



The politics of making and un-making (sustainable) futures

# Futures of sustainability as modernization, transformation, and control: a conceptual framework

Frank Adloff<sup>1</sup> · Sighard Neckel<sup>1</sup>

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## Abstract

In the last three decades, sustainability has become a guiding principle for states, organizations, companies, and social movements as well as a general ideal for social change. While sustainability seems to be a rather inevitable path of development, there is no consensus over the goals and visions of the future associated with this concept. Proponents of a “Green Economy,” for instance, regard economic growth as a prerequisite for sustainable development and advocate a modernization of society, which implies moderate adjustments toward a sustainable economy within the current institutional framework. Critics of this ecological modernization approach see the imperative of economic growth as an obstacle for sustainable development and instead support a fundamental transformation of society. A third perspective tries to solve the problems of sustainable development with wide-ranging politics of control, using concepts such as “ecological state of emergency” or enforcing resilience measures for vulnerable populations while creating safe enclaves for a privileged few. These three possible ideal typical trajectories of social change—modernization, transformation, and control—are not fixed yet, but rather represent different and highly contested imaginaries of the future. These imaginaries then structure distinctive practices of sustainability in the fields of politics, the economy, civil society, and science. These practices in turn are interdependent with specific structures, such as material infrastructures or the ecological system of the earth. The proposed conceptual framework uses the theoretical concepts of imaginaries, practices, and structures to study the possible futures of sustainability, specifically modernization, transformation, and control, as well as possible interdependencies between these developments. It focuses on sustainability as a sociological category indicative for understanding socioeconomic change, the emergence of new conflicts, inequalities, hierarchies, and justification patterns that result from including sustainable criteria into different fields, institutions, and value systems. Deciphering futures of sustainability does not aim at providing prognoses or forecasts, but intends to work out an analytical concept that asks how contemporary societies change when they are guided by imaginaries of sustainability.

**Keywords** Sustainability · Modernization · Transformation · Control · Sociology · Futures

## Introduction

Ever since the concept of sustainability began to proliferate in the late 1980s, it has been used in response to experiences of crisis and global risks (cf. Beck 1992) caused primarily by the exploitation of resources that are vital to the survival of present-day societies—be it the natural resources

of our ecosystem, the economic resources that guarantee our wealth, the social resources of care and solidarity, or the personal resources of professional capacity and private lifestyles.<sup>1</sup> First and foremost, sustainability comprises the norm not to realize the present’s needs at the expense of future generations (as the Brundtland Report requested as early as 1987). This notion of sustainability has since come to be of indisputable social relevance, even though some commentators have criticized it as being a hollow phrase, too broad and too vague. Nonetheless, in the course of the last 15 years, sustainability has become a key concept of social change on the level of the world society (Meyer 2009). It gets proclaimed as a normative principle and is

Handled by: David Löw Beer, Institute for Advanced Sustainability Studies, Germany.

✉ Sighard Neckel  
sighard.neckel@uni-hamburg.de

<sup>1</sup> Universität Hamburg, Hamburg, Germany

<sup>1</sup> For the older historical roots of the concept see Caradonna 2014.

even frequently institutionalized, by societies and organizations, cities, businesses, and social movements—the United Nations’ seventeen “Sustainable Development Goals” of 2016 are a prime example. Sustainability has thus attained the status of a largely uncontested development model. However, very different processes, values, and visions of the future may be connected to invocations of sustainability: from attempts to initiate a major socioecological transformation to sustainability as merely a façade behind which rather unsustainable actions are practiced.

Exponents of a “green economy” (UNEP 2011) consider sustainability an indispensable requirement for future economic growth; they capitalize on a *modernization* of society, hoping thus to efficiently remodel institutional orders in line with the requirements of sustainability. Critics of such an approach instead aim for a fundamental social *transformation* since they see the dictate of economic growth as an impediment to a sustainable development (cf. Muraca and Döring 2018). Yet another potential trajectory would be to solve sustainability issues by means of a comprehensive policy of *control*. This may include sociotechnical surveillance methods, inner- and inter-societal externalizations of ecological burdens (Lessenich 2016), or measures for enhancing resilience among certain population groups—as well as disciplining and segregating them in the case of crises or disasters.

*Modernization, transformation, and control* thus represent three different ideal typical trajectories, three potentialities of social change. These trajectories do not so much refer to our actual future, though, but rather signal which *imaginations* about the future are currently competing against each other. While the future is per se uncertain, imaginations—which are semantically less clearly outlined than discourses—serve the purposes of illustrating that uncertainty and translating it into concrete blueprints for action.

