transformations are key (see below).

## Market-Led Transformations

Market-led solutions aim to get the prices right, resulting in incentives to conserve, protect, and assure sustainability (111). As discussed above, environmental economics aimed to create policies that internalized the externalities or generated green accounts that incorporated the costs of environmental damage into national or company accounting (26, 27). Markets for offsets (of carbon, biodiversity, habitats, even species) have been created (112, 113), and payments for ecosystem services schemes have been generated (see above).

Carbon trading systems, for example, must make carbon equivalent—commensurable within market systems—and thus link trees fixing carbon in one part of the world with offsets of carbon emissions in another (114, 115). This creates a particular type of politics, one that links locations through markets in ways that make conventional institutional regimes difficult to operate. New rules for offsetting, trading, and resource control must in turn be envisaged (116–118).

As noted, such commoditization of nature has resulted in various forms of dispossession, resulting in wider questions about market environmentalism as a route to sustainable development (54, 119, 120). New market relations, badged as the green economy (89, 90), may in turn reinforce existing extractive, exploitative neoliberal capitalist relations (121, 122) and fail to deliver sustainability.

Some wonder whether the green economy is not just a replication of the existing neoliberal economy, without challenging the power relations that created the crises of sustainability in the first place (123). As many countries move to establish a green economy, galvanizing private investment for at least notionally sustainable solutions, we must ask how this will be realized on the ground, in diverse contexts, and who will be the winners and the losers. More fundamentally, scholars and activists are advocating alternative trajectories of “degrowth,” which reject the assumptions of mainstream economic thinking and seek the shrinking of production and consumption for more democratic, just, and sustainable futures (124).

## State-Led Transformations

According to many commentators, sustainability and development are classic public goods challenges and are not amenable to simple market solutions. Long-run, cross-border collective action problems often require states to intervene, sometimes as part of a transnational response (125, 126). However, states have different histories, capacities, and politics in relation to the environment (127). State-led transformations therefore take many forms.

An ecological modernization approach sees a strong role for the state (128), pushing forward market and technology-led transformations through directed financing and support for innovation. Much of the debate about green economies or green states (129, 130) has been framed in these



terms, largely around northern experiences. However, there are of course other trajectories that may emphasize, for example, the state's role in building resilience and climate adaptation, or pushing for more radical transformations (131). Initiatives across a region such as sub-Saharan Africa show many different pathways (132).

This was the lesson from earlier debates about developmental states, especially in East Asia (133). To counter narratives about market-led development, and the prominence of the Washington Consensus, research reflected on how rapid transformations in economies, spurring growth and improvements of livelihoods, occurred in countries such as South Korea, Taiwan, and later China, Thailand, Vietnam, and elsewhere. Fundamental state-led redistributions (of land and other resources) helped initially, and then the state coordinated, nurtured, and financed industrial development in a patient and careful way.

Mariana Mazzucato (134) has picked up on this theme with her argument for the “entrepreneurial state.” State funding for space exploration, military equipment, biotechnology, or industrial engineering has provided the “patient capital” that has allowed corporations to exploit and profit from such innovations. The financial costs of achieving sustainability transformations are enormous. This requires public investment and policy incentives to mobilize patient, long-term, private finance, whether in early stage innovation (135) or later in implementation (136).

The global low-carbon energy and renewables sector reveals the role of states in sustainability transformations. The United States was an early leader and led important breakthroughs, but the venture capital firms that provided initial backing were not in it for the long term, and initiatives faltered. By contrast, China has provided substantial state backing for renewable energy innovation, design, and manufacture and has rapidly become the world leader in solar photovoltaic technologies, for example, exporting products globally (137). From its beginnings as a community-led initiative, Danish wind power has become a global market player, while Germany has moved to replacing its nuclear capacity with renewables through massive state-supported private investment. Other countries, such as the United Kingdom, have lagged behind largely because of the absence of consistent, sustained state support (138).

Thus a green entrepreneurial state (139) picks winners, provides funds for the long term, and ensures that green technologies become available on the market, following research and development investment. Indeed, most of the market-led examples highlighted in the previous section—whether carbon offset programs under the UN REDD (Reducing Emissions from Deforestation and Forest Degradation) program or renewable energy investments—have required some form of state intervention, even if in a fairly limited regulatory role. States and markets are not separate and, especially for meeting global public objectives such as sustainable development, must come together.

