Social-ecological transformation

Ulrich Brand
University of Vienna, Austria

Markus Wissen
Berlin School of Economics and Law, Germany

Social-ecological transformation is an umbrella term which describes political, socioeconomic, and cultural shifts resulting from attempts to address the socioecological crisis. Under this conceptual and epistemic heading, such terms as green, great or social-ecological transition, great or societal transformation, green economy, and sociotechnical transition have increasingly come into use. Their goal is to provide a comprehensive understanding of current global environmental change and to contribute to a social and political strategy for dealing with the crisis. Research programs for the social sciences have been oriented accordingly (Hackmann and St Clair 2012).

The concepts and related debates have gained specific importance, first, due to the increasing acknowledgment that existing sectoralized and top-down forms of global or regional environmental management have failed and, second, in view of the "multiple crises" of the financial system, the economy, nature, energy provision, and food. There is a strong consensus in the literature that profound societal changes will be required in order to get a grip on these multiple crises. In the context of this consensus, however, the socioecological crisis is approached from the positions of divergent normative interests and different theoretical perspectives, with the result that a variety of different and even contrasting analyses and proposals concerning the ways out of the crisis have emerged (Brand *et al.* 2013).

The following noncomprehensive overview first addresses important *flagship reports* issued mainly by political organizations and think tanks. These are seen as indicators of a shift of perception within state apparatuses on various spatial scales and as an attempt to shape the corridor of social-ecological transformation. Second, key aspects are presented of the academic debate which have to some extent influenced these political flagship reports, but have also raised more fundamental theoretical and political questions. In the outlook, conclusions are drawn regarding a critical perspective on social-ecological transformation.

Social-ecological transformation in *flagship reports*

1 The concept of a *green economy,* which puts forward the claim of being able to overcome the economic and ecological crisis, was promoted before and around the Rio + 20 Conference in June 2012. The United Nations Environment Programme (UNEP) started its Green Economy Initiative in 2008. In 2011, it issued a comprehensive report in which it identified a "widespread disillusionment with our prevailing economic paradigm, a sense of fatigue emanating from the many concurrent crises and market failures experienced during the very first decade of the new millennium, including especially the financial and economic crisis of 2008. But at the same time, we have

The International Encyclopedia of Geography.
Edited by Douglas Richardson, Noel Castree, Michael F. Goodchild, Audrey Kobayashi, Weidong Liu, and Richard A. Marston.
© 2017 John Wiley & Sons, Ltd. Published 2017 by John Wiley & Sons, Ltd.
DOI: 10.1002/9781118786352.wbieg0690

seen increasing evidence of a way forward, a new economic paradigm – one in which material wealth is not delivered perforce at the expense of growing environmental risks, ecological scarcities and social disparities" (UNEP 2011a, 1).

2 In line with the United Nations Development Programme (UNDP), the United Nations Department of Economic and Social Affairs (UN DESA) argues for a *great green technological transformation*, with a scaling up of clean technologies, waste reduction, and sustainable agriculture. In its report with the same title, it states that a green economy "embodies the promise of a new development paradigm, whose application has the potential to ensure the preservation of the Earth's ecosystem along new economic growth pathways while contributing at the same time to poverty reduction" (UN DESA 2011, v).

3 The European Commission has developed a plan for *sustainable growth*: the promotion of a resource-light, ecological, and competitive economy. In a communication of September 2011, the commission stated the necessity to fundamentally transform the European economy within the time span of one generation. It saw reducing resource use and increasing resource efficiency as key mechanisms for coping with environmental problems and resource shortages and, at the same time, strengthening European competitiveness (European Commission 2011; for a similar approach see the green growth strategy of the OECD 2011).

4 An example for an initiative at the national level is a report by the German Federal Government's Advisory Council on Global Change (WBGU) entitled "Social Contract for Sustainability." Its plea for a *great transformation* (WBGU 2011) specifically refers to Karl Polanyi's concept in which he explains the passage to industrial capitalism during the nineteenth century, in order to emphasize the magnitude of the socioecological challenge. One point of departure is the assumed global transformation of values toward a sensitization for ecological questions (WBGU 2011). In order to promote and strengthen this transformation, the report states that a new "global social contract" (WBGU 2011, 8, 276) is needed. Central to realizing the great transformation, along with the transformation of values, are "pioneers of change" (such as innovative individuals, NGOs, and companies in all sectors of society and the economy) and a "proactive state" (WBGU 2011, 203). The latter is to create an adequate framework for change agents and to promote required innovations.

