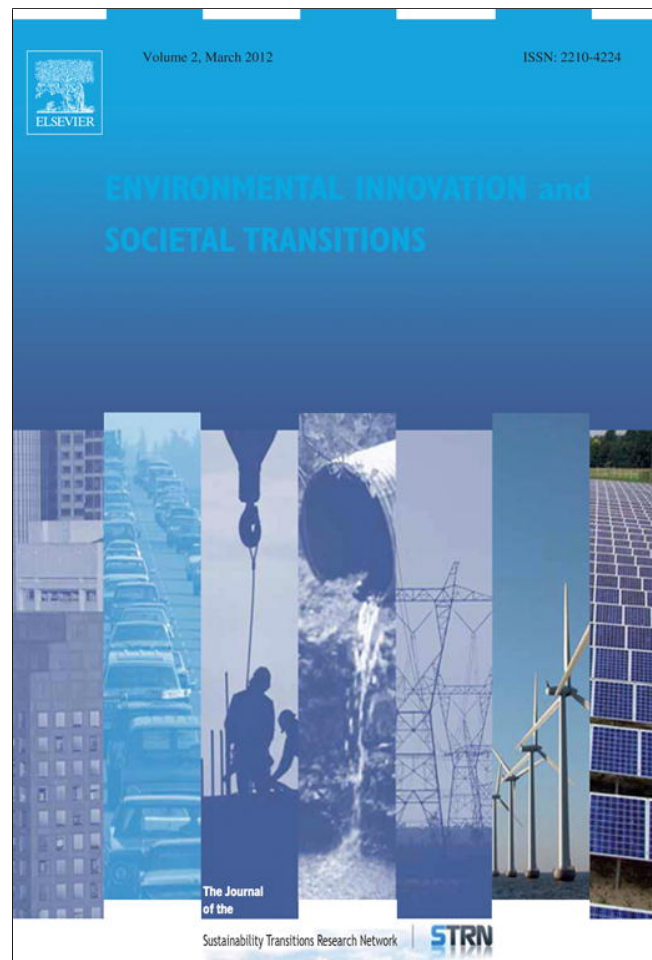


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# Environmental Innovation and Societal Transitions

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## Book review

### Socioecological transitions and global change

#### **Socioecological Transitions and Global Change. Trajectories of Social Metabolism and Land Use, M. Fischer-Kowalski, H. Haberl (Eds.). Edward Elgar, Cheltenham, UK and Northampton, MA (2007)**

Social metabolism studies are not readily available to the non specialized reader; and yet, they are essential to document and reflect upon societies' patterns in natural resource use over time. Socioecological Transitions and Global Change offers a detailed response to this problem, presenting a number of meticulously researched essays, showing why this approach is valuable to understanding long-term energy transitions. These are preceded by a foreword by Joan Martinez Alier, and by a theoretically dense Introduction, by Marina Fischer-Kowalski and Helmut Haberl, which serves to clarify what is intended by 'socio-ecological transition' and how to conceptualize it.

As the Introduction clearly states, the world is in the midst of an epochal socio-ecological transition, as 'it is highly improbable that the socio-ecological regime we see now can continue for, let us say, another 200 years' (p. 2). However, this is not the first, nor will it probably be the last global transition in energy and materials use in the history of humankind. This provides a rationale for the volume's effort at examining the historical trajectories of similar transitions occurred in the past – and especially that from agrarian to industrial society – and examining the foreseeable futures in this crucial sector. This is done by looking at 'a relatively narrow set (...) of variables localized at the society–nature interface for which quantitative measurements can be reliably obtained in very different contexts' (p. 8).

Such research methods allow the authors to conclude that, in mature industrial economies such as Austria, the industrial regime has been an intermediate rather than final stage, in a still on-going transition to a more stable regime (chapter 2). This is due to the fact that industrialization has been based on non renewable resources and finite sinks, both now nearing their limit capacities at the global scale. Furthermore, the analysis of carbon flows and sinks in that country (chapter 3) allows the authors to demonstrate that reforestation is not an adequate response to greenhouse gas emissions, because it leads industrialized countries, largely relying on imported energy and materials, to 'diminishing their targets for cutting fossil-fuel-related emissions' within the Kyoto protocol. More appropriate responses are proposed to 'either decarbonize the socioeconomic energy supply or to reduce energy consumption, or both' (pp. 74–75). The UK case, analyzed in chapter 4, shows how the decoupling of energy use from land use, which occurred in that country in the 19th century, was due not only to the extraordinary technological improvements known as 'industrial revolution', but also, and fundamentally, to England's ability to tap into large shares of the world's agricultural production (food and raw materials) in order to feed its population and its industries. In doing so, the UK established an unsustainable pattern for other European countries to follow: one – it must be added – with consequences of enormous importance for the current ecologically and economically unequal exchange at the global scale. Taking into account the local scale of the transition from the agrarian to the industrial regime in Austria, chapter 5 then shows how this resulted in a 'fundamental reorganization of spatial patterns', with important

repercussions for both social organization (e.g. the division of labor between rural and urban areas) and ecosystems and landscapes (e.g. the enormous growth of transport systems). The most relevant conclusion being that the industrial energy regime is totally dependent on low transport costs, which in turn rely on 'publicly financed (in other words subsidized) transport infrastructures' (p. 133).

The last two chapters take the reader to a different scale (and time frame) of analysis, that of 'developing countries' in the last few decades. By comparing recent drastic changes occurring in the socio-ecological regimes of three different communities in Laos, Thailand and the Nicobar Islands, chapter 6 demonstrates that there is no progressive gradual pattern to 'development' – defined as 'inclusion of modern lifestyles and consumption behavior, modernization of social institutions and mechanization of the economy' (p. 168). The three case studies show instead that: (1) changes in socio-ecological regimes are spurred by external factors which interact at different levels with the local in creating threshold situations that motivate societies to undergo changes; and, more importantly, that (2) the way different societies deal with external factors and with metabolic change depends on their respective biophysical assets, i.e. land and natural resources and population [to which climate might be added as a relevant factor]. Finally, by a regional comparison between South-East Asia and Latin America, chapter 7 examines what has saved South East Asia from falling into the 'resource curse' (i.e. loss of resources due to high levels of raw materials exports towards industrialized countries) which has afflicted Latin American countries. This is Asian countries' still high reliance on subsistence agriculture, which has prevented extensive exploitation of the region's natural resources on the part of foreign markets.

In short, the volume provides solid (and much needed) quantitative grounds for a critique of mainstream visions of industrialization and economic growth, which normally underestimate the importance of bio-physical assets. On the other hand, the ability of such an approach to stand as a comprehensive explanation of socio-ecological transitions is limited by the choice of privileging only some quantifiable and macro-economic aspects of metabolic change. As a way to enrich the future research agenda in this area, it would be recommendable to incorporate a critical examination of questions such as environmental Kuznets curves, or the energy content of GDPs, or the immaterial/discursive dimension of socio-ecological transitions. Furthermore, societal change is assumed as given, and power dynamics among different social sectors, as well as among different world areas, are left out of the analysis. It is, for example, surely not debatable that 'The ongoing transition is bound to lead to some new, as yet unknown state', and that 'how pleasant this new state will be for humans remains to be seen, and it is not known how quickly such equilibrium will be reached after a potential period of massive disturbances' (p. 2). Nevertheless, such statements overlook the problem of how this transition – as for all others in human history – is unequally affecting different human groups and world areas, and of how the most likely scenario will be that a new equilibrium be reached by violent means, leading to a permanent state of oppression of vast majorities on behalf of a powerful elite.

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