States and markets of course operate in context and are influenced by histories and politics. There is no neat formula to replicate the ideals of the entrepreneurial or developmental state, green or otherwise. Comparing political economies—and particularly different relationships between state and capital (140, 141), and the history, capacity, experience, and political legitimacy of the state and its institutions—explains some of these contrasts. Powerful, incumbent forces and historical lock-ins of political, commercial, or technical interests mean that in some settings transformations are especially challenging (142). The role of state institutions and their forms of accountability become important in effecting change (143). Different pathways are observed. For example, one might involve a strong, centralized state, with substantial clout and enforcement capacity, as in China; another might involve a decentralized, democratic response, where states (or more often federal regions) compete with each other and have strong forms of downward accountability to electorates, as in Germany (144).

However, the assumption that nation states have control over resources, and so can regulate, order, and control their use—often through a rigid, homogenizing style of planning (see also

145)—can be challenged, as weak states confront influential capital investment and the creation of enclave arrangements for resource extraction, often backed by private security arrangements (146). Contests over resources at the margins of state power, as in the pastoral areas of the Horn of Africa for example (147), where fragile institutional arrangements exist and national borders and legislative arrangements have little meaning, take on a different form. Transformations to sustainability in such settings of weak states and ungoverned spaces (148) will inevitably look significantly different.

Not all states of course are committed to the greening of economies and transformations to sustainability. Despite the growing political commitment to sustainability in principle, and an increasing amount of funding, particularly for climate financing (149, 150), there may be other priorities. And, indeed, as already noted, sustainability means different things to different people in different contexts. In extremely poor settings, for example, improving livelihoods and reducing poverty is a priority (151). In other settings, sustainability policy rhetoric is trumped by the power of incumbent or corrupt interests (152). And, in others, states have been “hollowed out,” limiting their power and capacity. Some states are aid dependent and therefore unable to influence spending, with sustainability narrowly constructed by external aid donors, increasingly around the conditionalities of climate finance. In conflict settings, states may be highly fragmented, and with little authority (153), and sustainability concerns may not be on the agenda at all.

Political economies and their historical contexts therefore really do matter. Sustainability transformations have to work with the grain (154) if they are to have any chance of success. But does this mean jettisoning the principles of democracy and accountability, equity, and justice as part of the politics of sustainability? Is saving the planet so important that these become secondary, as some suggest? Some argue that the liberal values of good governance will not necessarily deliver sustainable development without more active, directive, and sometimes unaccountable, state intervention. Again the apparent successes of East Asia are often pointed to. In Africa, Ethiopia and Rwanda, for example, have promoted a version of the developmental state, even in the context of a lack of democratic institutions, and both have initiated active state-led programs around the green economy and sustainability (132). However, others contend that such styles of transformation are limited and that only with a more democratic, accountable, and citizen-led process can effective, long-lasting, and legitimate sustainability transformations be achieved (123, 155).

## **Citizen-Led Transformations**

Citizen-led transformations link mobilization, network formation, and institution building for sustainability transformations (156). These processes take multiple forms, and can intersect with state and market-led transformations and, as discussed earlier, may link firmly to the promotion of alternative technologies emerging from grassroots innovation.

Various sustainability transformations emerge in this way. For example, responding to the massive challenge of urban waste in India, locally led solutions involving organized waste pickers, local communities, activist groups, and municipal authorities now exist. Recycling at home and at the neighborhood level and involving a highly marginalized but skilled group in sorting and managing waste, often with the support of low-cost solutions, are alternatives to a technological-market solution (157).

In the same way, community-based natural resource management solutions (158, 159) are advocated in different parts of the world in response to the failures of state-led conservation of resources. In some instances such mobilizations genuinely provide new institutional arrangements for local management; but too often there is capture, both by local elites and the state, as simplistic versions of community and management unravel in the face of social differentiation and political

contest (160). Often borne out of donor and nongovernmental organization (NGO)-led initiatives responding to the lack of state capacity during the 1980s and 1990s, these efforts can be cast as “hybrid neoliberalism” rather than anything genuinely citizen led (161).