The common denominator of these reports and strategy papers is that they consider economic growth desirable, necessary, and capable of reconciliation with the environment. They express, first, a belief, akin to that which prevailed at the beginning of the sustainable development discourse in the early 1990s, that comprehensive win–win situations can be created; and second, firm trust in the existing political and economic institutions and elites, which they see as both able and willing to guide this process.

The shortcomings to particularly focus on are: first, the concepts argue for strong regulatory frameworks and thus neglect the prevailing power relations. In the current crisis, regulatory frameworks tend to develop in an authoritarian direction in order to secure access to resources for particular countries or regions (Lander 2011). Moreover, the economy which is to be politically regulated is mainly understood as the formal capitalist market economy. Accordingly, gender perspectives and their focus on social

reproduction and reproductive work are largely absent in the debate about a green economy (Deutscher Frauenrat 2011).

Second, whereas a *relative* decoupling of economic growth from resource use and environmental impact can be observed in many advanced capitalist economies, it is far from clear how the necessary *absolute* reduction might be achieved within the paradigm of economic growth. Since 2008, strategies for coping with the multiple crises have *not* gone hand in hand with the reorientation of production and consumption patterns designed to promote sustainability. They thus face the danger that improvements in resource efficiency may be overcompensated by the quantity of resources consumed in a growing economy (UNEP 2011b).

Third, neoliberal open-market policies and fierce competition have led to deindustrialization in many countries of the Global South. What is reasonable from a neoclassical perspective is that production that takes place where it is economically most efficient has pushed many countries into the new/old strategy of resource extractivism (Lang and Mokrani 2013). In most countries in Latin America, even in Brazil and Mexico, this seems to be the only viable development strategy capable of alleviating poverty. And it is the flip side of the green economy, since the rare Earth metals needed for green high-tech products mostly come from the countries of the south.

Finally, in addition to the universalization of the Western model of production, globalization implies what can be called an "imperial mode of living" (Brand and Wissen 2013). The logic of globalized liberal markets is reflected in the everyday practices in which access to cheap and often unsustainably produced commodities and labor power are normalized. Currently, this logic is being universalized among the upper and middle classes of newly industrialized countries. The social relations underlying the imperial mode of living, and possible ways for overcoming them, have hardly been challenged at all during this crisis and have been insufficiently reflected in the reports cited above.

The academic debate about social-ecological transformation

Aside from the political-strategic debate, there is also an academic debate over social-ecological transformation. Most of the approaches here have a longer history. Nevertheless, like the political debate, the academic one has gained momentum in the context of the current multiple crises. The various contributions emphasize, first, that socioeconomic, political, and cultural changes have to go beyond incremental steps and toward particular policy fields, such as climate change or biodiversity policies. Second, transformation is understood as a manifold nonlinear process, since it deals with dynamic, multidimensional, and complex systems as well as potential tipping points. Third, it is acknowledged that *technical* innovation is necessary, but not sufficient, while *social* innovation is central to social-ecological transformation (Brand *et al.* 2013).

Within this framework, several approaches can be distinguished, as follows.

1 The *concept of social metabolism/socioecological transition* developed in the interdisciplinary context of the Vienna Institute of Social Ecology. It conceptualizes social-ecological transformation from the perspective of the use of energy and material. The history of humankind is understood as a succession of "sociometabolic regimes" that differ in their energy sources and in the "colonization" of nature. Hunters and gatherers, the first sociometabolic regime, relied on the solar energy stored in the plants and animals available on their territory, but did not

systematically influence the reproduction of these resources. By contrast, agrarian societies, while still relying mainly on solar energy, started to systematically intervene in nature – to "colonize" it – in order to enhance its productivity.