Thus, we make a proposal to the social sciences how the three before mentioned trajectories may be researched and how imaginations of sustainable futures are related to practices and structures of (un)sustainability. The three analytical concepts of imaginations, practices, and structures are applied in the following to three visions of future making of sustainability that already can be observed. However, it is clear that these trajectories are ideal types and that empirically it is very likely that interrelations of these paths may occur. In sum, the paper focuses on sustainability as a sociological category indicative for understanding current socio-economic change, the emergence of new conflicts, inequalities, hierarchies, and justification patterns that result from including imaginations of sustainability into different fields, institutions, and value systems (cf. Neckel 2017; Neckel et al. 2018). This paper should not be read as an answer to

all questions we addressed but as a research program and an invitation to adopt an analytical perspective that, we hope, might prove itself as analytically and empirically fruitful for the social sciences studying sustainability as *futures for the present*.<sup>2</sup>

## Theoretical framework: structures, practices, imaginations

The futures of sustainability are focal points of ambivalent expectations: They create hopes for a “good life” as well as fears and feelings of vulnerability. Such collective *imaginations* about future effects of present-day actions are never solely structured by cognitive and normative knowledge but always have an affective and evaluative relevance for actors as well (cf. Castoriadis 1987; Adams et al. 2015). Imaginations of sustainability are embedded in existent *practices* (Reckwitz 2002) which are carried out in a variety of social fields (politics, economy, civil society, science) and which in turn structure the imaginations. In addition, practices aiming at sustainability are structured by the outcomes of earlier practices (cf. Giddens 1984: 73ff.) and by their interdependencies with material infrastructures and the earth system (cf. Elder-Vass 2017). Thus, if we want to examine the different trajectories of sustainability, we must analyze which enabling and constraining sociomaterial *structures* suggest which *practices* to economic, political, and civil society actors, and which affective/moral *imaginations* these practices are associated with. The concept of *imagination* occupies a key position within this conceptual triad since it is to collective imaginations that we owe the futures of sustainability, i.e., our current images of possible futures to come.

Of particular interest are infrastructures as material components of societies (van Laak 2004; Edwards 2003). Infrastructures are those material facilities that are indispensable to modern societies because they make social relations possible in the first place. Material infrastructures relevant to sustainability include non-fossil fuels, water, waste systems, private and public transport (e.g., rails, streets, gas stations, airports), or global knowledge and communication structures (see Bowker et al. 2010). To make infrastructures sustainable, they have to be imagined and created anew, as it has been the case with certain efforts in the energy and financial sectors (cf. Groß and Mautz 2014; Mellor 2010).

<sup>2</sup> This refers to the program of the newly established Humanities Centre for Advanced Studies “Futures of Sustainability: Modernization, Transformation, Control” at Universität Hamburg which is funded by the German Research Foundation and directed by the authors of this article.

In their evolution and usage, infrastructures and practices are mutually dependent: Infrastructures facilitate multiple practices (including unintended ones), while practices are ways of using infrastructures and prefigure imaginations of future infrastructures (Shove 2016). Apart from practices, by creating, expanding, or limiting spaces of possibility, infra(structures) also have an effect on *imaginings*. Thus, it has to be asked how expectations for the future depend on existing scientific and technological structures (resulting in path dependencies), while at the same time shaping scientific and technological change (cf. Borup et al. 2006; van Lente 2012).

However, constraints to *practices* and *imaginings* exist not only in sociotechnical infrastructural systems but may also be localized on the level of the earth system (Rockström et al. 2009; Steffen et al. 2015), i.e., with respect to the planetary boundaries within which human life and thus human societies are possible. Biophysical processes inherent to the earth system regulate its stability, and in order to secure the survival of human societies, human impacts must not exceed certain parameters of the Holocene. Earth system research does not regard its subject as a homogenous planet whose natural state of equilibrium gets disrupted during the Anthropocene.<sup>3</sup> Rather, the earth system consists of various complex subsystems with their own boundary values and tipping points (Steffen et al. 2015). In terms of social theory, sociology will have to discuss how the biophysical earth system itself—or humans' imagination of it—enables or constrains social action, and which policies seem appropriate (Clark and Yusoff 2017; Delanty and Mota 2017) in view of the fact that the earth system is so profoundly influenced by human behavior.