Northern environmental movements have in many respects been highly successful in making sustainability and development central concepts of the global policy discourse (162). Over time, environmental movements have also appeared in different guises in the global South (163), offering new perspectives. But overall such movements have often failed to link environmental issues to wider rights, recognition, and livelihood struggles to allow a wider mobilization in society, with real political influence (92). Green parties have had limited impact outside the coalition politics of continental Europe (164). And environmentalism sometimes remains the preserve of the relatively rich, urban middle class, linked increasingly to an individualized politics around consumption, lifestyles, and everyday life.

However, despite these limitations, there are important traditions in environmental and climate justice movements, as well as feminist environmental activism (165), that link questions of identity, race, gender, rights, justice, and livelihoods firmly with sustainability (see above discussion). Poverty, inequality, and discrimination are deeply intertwined with patterns of unsustainability. People living in poverty may also express local concerns around environmental issues, articulating a so-called “environmentalism of the poor” (166). Emerging in particular locales, often around particular issues—such as toxic waste dumping (167)—such citizen-led environmental justice movements can generate collective action on sustainability and development, facilitating radical transformations.

In addition, citizen-led actions also take place outside organized movements. Indeed, sustainability may be part of normal, day-to-day livelihood practices. For example, indigenous peoples and forest dwellers practice conservation and have deep knowledge of forest resources and their uses (168). In the same way, many biodiversity-conserving and agro-ecological practices of small-scale farmers have been documented (169). Local knowledges and practices thus may become an important basis for building pathways to sustainability. Sometimes such practices become institutionally embedded over time, and silent, below-the-radar sustainability can be generated, perhaps especially in contexts where organized movements do not exist (170).

Such forms of organized or even incidental collective action can have enormous power and have been at the root of at least the first stages of waste recycling, community growing, organic and agro-ecological food production, community energy systems, sustainable transport, and alternative building design, among multiple other initiatives (171). These later garnered state or private support and emerged as a central basis for sustainable development practice.

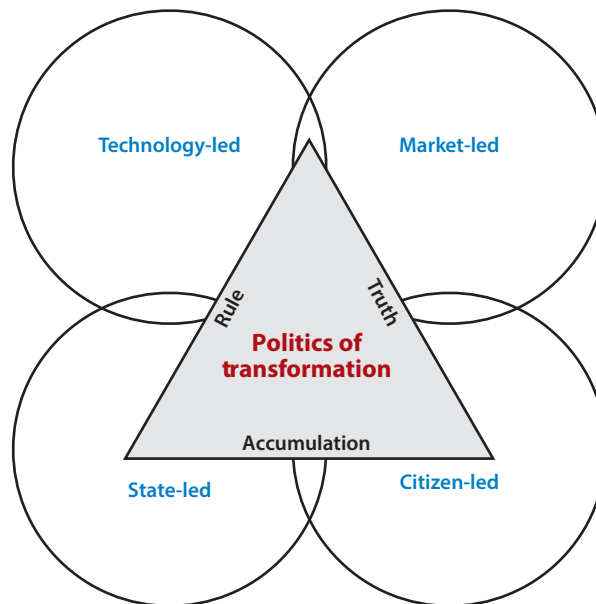
In thinking about citizen-led transformations, there is a need to pay attention to how located citizenships—reflected through identities, cultures, and practices (172)—contribute to debates about sustainability. These may be individually constructed around bodily health, consumption patterns, behavioral changes, and lifestyles (173), as well as in relation to more collective struggles for change (174).

Can globally connected, citizen-led movements provide the basis for transformations to sustainability? Dangers can emerge in monolithic social movements that assert a unified globalism, a fixed view of technical solutions, and singular pathways of change. Agro-ecology, food sovereignty, circular economies, transition towns, and other symbolic examples of sustainable development may be advocated in terms of singular solutions, yet may take on different forms, and are always subject to dispute and contest (see also 175 on food sovereignty, for example). Just as “seeing like a state” (145) limits vision, “seeing like a movement” can suppress and silence the diversity, energy, and innovation of creative alternatives.

Translating emancipatory ambitions into globally connected, citizen-led movements for sustainability and development is a major challenge, requiring the simultaneous accommodation of diverse views, while projecting a common vision (176). Lessons from the feminist, labor, peace, and human rights movements are important, where major progressive gains were made over time (177). Contemporary struggles over inequality (via the Occupy movement), food sovereignty, or climate justice may have parallels, with new forms of transnational mobilization being forged (178) and facilitated by connections made through new social media (179). However, transformations may also have to be built through connecting smaller, incremental changes, driven by diverse forms of citizen action across multiple sites over time, rather than imagining a singular, organized citizen-led response.