Industrial societies, the thus far last stage of human development, invented increasingly sophisticated and, at the same time, destructive forms of the colonization of nature. Even more important, they replaced reproducing biomass as the main source of energy with fossil fuels, which now, given the prevailing patterns of production and consumption in the Global North and the fact that two thirds of the world's population are currently in transition from the agrarian to the industrial regime, is imminently threatened with exhaustion. Given further that the remaining fossil resources cannot be burned without exacerbating global warming, the social metabolism of industrial society today faces a fundamental crisis (Haberl *et al*. 2011). The current pattern can thus be understood as a "structural exhaustion of opportunities" (Fischer-Kowalski 2011) of the existing sociometabolic regime. It has given rise to a social-ecological transformation which may either take on the form of a catastrophic break with industrial metabolism or, if the patterns of energy generation and consumption are radically changed, may result in a new, sustainable sociometabolic regime.

2 Whereas the concept of social metabolism is mainly concerned with the physical basis of the social-ecological transformation, *transition research and management* focus on societal and institutional aspects as well as on technological and social innovation. Furthermore, their temporal and thematic scope is significantly narrower than that of the social metabolism/socioecological transition approach. Starting from the analysis of concrete transition processes in such sectors as energy and agriculture, *transition research* has developed a "multilevel concept" of major societal shifts toward sustainability (Verbong and Geels 2010), according to which transitions often originate in societal "niches," then spread to the level of "regimes" (institutional structures), and finally contribute to transforming "landscapes" (the overall social, political, economic, and cultural setting). Radical innovation is considered to take place primarily in niches, while at the mesolevel of regimes, changes occur more incrementally because of path dependencies and lock-in processes. The interplay of the three levels is key to sustainability transitions which are understood as "long-term, multidimensional, and fundamental transformation processes through which established sociotechnical systems shift to more sustainable modes of production and consumption" (Markard, Raven, and Truffer 2012, 956). Transitions can be the results of evolutions and/or of clear-cut goals.

Transition management aims to utilize the findings of transition research in order to inform and shape the governance of concrete reform processes (Kemp, Loorbach, and Rotmans 2007). Collaboration between actors and learning processes is fundamental. Governance can influence cultures and discourses, actors and structures, as well as innovations in order to accelerate and trigger transitions. However, command and control strategies are not possible owing to the complexity and uncertainty of transition processes. The transition management approach sees its role in the debate

on social-ecological transformation as providing methodologies which are of practical and policy relevance (Wesely *et al.* 2014).

3 Transition research and management has been criticized by proponents of approaches in the tradition of *practice theories* (see Røpke 2009 for an overview). According to these theories, there is a producer and manager bias in transition management. Consumers and complex configurations of everyday life are treated more or less as external to the system of innovation. However, according to Shove and Walker, they are a constitutive part of it. Neglecting them conceptually is like an "act of writing to an audience that might not be listening" (Shove and Walker 2008, 1012). The crucial concept for a better understanding of the causes of the socioecological crisis, and for discerning possible ways out of it, is that of *social practice*. It refers to shared behavioral routines constituted by sets of interconnected elements: the social and political institutions that facilitate them, the sociotechnical configurations, such as the physical infrastructures, that enable them, the available knowledge and prevailing symbolic orientations that, consciously or not, guide them, and the forms of power that are inscribed in all these elements (Spaargaren 2011).

Because of its habitualized character, an environmentally detrimental social practice, such as driving a car, is only to a very limited extent accessible to intentional steering and management or to consciousness-raising campaigns. This makes social-ecological transformation a far more complicated process than it is assumed to be in transition research and management. It is a process which cannot be influenced from any preferential entry point, but which has to address the various elements which constitute social practices (Shove and Walker 2010). Overcoming automobility, to take this example, would require an understanding of driving, not only as a form of movement with the intent of relatively rapidly overcoming a distance, but also as an issue which has to be addressed in terms of the prevailing and power-laden conceptions of progress, freedom, and masculinity and their institutional and infrastructural manifestations.