The second basic concept is that of social *practices*. Theories of social practices have been proliferating for some years now—as a productive alternative to action and systems theories whose cognitivism and intellectualism they challenge (cf. Schatzki et al. 2001; Reckwitz 2002). In fact, practices are based on a know-how, on behavior routines rooted in the body. Thus, we will stress the materiality of practices (bodies, artifacts) as well as their implicit logic (relativization of intentionality, implicit motives, affects). Practices of sustainability (such as planning, assessing, demarcating, quantifying, predicting, investing, consuming, mobilizing, moralizing, and reforming for goals of sustainability) rest on a practical understanding and ability, a “knowing how to go on.” In addition, there are normative rules and affectively anchored objectives. Practices are connected to

material artifacts, which serve as their anchor points and carriers. Each practice encompasses material conditions, be it practices of food consumption, heating, and doing laundry, or practices of spatial mobility. Material infrastructures in particular expand far into space and time, determining which practices may develop. This endows them with much impact on the future. Then again, infrastructures allow for a variety of practices of use, which usually evolve in parallel. The emergence of sustainable mobility initiatives, for instance, indicates that not only practices have changed, but also infrastructures and imaginations (cf. Shove 2016, 2017).

Recently, based on the work of Cornelius Castoriadis (1987) on the social imaginary, the concept of the *imagination* has been increasingly employed in research done in the social sciences and in cultural studies (cf. Adams et al. 2015). Such research acknowledges that individuals and groups do not just comprehend the world cognitively and represent it linguistically: Images, ideas, moods, emotions, and narratives also significantly shape human thought and action. In fact, social practices are more than just accompanied by imaginations; they would be impossible without them.

While imaginations reproduce practices and structures, they are also endowed with creativity and the power to conceive new things. This includes not just new insights or knowledge: Imaginations tie together cognitive, evaluative, and affective dimensions—knowledge, values, and emotions. The evidence and relevance of (implicit) knowledges depends on their type and intensity. An imagination merges cognitive, evaluative, and affective dimensions into positive or negative conceptual worlds. No differentiated validity claims (Habermas 1984) need to be linked to these imaginations; the factual and the normative tend to merge as well (Taylor 2004: 23ff.).

Next to images, fictions represent prime sites of experimentally portraying something that is not (yet) existent (Beckert 2016). Be it literary (science) fiction, movies, predictions, calculations, or statistically based forecasts: Fictions articulate and structure the constant stream of images and moods. Artistic, scientific, and stochastic fictions depict illusive, yet possible realities that simplify the world and may serve as models to real practices (of sustainability).

Planning actions means anticipating the results of future actions. This happens in the imaginative mode, and the plans thus conceived are constitutive of practices aimed at the future, especially those involving sustainability. So far, imaginations of non-sustainability prevail—e.g., in the form of apocalyptic images—and national imaginations outweigh cosmopolitan ones. However, some creative attempts at imagining global sustainable policies have been introduced in the last years (see Patomäki and Steger 2011; Coleman 2017).

<sup>3</sup> The concept of the anthropocene is not uncontested because it implicitly downplays the main responsibility of the early industrialized countries for global warming and therefore is criticized to be a normative questionable and apolitical concept, see Swyngedouw and Ernstson (2018).

Therefore, we propose the basic analytical concepts of structures, practices, and imaginations to address the three possible trajectories of modernization, transformation, and control, as well as their interrelations, from a social theory perspective.

## Futures studies as present studies

Debates about the sustainability society are debates about different visions of the future. Three essential research questions arise which are relevant for further sustainability research:

1. Which imaginations of sustainability are promoted in which constellations, by which actors? How do specific practices and structures in government, economy, and civil society help shape these imaginations?
2. How likely is it for one of the three trajectories—modernization, transformation, and control—to prevail? Which of them can already be observed empirically and which are currently emerging, possibly in interrelation with one another?
3. In terms of social theory: How do modern societies change with respect to their basic institutional order and their relationship with nature if they are guided by certain imaginations of sustainability? Which solutions for problems of sustainability arise from the dominance or insignificance of one of the three trajectories (or from their interrelated, parallel prevalence), but also which conflicts, new problems, and paradoxes?

Our conceptual framework's aim is not to engage in prognostics but to provide an analysis of the present that is *focused on determining how modern societies change when they are guided by different imaginations of sustainability*. What kinds of conflicts, problems, and paradoxes does the dominance or insignificance of modernization, transformation, or control result in? Each in its own way, these trajectories attempt to make an uncertain future predictable, to regulate contingencies, to make “unknown unknowns” into “known unknowns.” They also put different emphasis on various temporal aspects, such as reform, rupture, innovation, or short- and long-term adaptation. We do not proceed from the assumption that imaginations create their own future realities (like self-fulfilling prophecies): Their manifold interdependencies with entrenched practices and structures—especially with material infrastructures and the earth system—make unanticipated developments, events, and sudden changes appear more than likely. We are particularly interested in how the three potential trajectories may influence one another, which hybrid forms may evolve, and which paradox effects result from their interactions.