Across social movements, North and South, there are of course varieties of environmentalism, with multiple, often quite local characteristics that may be challenging to connect (180). Transnational mobilizations around sustainability therefore can galvanize such contextual understandings and motivations, while connecting diverse groupings with wider concerns, in an agonistic movement politics (181). “Culturing sustainabilities” (155) requires rooting concerns in diverse political framings, and emphasizing democratic struggles and political contention, rather than managerial or political control.

Across these four transformation processes, different politics emerge. Politics may be local or global, individual or collective, informal or formal, contentious or consensual, but politics are ever-present. None of these transformation processes operates in isolation; all intersect (**Figure 1**). As the examples have shown, citizen-led efforts may initiate but may be facilitated and supported by states and markets. Technologies are central to many transformations, but their meanings and implications will depend on wider politics—whether embedded in market-, state-, or citizen-led processes. What works in one place may not work in another, given particular contexts of history and political economy. Such a typology therefore helps in uncovering patterns and processes



**Figure 1**

Transformations and politics for sustainability and development (drawing from References 92 and 192).

of transformation and points to the diverse politics of transformations, a theme explored in the remainder of this review.

## UNDERSTANDING THE POLITICS OF TRANSFORMATIONS

How then should we conceive of the politics of such transformations? How can we understand transformations to sustainability and development and help create alliances, movements, policies, institutions, and wider governance arrangements that help construct them?

Debates about sustainable development point to different processes of transformation. Sustainability transformations are increasingly being understood in relation to long-range processes of change, including technological innovation and finance (182), as well as wider historical political economy processes (see also 183). Transformability is emphasized in cross-scale analyses of the resilience of socio-ecological systems (9). Active, purposive navigation of socio-ecological change is in turn understood in terms of adaptive governance (184), triple-loop social learning (185), social innovation (186), and reflexive governance (11). Equally, complex systems theory is sometimes used to examine transformations, highlighting the role of tipping points in socio-ecological systems (187). In another tradition, drawing from multi-level analyses of sociotechnical change, transition management points toward particular institutional and policy levers for effecting changes toward sustainability (188; see Technology-Led Transformation, above).

However, these literatures on purposeful, directed, managerial transformations to sustainability have been challenged. Many such perspectives have a limited or weak theorization of power and politics. A more all-encompassing notion of transformation—rather than simply sociotechnical transition, social-ecological change, adaptation, or resilience building—points to more fundamental political processes (131, 186, 189–191). But to develop a deeper theorization of the power and politics of transformations, we also need to draw on wider literatures, including a return to some of the roots of social and political theory that focused on transformative processes in previous eras—from Marx to Lenin to Gramsci to Polanyi.

Michael Watts and Nancy Peluso (192) suggest that understanding social and environmental change requires examining three overlapping “regimes.” Each theorizes power differently, and each suggests the operation of different political dynamics. So-called regimes of truth (who understands what and in which frame—drawing on, for example, Foucauldian analyses of knowledge and power) govern what transformations occur and in which directions. Here, a constructivist perspective, well represented in certain strands of science and technology studies, for example, is highlighted (193). Framings of problems and solutions, as well as the discourses and narratives that arise, become important (194). Perspectives on risk and society (195), knowledge and uncertainty (196), technology and politics (197), and historically informed political cultures (198), all inspire any regime of truth. Such frames in turn are constructed through particular social imaginaries, deep historically and culturally informed versions of the world (199). These are read sometimes as sociotechnical imaginaries, whereby social and technical elements are brought together (200). The deployment of such regimes of truth may occur through particular practices and routines, creating calculative devices to generate, for example, environmental change or climate models that provide scientific justification for what needs to be done. Such practices also construct market mechanisms, bringing environmental goods and services into the market realm (201). Following Foucault, such regimes of knowledge and knowing in turn may impose forms of governmentality—the “conduct of conduct” (202)—that define what is regarded as legitimate and justifiable knowledge and practice for sustainability transformations, thus constraining and channeling pathways (203).

