## EDITORIAL

## Nature and Socio-economic Systems: A Narrative of Conflict and Adaptation

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At the outset of the fourth year of publication of this journal, the pandemic continues to loom over the collective imagination of humankind. As a consequence, the past few months, and indeed, almost the entire year, have been characterized by extraordinary change and, perhaps, deep reflection.

The pandemic reminds us of the frailty of the human condition and the many threads that weave us together to create either a rich tapestry or an unmitigated disaster. In whichever part of the world we live, the pandemic currently overshadows what we do and how we use our capabilities. Meanwhile, another common unifying force, nature, remains unheeded in many ways. For it binds us in an unobtrusive manner. All of our economic activities and social institutions operate within the ecological realities of the planet that we live on. As such, scholars have tried to provide pointers for determining a "safe operating space" for humanity. In simple words, it is the room that we have to function in to improve our individual and collective well-being, if the threats of biodiversity loss, climate change, and so on are to be averted.

What happens when we do not respect these limits to operating space? Is the pandemic nature's way of reminding us about the need to live within its limits? Maybe yes or maybe no; perhaps this line of reasoning appears too far-fetched. Note, however, that studies have shown that land use change contributes in a non-trivial way to the emergence of vector borne and zoonotic diseases. Nevertheless, we need to understand the implications of such linkages more clearly.

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Socio-ecological systems, which are complex and adaptive, are shaped by a set of fast-moving variables, (typically, but not always, economic in nature, such as capital movements across continents and rapidly changing consumption patterns) and another set of slow-moving ones (such as land use changes, species extinction, and climate change). Some of these have the potential to shift the system to an altogether different state on reaching a tipping point. From the viewpoint of nature, there is not much to choose between these different states. Each state is characterized by the dominance of some species or life forms and certain kinds of environments. For humans, however, a shift to a different state may have profound implications for the manner in which they define and access the wherewithal for their well-being. The waters get muddied as humans have prior notions of the level and kind of well-being they aspire to and the global population which it should ideally reach.

The question inevitably arises: are we moving permanently or even temporarily into a state that will make reaching these goals difficult or impossible? Such questions are difficult to answer. Yet, we strive in little ways, approaching the problem from the varying perspectives of different disciplines. A commentary in this issue of the journal highlights the manner in which one such effort brought together evolutionary ecology and the social sciences to understand complex socio-ecological systems. While pointing out the commonalities between ecological and socio-economic systems, and the need for the latter to adapt through self-organization, the author interestingly concludes, "Dealing with the commons is at the centre of the partnership that must grow between biology and the social sciences in the coming decades". I could not agree more. It is also opportune that the special guest edited section in this issue of the journal revisits the commons while celebrating the life of N. S. Jodha, a pioneer in research on common property resources in South Asia. The papers in this section review the literature on the commons in South Asia and offer suggestions for directions of future research.

Other contributions examine the impact of the pandemic and its management on the environment, ecology, and livelihoods. A thematic essay analyses the implications of a model that arrives at the counterintuitive result that reducing the mobility of people from high- to low-risk areas can increase, not reduce, the total number of infections. Another piece warns us to be careful about overstating the benefits to the environment (based on limited information) that result from reduced economic activity due to the concurrent impacts on livelihoods and equity.

One contribution reviews the work of Lonergan (known primarily for his work on the foundations of science), who viewed the economic process as a

part of human living, (in support of human welfare) in which cultural context is of great significance. He supports a paradigm-shifting movement, from a focus on economic growth and prices towards socio-ecological economics. Still another paper examines the role of market-based instruments in promoting organic farming. The books reviewed in this issue also provide insights into socio-ecological systems by dealing with the challenges associated with land ownership, coal mining, and oil extraction.

The journal continues its journey of examining the environment in relation to human society and development through different methodological lenses. This issue helps readers understand the spectrum of analytical methods available and offers ways into interdisciplinarity and even the elusive field of transdisciplinarity.

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