4 The central motives and arguments in the context of the *degrowth debate* maintain that the orientation toward economic growth as the crucial point of reference of economic policy and as an indicator of prosperity and quality of life no longer holds (Kallis 2011). The issue of the suitability, or lack thereof, of markets as a mechanism for dealing with ecological and social problems is another core point of commonality. Some authors argue for an internalization of ecological and social costs; others go further and add that more structural changes as well as a decolonization of economics and of our minds from the domination of economism, and a move toward a different collective imagery, are the preconditions for meaningful change. Degrowth is "a multifaceted political project that aspires to mobilize support for a change of direction, at the macro-level of economic and political institutions, and at the micro-level of personal values and aspirations. Income and material comfort is to be reduced for many along the way, but the goal is that this is not experienced as welfare loss" (Kallis 2011, 878). Normative principles, such as cooperation and social justice, are being reintroduced, while social movements are seen as the major subjects of change. Many contributions to the debate

do not focus so much on crises or secular trends of diminishing growth rates in highly industrialized countries. Rather, they propose a "voluntary, smooth and equitable transition to a regime of lower production and consumption" (Schneider, Kallis, and Martinez-Alier 2010, 511). Degrowth is thought of as a conscious societal process based on a change of values.

5 Contributions from a *critical geography/political ecology* perspective (Robbins 2004; Perreault, McCarthy, and Bridge 2015) differ from the approaches described above in focusing more explicitly on issues of power and domination. Where the social metabolism approach addresses mainly physical materiality, political ecology also takes into account the materiality of social structures. In political ecology, the terrains and processes of governance, which transition management tries to shape in order to facilitate sustainability transitions, are less understood as solutions than as part of the problem. Like practice theories, political ecology focuses on the reproduction of social relations, but also addresses the contradictions inherent in them and, unlike the degrowth debate, the political ecology perspective sees economic growth as a social relation intrinsically linked to societal domination that reproduces social structures.

From a political ecology perspective, nature is societally – that is, socioeconomically, culturally, and politically/institutionally – produced and appropriated. The focus is not on "the environment," but rather on the social forms of the appropriation of nature: that is, the forms in which such basic social needs as food and housing, mobility, communications, and health and reproduction are satisfied. This is not to deny the material peculiarities of biophysical processes for they are, under certain circumstances, no longer reproducible, but they are shaped by society. And conversely, the materiality of nature shapes societal processes. Importantly, the production of scale is considered crucial in transforming the conditions of access to natural resources and reshaping societal nature relations.

Political ecology argues that the metabolism of human society with nature, which is essentially mediated by labor, assumes a particular form in capitalist society: the production of use values for the sake of exchange value and/or profit; a hierarchy between capital and wage labor as well as other forms of labor; and, moreover, the development of a modern state separated from the capitalist economy and the class relationships. The dynamics of the capitalist economy consists of the valorization of human labor power and of nature.

Therefore, a crucial assumption regarding social-ecological transformation is that in modern capitalist societies, change takes place continually. "The bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society. Conservation of the old modes of production in unaltered form, was, on the contrary, the first condition of existence for all earlier industrial classes. Constant revolutionizing of production, uninterrupted disturbance of all social conditions, everlasting uncertainty and agitation distinguish the bourgeois epoch from all earlier ones" (Marx and Engels 1998/1848, 243). The decisive question is what kind of logic of transformation is to predominate.

Outlook

For a theoretically adequate understanding of transformation, it is useful to link political ecology with critical political economy and social

theory, especially critical state and hegemony theory. In so doing it can be shown that capitalist societies, with their tendencies to destroy their own material foundations, can in certain ways develop stabilizing forms of the societal appropriation of nature. The societal regulation of interaction with nature is possible and does in fact occur; herein lies a central dynamic of politics (Görg 2011). The regulation of societal nature relations does not imply abolition of the largely destructive forms of appropriation of nature. However, the destruction of nature will not necessarily become an urgent problem for overall capitalist development, since dangerous negative impacts can be spatially externalized and temporarily postponed. This can be seen in climate change, many effects of which will occur in the future; those that are indeed manifested in the present usually occur in more vulnerable, peripheral places. Crises will particularly occur at the local and regional levels – or are already occurring there today. However, that fact does not necessarily call the fundamental structures and developmental dynamics of capitalism into question. With regard to a possible scarcity of resources, we can also see that in the interplay of fears of global scarcity and local valorization strategies, the regulation of societal nature relations today means new exploration for tar sands, fracking for natural gas in slate formations, energy crops which involve the control and utilization of land, or a partial switch to solar energy. Insights into the changing forms of capitalist regulation help to understand the direction of capitalist development, for example, toward a selective greening of capitalism.