Such regimes of truth are embedded in what Watts & Peluso (192) refer to as regimes of rule (who controls what and through which forms of governance). Gramscian notions of hegemonic

rule are pertinent, as particular social, political, and cultural factors generate “historic blocs,” where consensus over knowledge and practice reigns and a close alliance of actors maintains a particular position (204, 205). Some argue that an elite consensus rules over particular versions of sustainable development, or indeed notions of the Anthropocene, but these need opening up and challenging. Such analyses can help explain the power of incumbency and the difficulties of challenge to existing unsustainable policies and practices. In the past, such regimes of rule were often sustained by strong states, exerting control through economic policy and planning systems. “Seeing like a state” (145) provided the basis for order, control, and authority. Confronting such power might be done through electoral challenge or wider mobilizations—in Gramsci’s terms, “wars of position”—from outside the current regime and through transformations explained in terms of the struggles of “contentious politics” between states and citizens (176).

However, the power of states has declined, often through a combination of liberalization and the destruction of state capacity (206; see *State-Led Transformations*, above). In some settings, this has created a “post-political” polity, increasingly dominated by non-state actors, including large corporations (207). Equally, in conflict-affected parts of the world, states have fragmented, often with limited authority in parts of their notional territory. Here, others may assert control, whether through private corporate interests, local elites and warlords, informal militia, drug gangs, or organized terrorist groups (70, 146, 208). Unlocking transformations to sustainability and development is, not surprisingly, especially challenging in such contexts, as conventional market, state, and citizen configurations have shifted. Where states have been weakened or undermined, the reassertion of regimes of rule, rooted in democratic state formations that frame, guide, and steer development-oriented transformations for sustainability, becomes essential (139).

Finally, the politics of transformations have to be understood in relation to regimes of accumulation (who gets what and how it is distributed, the classic concerns of political economy; see also 209). In capitalist settings, the political complexion of interests that maintain the status quo or galvanize alliances for transformation is inevitably influenced by the possibilities of profit and accumulation, whether by private companies, states, or individual elites. Karl Marx’s notion of “primitive accumulation” focuses on the process by which capital emerges as a social relation based on laborers being compelled to work for capitalists who hold the means of production as private property, expropriated from others through, for example, land enclosure, slavery, and colonial expansion (210). This has been extended to explain processes of what David Harvey (58) terms “accumulation by dispossession,” or the process of public assets being enclosed by private interests for profit, in turn driving accumulation and increasing social inequality. In neoliberal settings, he argues, the interplay of four processes is seen: privatization, financialization, the management and manipulation of crises, and state redistributions, whereby the neoliberal state favors capitalist business interests over others. The result is enclosure, exclusion, and dispossession. Following Karl Polanyi (211), understanding how regimes of accumulation fundamentally change the nature of commodities (in Polanyi’s terms, creating new “fictitious commodities”; see also 212) reveals how markets can become disembedded from social control.

However, neoliberalism and the politics of contemporary capitalism take on multiple forms (213, 214). Understanding the possibilities and limitations of transformations therefore has to take a located, historical perspective on changing relationships in capitalism. There are different fractions of capital in different geographical contexts, as today capitalism takes on many different styles. The relationships between states, private actors, and wider society differ dramatically, generating varying social-political relationships in society.

This has significant implications for how transformations may occur; reigning back control over markets and financial systems, especially in the context of a weak state and a lack of



coherent and sustained citizen mobilization, requires new thinking. Given contemporary political economies—with multiple sources of power and control, and diverse patterns of accumulation—transformations to sustainability, just as other emancipations from particular types of dominance, require more than Polanyi's "double movement" between state protections and markets, but a wider mobilization to challenge existing forms of domination. This is what Nancy Fraser (215) terms an emancipatory "triple movement," linking market-, state-, and citizen-led transformations. These must connect a politics of redistribution (and issues of class and social difference) with a politics of recognition (and questions of identity and identification), with a politics of representation (and questions of community, belonging, and citizenship) (216).

## GOVERNING TRANSFORMATIONS TO SUSTAINABILITY AND DEVELOPMENT

If the intersection of the three regimes of truth, rule, and accumulation define the possibilities and limits of transformation, then how can change be actively facilitated, moving beyond the mechanistic and managerial, and so apolitical, versions of governance described above? Given the increasingly hybrid, networked arrangements that constitute contemporary governance, cutting across the public and private spheres and involving a diversity of actors (217, 218), the agreed starting point of most accounts is to go beyond the simple state/market/society triad and look at intersections, alliances, and coalitions, as well as fissures, dissonances, and conflicts (see also 219–221). An actor-oriented approach that links agency and practice with wider structures in an iterative fashion is often taken. Eschewing the focus on levels or scales, connections and relationships can be traced across particular locales and sites, which may in other nomenclatures be described as local or global.