In what follows, we will examine the potential trajectories of modernization, transformation, and control along the theoretical register of structures, practices, and imaginations.

## Potential trajectories: modernization, transformation, control

### Sustainability as modernization

In analyzing sustainability as “modernization,” we explicitly do not refer to a normative concept of modernization which posits social change as a sociocultural evolution proceeding through certain stages and ending up in fixed patterns of societal organization (cf. Parsons 1966). We employ a formal concept of modernization that stresses the need for social reproduction to adapt to changes in the environment by means of selecting new instruments of action—without assuming any fixed outcomes (cf. Eisenstadt 1973: 353ff.).

Programs dedicated to a sustainable modernization intend to improve the ecological balance of modern societies by means of technological and social innovations, so that the earth's capacities are no longer overstrained (cf. Huber 2004; Jänicke 2012; Mol et al. 2014). These programs do not intend to fundamentally alter existing *structures*—such as liberal democracy and market capitalism—or crucial elements of the modern lifestyle—such as individualism, consumption, prosperity, and mobility—but only to adapt these to the changed conditions, characterized by ecological constraints.<sup>4</sup> As a sociopolitical strategy, ecological modernization thus attempts to utilize the structural institutions and in particular the economy of modern societies in terms of an ecological renewal. Markets and competition are not regarded as impediments to sustainability in this view but rather as efficiency-enhancing economic institutions that may be utilized for *practices* of sustainability. If we want to create a sustainable economy, the logic goes, we need to increase the demand for sustainable products and create incentives for adopting sustainable production processes. The best-known example of such a market-internal “solution” of sustainability issues would be the emissions trading market.

Financial markets are considered another efficient instrument for increasing the demand for investments in businesses that are practicing sustainability. The financialization of sustainability (cf. Feist and Fuchs 2014) finds expression in financial products such as “green bonds” or “impact

<sup>4</sup> This is the reason why most approaches that speak of “transition” or “transformation” (e.g., the German WBGU) can nevertheless be subsumed under our concept of modernization (cf. Loorbach et al. 2017).

investing” (cf. Chiapello and Godefroy 2017) which promise sustainable performances in addition to high returns. The economic rationality of financial markets and the principle of sustainability appear to have a lot in common: Both are temporally oriented toward the future and targeted at an ideal allocation of resources. On closer inspection, though, it becomes apparent that conflicts of interest exist between the two (cf. Besedovsky 2018). Finance is all about realizing potential future profits in the present—as may be seen most clearly with securitizations which are traded in secondary markets as bundled credits or bonds. Investments into the future are thus little more than products that have a value in the present and may be sold or bought. The temporal dimension of sustainability functions rather differently. Here the focus is not on utilizing the future in the present but, on the contrary, on ensuring future options of action. In a sustainable framework, potential futures are not merely considered to be economic chances; instead, future costs are already taken into account in the present. Whereas neoclassical theory regards markets as the best resource allocation mechanisms because they determine optimum prices for demand and supply, in a sustainable framework resources are selected with an eye to ensuring their future availability.

Principles of sustainability could be made to compete with those of financial markets, with the likely result that an increasing financialization will corrode them—especially if financial actors are entrusted with the power of interpretation, i.e., if banks, investors, and rating agencies get to decide what is sustainable and what is not. Already, there is ample evidence that the rising demand for sustainable investments that are profitable at the same time is creating incentives for softening the criteria of sustainability and adjust them to match investors’ preferences (cf. Lenz and Neckel 2019). For instance, as corroborated by new case studies, the financialization of the U.S. photovoltaics industry has impeded rather than helped attempts to curb climate change (Jerneck 2017). Ève Chiapello (2015) even speaks of financialization as a “colonization” of social institutions by finance’s valuation practices. It appears that transferring the economic rationality of financial markets to sustainability is creating conflicts of interests to the detriment of ecological objectives (cf. Kosoy and Corbera 2010).

To avoid such conflicts of interest is the intention of various programs of ecological modernization, among which “Green Growth” and “Green New Deal” are currently the most influential (cf. Schachtschneider and Adler 2010). Both these programs assume that technological innovations will help to disconnect economic growth from resource use and the emissions that come with it. In this view, sustainability no longer appears as a turning away from growth but is rather acknowledged as its *sine qua non*. Institutions like the OECD (2011), the United Nations (UNEP 2011), the World Bank (Hallegatte et al. 2011), or the EU (European

Commission 2010) have already proclaimed “green growth” as a future strategy.