The thus enhanced critical concept of transformation focuses on complex societal and social-ecological relations and, in particular, on their dominant development dynamics. Moreover, it focuses on structures and processes by means of which society organizes its material foundations, including its metabolism with nature – socioeconomically, politically, culturally, and subjectively.

Such an analysis would consider the structure and power of sustainability discourses (Brand 2010) and the tendencies toward the "neo-liberalization of nature" (Castree 2008), that is, the shifting politico-economic and sociocultural dynamics of the appropriation of elements of nature. And it would acknowledge the still powerful structures, interests, and instruments of financial market capitalism. It would ascertain that in spite of all tendencies pointing toward greater sustainability, the state and the international political institutional system have tended to reinforce the dominant conditions and developments. The term "imperial way of living" (Brand and Wissen 2013) identifies a determining factor why very little is happening politically, along with such other factors as power strategies, including repression of criticism and alternatives, and political co-optation.

Again, this has political-strategic implications. First, research into social-ecological transformation needs to consider and evaluate the various strategies and possibilities for dealing with the multiple crises, that is, business-as-usual or more authoritarian alternatives, an imperial deepening of global fragmentation, social-democratic steering at various spatial levels, or more radical-democratic alternatives.

Second, analyzing hegemony, capitalist regulation, and its social forms means considering how the corridor of both top-down *and* bottom-up alternatives tends to be systematically narrowed down to a form of capitalist ecological modernization. It remains to be seen whether projects like the greening of the economy or green capitalism will be potentially capable of ushering in a new accumulation dynamic by changing the energy and resource base.

The question of a democratic shaping of society and of societal nature relations would appear crucial. That implies the democratic control of resource use, but also of the manifold processes of production and consumption. This is an important research perspective to determine what the already existing democratic forms of resource control are, which struggles will be necessary in order to generalize them, and how they are to be stabilized institutionally. It must also be determined which demands can be made in a comprehensive sense for the democratic structuring of society's interaction with nature and to what extent the concrete strategies for a green economy or a green new deal have a supportive effect or not. Taking the perspectives presented into account, it would be necessary to evaluate whether, and to what extent, a "passive revolution" in the form of an eco-capitalist modernization might take place in response to the multiple crises and how it could be addressed from an emancipatory perspective.

Acknowledgment

The authors wish to thank Phil Hill for his excellent language editing.

SEE ALSO: Commodification of nature; Consumption; Democracy; Political ecology; Sustainable development

References

Brand, U. 2010. "Sustainable Development and Ecological Modernization – the Limits to a Hegemonic Policy Knowledge." In *Innovation: The European Journal of Social Science Research*, 23(2): 135–152.

Brand, U., A. Brunnengräber, S. Andresen, *et al.* 2013. "Debating Transformation in Multiple Crises." In *World Social Science Report 2013*: *Changing Global Environments*, edited by UNESCO/OECD/ISSC, 480–484. Paris, OECD Publishing and UNESCO publishing.

Brand, U., and M. Wissen. 2013. "Crisis and Continuity of Capitalist Society–Nature Relationships: The Imperial Mode of Living and the Limits to Environmental Governance." *Review of International Political Economy*, 20(4): 687–711.

Castree, N. 2008. "Neo-Liberalising Nature: The Logics of Deregulation and Reregulation." *Environment and Planning A*, 40(2): 131–52.

Deutscher Frauenrat. 2011. "Cornerstones of the Deutscher Frauenrat's Position on a Green Economy." Deutscher Frauenrat, Green Economy Cornerstones. http://www.frauenrat.de/fileadmin/user_upload/infopool/informationen/dateien/2011-2/120221_DF_green_economy_eng_final.pdf (accessed March 28, 2016).

European Commission. 2011. "Roadmap to A Resource Efficient Europe." Communication from the Commission to European Parliament, the Council, the European Social and Economic Committee and the Committee of the Regions. http://eurlex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN (accessed March 28, 2016).

Fischer-Kowalski, M. 2011. "Analysing Sustainability Transitions as a Shift between Socio-Metabolic Regimes." *Environmental Innovation and Societal Transitions*, 1(1): 152–159.