A common focus of governance reforms for sustainability and development is institutions, understood as the formalized rules that define conduct in society (222). Institutional reform reflecting regulations, incentives, and policies for sustainability may be seen to promote new pathways to sustainability and development. New institutional economics has become a popular route to linking society and economy, identifying how institutional reform, influenced by various transactions costs, can help us move toward more sustainable options (223). However, such approaches have been critiqued for focusing on individualized incentives and being too functionalist in outlook, and therefore failing to engage with wider political economy processes (224).

Comparative analysis of institutional and policy arrangements has provided a way of apprehending "varieties of capitalism," contrasting, for example, in the European context, coordinated and liberal market economies (140), or more variegated forms elsewhere (225). These historically inherited institutional forms and associated governance regimes are used to explain how certain outcomes arise, including pathways to sustainability, via, for instance, investments in low-carbon energy economies (144). However, such static-equilibrium analyses fail to take account of the historical dynamics of institutional change and the ongoing negotiations between different groups.

In many liberalizing, capitalist societies, alliances of actors shape and reshape institutions, often through a gradual, incremental, or sometimes subversive process of change, involving institutional displacement, layering, drift, conversion, or exhaustion (222). This contrasts with theories of rapid, radical change and institutional rupture, where transformations occur through external shocks and forces that are linked to sometimes revolutionary upheavals and require the overturning of existing orders and structures of authority through mass mobilizations (176). Whether transformations are gradual or sudden, or have elements of both over time, a historical perspective is essential to reveal how directions of change are negotiated through complex sociopolitical relations, involving multiple actors over time.



Such a perspective offers a way of nuancing the now popular concepts of multi-level, polycentric governance (22) and challenging perspectives on environmental governance that call for more centralized oversight and control (126), with institutions created that can assure environmental stewardship on behalf of humanity in order to avoid catastrophe. For example, in much of the discourse of the Anthropocene, asserting humans' dominion over nature, arguments for technocratic control (as in recent arguments for ecomodernism; see above and 94), or centralized planetary management (e.g., debates about a World Environment Organization) continue to emerge, despite being widely critiqued. By contrast, close examination of existing processes of global environmental governance shows how this is in practice made up of diverse players, connected in different ways and associated with multiple locations (226). Networks link actors across multiple sites, generating momentum around change (227). In the context of highly fragmented authority, where nation states compete with corporates, international NGOs, and scientific groupings for a voice, a more networked, relational perspective, rooted in understandings of complex change, is essential.

Accepting the hybrid, networked forms of governance that exist and the diversity of institutions involved (228), our understanding of transformations to sustainability and development must be embedded in political contexts. Many argue that an essential feature is democracy, where located, culturally rooted, and emancipatory movements can emerge to generate change, both rapid and gradual. This requires attention to knowledges, cultures, and democratic practice (155). This is not a simplistic, unified, or cosmopolitan politics emerging from some globally defined consensus, nor one characterized by earlier binary struggles between state and market, or state/market and society, but one that is perpetually agonistic, conflictual, and full of dissent and debate (181). Politics are enacted in diverse sites and through a range of alliances, often outside the conventional political or governance system. Vibrant, dissenting, conflictual, and rooted in identity and social formations, "the political," and thus governance, takes on a new form, confronting liberal forms of democracy, markets, and authoritarian regimes.

This means transformations to sustainability are not processes that, according to Andy Stirling (229, p. 1), are "managed under orderly control, through incumbent structures according to tightly-disciplined knowledges, often emphasizing technological innovation, towards some particular known (presumptively shared) end"; instead, he continues, they involve "more diverse, emergent and unruly political alignments; more about social innovations, challenging incumbent structures, subject to incommensurable knowledges and pursuing contending (even unknown) ends." Given the configurations of power and institutions, such processes will look different, depending on the location and the specific issues, but, as shown in the diverse literatures reviewed here, many cases of experiments in sustainability and development point to such emergent, radical alternatives occurring, whether in the context of changing agri-food systems, experiments in urban sustainability, or major changes in energy economies toward low-carbon, renewable alternatives.