The main supporters of “green growth” concepts are corporations and capital groups whose economic interests are targeted toward a new global market for low-emission energy production, efficiency optimization, and green technologies (greentech). Energy suppliers, plant manufacturers, the automotive industry, GMO, and IT companies all favor market-based, large-scale technology projects (e.g., Desertec, offshore wind farms, monopolized networks) that are meant to end the fossil fuel age and take us into a new era of sustainable growth (cf. Candeias 2014). This corresponds to the model of the ecologically informed consumer as an individualized manifestation of “green growth” goals (cf. Grunwald 2010). Green capitalism dispenses with social redistribution and is careful not to infringe on the primacy of markets. Its economic and ecological costs and returns are inequally distributed within societies: While employees in the fossil fuel industry may expect adjustment and transitional crises and the Global South continues to be exposed to an “accumulation by dispossession” (Harvey 2004) of its natural resources, privileged populations in the West (or North) benefit from a policy of “selective adaptation” which allows them to continue to live comfortable lives in material abundance (cf. Davis 2007)—on islands of the ecologically blessed.

To prevent such social divisions in the context of an ecological renewal is the goal of the leftist-libertarian “Green New Deal,” which includes green parties, civil society actors, transnational networks like the New Economics Foundation, and NGOs like the WWF among its supporters (cf. Green New Deal Group 2008). Instead of large-scale technological innovations, here the focus is on the creation of local ecological infrastructures that are meant to combine sustainable lifestyles and democratic participation. In other ways too, the concept of “Green New Deal” differs from market-based approaches such as “Green Growth,” as it aims at regulatory corrections of the capitalist economy and does not share the imagination of ecologically viable market forces.

However, even the “Green New Deal” relies on growth and export promotion so that increases in eco-efficiency may fall victim to the rebound effects of growing consumption. Also, the “Green New Deal” programs are dependent on massive government investment programs, which in times of fiscal austerity policies are unlikely to be granted (cf. Candeias 2014).

If conceived of as modernization, sustainability thus mostly serves the renewal of capitalism and its adjustment to changed conditions. And the sustainable modernization of the capitalist economy is intimately tied to the emergence of sustainability as a new paradigm of social justification. According to Boltanski and Chiapello (2007), capitalism

chiefly renews itself by incorporating and “endogenizing” whatever socially relevant criticism is directed at it. Sustainability represents the latest step in this process of endogenization. The green capitalism of the future might thus be invested with the *imagination* of a new faith in technological innovation and progress—thanks to the (supposed) learning capacity of the modern economic and social order. Such imaginations are constantly generated: The capitalist economy is guided by “fictional expectations” (Beckert 2016) which produce the typical temporal dynamics of capitalism—growth, crisis, profit increase, innovation—as imagined futures.

### Sustainability as transformation

Today, social countermovements claim the concept of “transformation” to convey their goal of a fundamental social change that promises to prevent the total exploitation of people and the environment by an unbridled capitalism (cf. Jonas 2017). Many civil society actors agree that the notion of sustainability as modernization is insufficient when it comes to confronting the ecological and socioeconomic challenges of our current global crisis constellation. Both in the Global North and the Global South, debates are currently taking place on how to launch a “great transformation” toward a non-competitive and non-growth-based social order and a radically different human–nature relationship (Latouche 2009; Acosta 2017; Kallis et al. 2015). What they pursue is the fundamental transformation of an economic and social order in which the access to many options of earning a livelihood is essentially dictated by capitalism (Wright 2010: 33ff.). While debates on concepts such as *décroissance*, socioecological transformation, deep ecology, ecofeminism, conviviality, postdevelopment, *buen vivir*, commons, a solidarity economy, or postcapitalism all represent different tendencies, they all seem to have a main reference point in common: the insight that the natural and social foundations of life on earth will not be protected by means of a further economization of sustainability. Consequently, there are many connections and intersections between the various intellectual and practical “transformational” perspectives.

The concept of *postcapitalism* (Mason 2015), for instance, champions new forms of non-capitalist cooperation that produce knowledge and information collaboratively and make it available on the Internet for free. The idea is to make goods and services into digital commons, provided in a non-market setting (cf. Butollo and Kalff 2017). Postcapitalism is related to a vision of technological innovation and progress that makes a sustainable contribution to the fight against climate change by means of inexhaustible digitally shared information. It is thus in favor of sustainable growth and sympathizes with the idea of an ecological modernization.