Görg, C. 2011. "Societal Relationships with Nature: A Dialectical Approach to Environmental Politics." In *Critical Ecologies. The Frankfurt School and Contemporary Environmental Crises*, edited by A. Biro, 43–72. Toronto: University of Toronto Press.

Haberl, H., M. Fischer-Kowalski, F. Krausmann, *et al.* (2011). "A Socio-Metabolic Transition towards Sustainability? Challenges for Another Great Transformation." *Sustainable Development*, 19(1): 1–14.

Hackmann, H., and A.L. St Clair. 2012. *Transformative Cornerstones of Social Science Research for Global Change*. Paris: ISSC.

Kallis, G. 2011. "In Defense of Degrowth." *Ecological Economics*, 70(5): 873–880.

Kemp, René, D. Loorbach, and J. Rotmans. 2007. "Transition Management as a Model for Managing Processes of Co-Evolution towards Sustainable Development." *International Journal of Sustainable Development & World Ecology*, 14(1): 78–91.

Lander, E. 2011. *The Green Economy: The Wolf in Sheep's Clothing*. Amsterdam: TNI.

Lang, M., and D. Mokrani. 2013. *Beyond Development: Alternative Visions from Latin America*. Amsterdam: Transnational Institute, Rosa Luxemburg Foundation.

Markard, J., R. Raven, and B. Truffer. 2012. "Sustainability Transitions: An Emerging Field of Research and its Prospects." *Research Policy*, 41(6): 955–967.

Marx, K., and F. Engels. 1998. "The Communist Manifesto." In *Socialist Register 1998: Communist Manifesto Now*, edited by L. Panitch and C. Leys. *Socialist Register*, 34: 240–268. (Original work published in 1848.)

OECD. 2011. "Towards Green Growth." http://www.oecd.org/greengrowth/48012345.pdf (accessed March 28, 2016).

Perreault, T., J. McCarthy, and G. Bridge, eds. 2015. *The Routledge Handbook of Political Ecology*. London: Routledge.

Robbins, P. 2004. *Political Ecology: A Critical Introduction*. Malden, MA: Blackwell.

Røpke, I. 2009. "Theories of Practice: New Inspiration for Ecological Economic Studies on Consumption." *Ecological Economics*, 68(10): 2490–2497.

Schneider, F., G. Kallis, and J. Martinez-Alier. 2010. "Crisis or Opportunity? Economic Degrowth for Social Equity and Ecological Sustainability." *Journal of Cleaner Production*, 18: 511–518.

Shove, E., and G. Walker 2008. "Transition Management and the Politics of Shape Shifting." *Environment and Planning A*, 40(4): 1012–1014.

Shove, E., and G. Walker. 2010. "Governing Transitions in the Sustainability of Everyday Life." *Research Policy*, 39(4): 471–476.

Spaargaren, G. 2011. "Theories of Practices: Agency, Technology, and Culture Exploring the Relevance of Practice Theories for the Governance of Sustainable Consumption Practices in the New World-Order." *Global Environmental Change*, 21(3): 813–822.

UN DESA (United Nations Department of Economic and Social Affairs). 2011. *The Great Green Technological Transformation: World Economic and Social Survey 2011*. New York: DESA.

UNEP (United Nations Environment Programme). 2011a. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Nairobi: UNEP.

UNEP. 2011b. *Decoupling Natural Resource Use and Environmental Impacts from Economic Growth*. http://www.unep.org/resourcepanel/publications/decoupling/tabid/56048/default.aspx (accessed March 28, 2016).

Verbong, G., and F. Geels. 2010. "Exploring Sustainability Transitions in the Electricity Sector with Socio-technical Pathways." *Technological Forecasting and Social Change*, 77(8): 1214–1221.

WBGU (German Advisory Council on Global Change). 2011. *World in Transition: A Social Contract for Sustainability*. Berlin: WBGU.

Wesely, J., G. Feiner, I. Omann, and N. Schäpke. 2014. "Transition Management as an Approach to Deal with Climate Change." In *Proceedings of the Transformation in a Changing Climate Conference*, Oslo, 2013, 43–52. University of Oslo.