Connecting this practice with a wider understanding—and in turn theorization—of transformations is a major intellectual and practical challenge for the future, and both existing and emerging literatures on the politics of sustainability and development have much to say about it. As this review suggests, no single synthesis or framework will suffice, as diverse pathways must emerge in different places. But, as we bring into focus these diverse pathways and the complex political challenges of constructing pathways to sustainability and development, we are beginning to acquire the tools to think about and act on these most pressing of humanity's challenges.

## CONCLUSION

What then does a focus on the politics of transformations to sustainability and development suggest for future research? Our understandings of wider “great transformations”—in all their diversity and through the intersections of technology-, market-, state-, and citizen-led processes—are, as this review demonstrates, especially illuminated by detailed, longitudinal analysis of particular people in particular places.

Appreciating the processes of wider transformation from the bottom up is immensely revealing, offering insights into the way different regimes of truth, rule, and accumulation operate in tandem, each deeply embedded in social and cultural processes. Only with insights from historically informed, ethnographic study can we grasp the complexities of and variations in transformations. Whether in the context of a rural village, an urban housing co-op, a social movement, a government bureaucracy, or an international scientific assessment process, uncovering the contested politics of negotiation surrounding the various directions of transformation inevitably shows that there is no singular pathway to sustainability and development.

However, analyses of transformations must not stop at revealing the diverse, contextual specifics of multiple cases. The challenge, as Karl Marx highlighted long ago in his treatise on method in political economy (230), is to connect these specificities—what he called the “multiple determinations”—with the “concrete” wider structuring processes of political economy. For example, when exploring the dynamics of sustainable livelihoods (231), research must uncover the broader structures at play, including the patterns of social differentiation and distribution and so class formation, gender hierarchies, and racial and ethnic discrimination, as well as how these intersect with detailed livelihood practices on the ground. Sustainability and development outcomes are inevitably highly variable, contingent, and conjunctural. This has important implications for monitoring and evaluating change. Singular indicators or metrics of transformation will always be insufficient, and a process-based, reflexive learning approach becomes essential. This must encompass active reflection on not only changing structural drivers, but also shifts in micro-level relations and practices, as well as a deep appreciation of politics (232).

Constructing pathways to sustainability and development is inevitably a normative struggle, rooted in political and moral choices. A structural analysis of regimes of accumulation and associated regimes of rule, therefore, must be connected to a deeper analysis of the politics of knowledge—and as such regimes of truth—and how sustainability and development are constructed. It also must relate to a focus on people’s agency and the social relationships that constitute society. For it is through these processes—formal and informal—that transformations are constructed in networks, alliances, and coalitions and connect diverse actors—including state and business actors, scientific-technical elites, and citizens’ movements.

The focus must be, therefore, on how local knowledges and practices are connected with wider transformative change. A focus on these relationships—and the “messy middles” between the local, national, and global that they expose—offers an important vista for future research; as building alliances for transformations, rooted in place and connected to people, must be the route by which urgently required, new transformations for sustainability and development are built.

### SUMMARY POINTS

1. Transformations to sustainability and development occur through the intersections of technology-, market-, state-, and citizen-led processes, each with different political dynamics.

2. States and markets are not separate, but must come together and be reinforced by citizen action, especially for meeting global public objectives such as sustainable development.
3. Different politics are articulated through regimes of truth, rule, and accumulation; understanding such political processes has implications for institutional and governance responses for sustainability and development.
4. Given contemporary political economies—with multiple sources of power and control and fragmented authority—transformations to sustainability require a wide mobilization to challenge incumbent power.
5. “The political,” and therefore “governance,” must take on new networked forms, rooted in collective action and challenging liberal forms of democracy, markets, and authoritarian regimes.
6. New forms of environmental governance connect people and places globally across networks; building alliances for transformations requires linking diverse actors—state and non-state—through both formal and informal processes.
7. Transformations to sustainability and development cannot be ordered, managed, and controlled, but must emerge from unruly political alliances, diverse knowledges, and collective organization.

### FUTURE ISSUES

1. An understanding of transformations to sustainability and development must emerge through detailed, longitudinal analysis of particular people in particular places, focusing on the politics of alliance building.
2. Experiments in sustainability and development—and comparing these across places and topics, and over time—can help us understand the potentials of transformations and how these can be organized.
3. Connecting the practice of building sustainability with a wider understanding—and in turn theorization—of the politics of transformations is a major intellectual and practical challenge for the future.

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