Behind this is the *imagination* of a networked world free of market constraints and based on digital *practices* of sharing and exchanging. However, this theory of transformation does not offer any consistent strategy when it comes to its potential *structural* implementation. On the one hand, postcapitalism requires a relatively strong state that is capable of prohibiting purely capital-oriented business models and providing an unconditional basic income to its citizens. On the other hand, a digitization-driven postcapitalism appears to favor a withering away of the state in the long run—without explaining how its regulatory functions could be fulfilled by non-state actors, though.

Especially in its evaluation of sustainable growth, postcapitalism differs sharply from the concept of a *post-growth society*, which in essence is a critique of the compulsions for growth and dynamization in capitalism (cf. Dörre et al. 2015). Closely connected to this is the *degrowth* movement whose adherents posit that future societies cannot be sustainable without new institutions, technologies, and mentalities that go beyond the logic of capitalist efficiency enhancement, commodification, and economic growth. Degrowth initiatives are largely based on the principles of free association and civil society self-organization. Since this results in relatively weak *structures*, it is a central concern of the degrowth movement to strengthen networks between individual projects and cooperatives also in order to build up alternative, disturbing and antagonistic political experiments (Asara et al. 2015). In the hope of finding (both socially and ecologically) more sustainable ways of producing goods and living cooperatively, such projects often experiment with alternative *practices* (cf. Kallis et al. 2015; Paulson 2017), e.g., practices of care and provision, repair, recycling, and renunciation, sharing and exchanging, or of using local or alternative currencies and bicycles instead of cars (cf. Paech 2012; Muraca 2014; Schor 2010; Degens 2016). Conceptions of a post-growth society are thus decidedly critical of conventional ideas of progress; they represent a positive alternative *imagination* of sustainability which combines sufficiency and resource conservation with collective self-determination, social resonance, and ideals of “the good life.” The *postdevelopment* movement of the Global South follows a very similar approach in criticizing conventional concepts of development and proposing its own ideas of collective autonomy, subsistence, dignity, and a good life in harmony with nature (*buen vivir*) as pluriversal and antagonistic countermodels to the ostensible universalism of the North (Escobar 1995, 2011; Kothari et al. 2015).

Social transformations are aimed at an incremental discontinuing accustomed behavior, overcoming consumerist mentalities, and experimenting with new ways of life. A sociological analysis of these phenomena requires an action-theoretical perspective that also accounts for the affective dimension of transformations. This is the case with theories

of *convivialism* (Adloff and Leggewie 2014), which make the case for a non-utilitarian culture and capitalize on principles of gift giving, caregiving, and recognition (cf. Caillé and Vandenberghe 2015). Strong correlations exist here with *ecofeminism*, a discourse that draws attention to the fact that in capitalism the care work (predominantly) performed by women is being no less exploited and devaluated than natural resources (Bauhardt 2011; Fraser 2017a), concluding that the capitalist understanding of work and nature must be radically rethought along the lines of the principle of care (cf. Littig 2017). Convivialism also builds on emic conceptions of *convivialité* or *convivencia* that originate in Romance countries (cf. Illich 1973). Research on everyday conviviality examines routine competences that help people living in multicultural settings to negotiate their coexistence in difference, both discursively and non-discursively (Nowicka and Vertovec 2014).

Convivialism emphasizes the importance of recognizing sociality-in-difference and universal equality as a foundation of human coexistence. This entails a specific view of solidarity—as it is practiced today in cooperatives, in projects focusing on *practices* of social support and the shared use of goods and devices, or in art projects that experiment with alternative forms of communication and dialog so as to transcend feelings of alienation and strengthen feelings of solidarity (cf. Adloff and Heins 2015). There is a proximity to the transformative practices of the commons movement that involves democratic self-organization for the collective management of resources (Ryan 2013). Convivialism's essential *imagination* is that of a solidarity and equitable coexistence that conveys a positive sense of a pluriversal world community (which also includes nature). In terms of *structures*, the establishment of a convivial order would have to be accompanied by political measures such as the funding of a solidarity economy, the disbursement of unconditional basic incomes, and the definition of maximum wages (cf. Adloff 2018).

In *Envisioning Real Utopias*, Wright (2010) systematically portrays the institutional problems that strategies of transformation are confronted with. Going beyond political reforms or revolutions, Wright urges us to generate non-capitalist spaces that initiate social, political, and cultural transformations, democratic-egalitarian projects that originate in civil society and incrementally change social *structures* by way of diffusion. State actors play a critical role in this endeavor since, according to Wright, a fundamental social transformation can succeed only when it cooperates with state institutions, instead of opposing them. This concept of a “symbiotic transformation” entails the collaboration of civil society groups with the state, as is already the case with community development projects or remunicipalization programs. Thus, the main *practices* of this transformational perspective may be located somewhere in between protest

and cooperation. “Real utopias” *imagine* a society in which everyone is encouraged to contribute to the exercise of state power while at the same time undermining the hegemony of capitalism. This strategy is related to pragmatist ideas of a democratic experimentalism (Dewey 1927; cf. Brunkhorst 1998), which intends to enable people to reflect upon social power relations and develop reformist alternatives to the capitalist lifestyle.

### Sustainability as control

Sustainability as control represents a decidedly negative trajectory to most scholars, NGOs, and political actors, who see it culminating in dystopian states of global apartheid or a “fortress world” (cf. Leggewie and Welzer 2011). This authoritarian version of sustainability refers to the possibility of an ecological emergency which would necessitate a (temporary) suspension of democracy and make whoever declares the emergency (and its end) the sovereign. Global elites might thus be enabled to withdraw into protected enclaves (“preparedness”) while the vulnerable masses would be exposed to mounting disasters such as pollution, hunger, wars, storms, floods, or drafts (Sassen 2014; Jorgenson 2012).

Under the conditions of ecological emergencies, sustainability as control refers to a world of *resilience* rather than one of genuine sustainability (cf. Zebrowski 2015). To avoid a collapse, disasters must be faced in a matter-of-fact manner. Resilience describes the capacity of ecological as well as social systems to absorb stresses and shocks by changing while at the same time maintaining their old structures and functions (Folke et al. 2010; Walker and Cooper 2011). It refers to forms of coping with crises and adapting to emergencies once they have occurred.

In sociology, the concept of resilience is particularly relevant for the analysis of disruptive social change: In the case of climate-related or ecological shocks, resilience and adaptivity enable societies to cope not just with immediate crises of the earth system but also with their ensuing social, economic, and geopolitical consequences. Heat waves, floods, as well as food, water, or energy shortages can plunge the entire geopolitical system into crisis. Therefore, policy consultants declare “climate security” a major factor of national security, and US Government Agencies have been advised to finally confront the “hazards” that await us if global warming increases at the rate predicted by scientists (O’Sullivan 2015). Nature is no longer regarded as a stable context within Security Studies; instead, it is widely acknowledged that “the environment,” too, is to a large extent produced by humans (Dalby 2017), and the earth system’s “natural” processes are no longer seen as uncontrollable. This is demonstrated by the activities of so-called geoengineers who have confidently devised plans for calculated interventions

into biogeochemical processes (reduction of CO<sub>2</sub> in the earth's atmosphere, reduction in solar radiation, prevention of further ocean acidification). Here we are dealing with imaginations of the future that are expertocratic, pervaded by technological ideas of control, and largely divorced from normative debates or democratic-deliberative procedures (cf. Stirling 2014).

Plans involving the military—e.g., those devised by the Federal Emergency Management Agency in the United States (cf. U.S. Department of Defense 2015; Walker and Cooper 2011)—are also among the control strategies in times of climate change and ecological disasters. Such plans are based on the assumption that climate change entails serious threats for global security.

Controlling the sociological, technological, and ecological effects of climate change requires a specific scientific knowledge which enables societies to develop *infrastructures* that help preserve social subsystems—either in anticipation of or in reaction to disasters. However, this implies a potentially problematic conception of democracy: When scientific discourses on climate change, ecological security, and resilience emphasize the necessity of control and our planetary boundaries determine political action, we run the risk of making governance a universal, inescapable, technologically predetermined response to global problems. Democratic participation then appears as an “enemy of nature” (Stirling 2014), especially since the outcomes of democratic decision making need not necessarily meet the requirements of sustainability. The pursuit of security and control for the sake of sustainability may come into conflict with liberal-democratic freedoms, namely, when it leads to illiberal forms of surveillance and the curtailment of individual freedoms, when the enforcement of geopolitical interests in “hotspots” and an enhancement of resilience in case of disasters turn into essential rationales of state actors (Raskin et al. 2010).

Sustainability as control rests on a particularist ethics. Instead of society as a whole, only certain parts of the population will prove capable of enhancing their resilience, while others will not, at least not to the same degree. This creates problems of social inequality and inner-societal power differences which research on contested sustainabilities must take into account. Not least, the enforcement of the control paradigm depends on the structural distribution of power resources between the Global North and South and on the possible formation of enclaves within societies (Boatcă 2016; Brand and Wissen 2017). This corresponds to the *imagination* of an inevitability of disasters, of unpredictable tipping points and ruptures within the dynamics of the earth system which some will cope with better than others.

In terms of *structure*, the sustainable control society is thus overshadowed by scenarios of temporal ruptures and disasters that it wants to confront by means of

infrastructurally embedded instruments of technological, military, and state control. It is a curbing, not a prevention of disasters that guides the *practices* of segregation, externalization, surveillance, and force. This particular future of sustainability, characterized by division, obtains its *imagination* from an ideal of salvation—which may manifest as a privilege, as an ideal of immunity, and/or as a hypertrophy of security.

## Conclusion

The three trajectories outlined above (Table 1) represent ideal types that are unlikely to prevail exclusively; instead, we expect there to be interrelations between them, i.e., between modernization and transformation, transformation and control or modernization and control. Gradual steps of modernization might very well carry the potential for a fundamental transformation as well. For example, theoreticians of postcapitalism expect that the ongoing digitization of the economy and the resulting decrease in marginal costs will be accompanied by a categorical questioning of the capitalist logic of profit (cf. Srnicek and Williams 2015). Also, the collaborative creation of common goods is thought to change lifestyles as much as the economy (cf. Rifkin 2014).

Concerning the interrelation between transformation and control, there are tendencies within the environmental movement to see liberal democracy as rather an impediment for any socioecological change. This is remarkable given the radical-democratic origins of the early green movement which considered scientific hubris and hierarchical forms of regulation its enemies. By now, environmentalism has become part of a scientific expert discourse and largely apolitical, often favoring technological innovations as solutions to environmental problems (Stirling 2014). Consequently, the goals of sustainability and of furthering democratization are no longer as closely linked as during the movement's beginnings in the 1970s and 1980s. A certain bias of totality is inherent to visions of a radical transformation of society—after all, it requires its members to change their lives completely. What may ensue is an ecological regime of hyper-morality that uses indisputable arguments (“We need to save the world”) to justify severe and far-reaching measures of social control.

It is already conceivable that economic modernization goes hand in hand with techniques of controlling the earth system as it is the case with emerging projects of geoen지니어ing. There is yet another potential for processes of extending control that the trajectory of modernization entails: If Western societies permanently stop growing economically—which seems increasingly likely in our times of economic stagnation (cf. Nachtwey 2018)—and if their institutional order does not fundamentally change, they will



**Table 1** Potential trajectories of sustainability

Modernization	Transformation	Control
<p><i>Imaginations</i> adaptation to environmental challenges; “green economy” as renewal of capitalism; faith in technological progress</p> <p><i>Practices</i> innovations; markets and competition as effective instruments of sustainability</p> <p><i>Structures</i> relying on adaptability of existent socioeconomic infrastructures</p>	<p><i>Imaginations</i> fundamental social transformation; challenging capitalism, economic growth and utilitarian culture; visions of the good life, real utopias</p> <p><i>Practices</i> sharing, care and sufficiency; antagonistic politics and diffusion; collective self-determination</p> <p><i>Structures</i> new convivial infrastructures; aligning with the earth system</p>	<p><i>Imaginations</i> anticipation of disruptive socioecological shocks; technocratic ideals of immunity and resilience; particularistic ethics</p> <p><i>Practices</i> geoengineering; merging technology, resilience, state and military control; segregation, surveillance</p> <p><i>Structures</i> controlling the earth system; new infrastructures of technological, military and state control</p>

experience the crisis of a shrinking process. Muraca (2014: 59ff.) even speaks of the end of growth without transformation as a project of refeudalization, arguing that without new welfare state arrangements and policies of redistribution, social inequality will rise and struggles for resources intensify (cf. Neckel 2013). This could lead to escalations of social conflicts and to new techniques of controlling an increasingly precarious population. Modernizing the economy thus means risking that job insecurity initiates the demise of democratic capitalism, leading to authoritarian forms of society in combination with an entirely neoliberalized capitalism (cf. Fraser 2017b).

Thus, we already can observe revealing interrelations of the three trajectories. However, which paths of development will be dominant in future societies is related to basic structures and practices and to contingent processes since imaginations have a creative and transformative potential. Which side prevails is open to future processes and has to be researched empirically by further social studies of sustainability. Our analytical framework consequently aims at a better understanding and explaining of these interrelations between future trajectories and the three levels (structures, practices, imaginations) of social life involved. We believe that the social sciences of sustainability could benefit from theoretical considerations such as those we proposed in this conceptual paper.

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