Agroecological Transitions and Resilience

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Abstract

We propose to discuss the interlinking of agroecological transitions at the farm to food system levels, with the transformations of socio-ecological systems at local to regional scales, from the perspective of resilience. The aim is to initiate discussions about the role of socio-ecological systems in transforming agriculture on sound agroecological principles agroecology and, conversely, the role of social and technical innovations in agriculture in promoting resilience of rural socio-ecological systems. Until now, we have primarily used socio-technical approaches to analyze transition processes underlying the transformation of agriculture. Agroecological transformation, viewed as a re-incorporation or improvement of the ecological component within this socio-technical transition process. The diversity of agroecological objectives (conserving genetic diversity, promoting an ecological basis for production, accounting for environmental amenities, protecting food quality) reveals different types and levels of incorporation of ecological processes from production to food systems. This singles out a set of interactions between socio-technical and socio-ecological systems such as the impact of farmers’ decisions and practices on landscape and biodiversity, the concerted management of ecosystem services such as pollination or biological control, or the reorganization of local supply chains. This could lead to the design of different patterns and pathways for agricultural transformations that are likely to develop differently depending on the characteristics and dynamics of the socio-ecological systems they are involved in. In addition, socio-ecological approaches to natural resource management integrate positive and negative effects of agriculture, generally through its land use and management at the landscape level. It more rarely considers agricultural systems through their productive processes at the farm level or food systems and their socio-technical organizations. Nevertheless, socio-technical reorganization, redesign and innovation play a key role in the transition from conventional agricultural systems to agroecological ones. Therefore, socio-technical approach of agricultural transition could be an important lever in natural resource management as well as for the resilience of rural socio-ecological systems. Combining socio-technical and socio-ecological approaches could provide not only a way to better adapt to changes but also to anticipate unforeseen events and foster changes while avoiding breaking points.

Main questions structure the debate:

- How the transition theories and perspectives can highlight the agroecological issues ? To

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what extent socio-technical approach allows a better understanding of the evolution of agrofood systems in an agroecological perspective?

- How the socio-ecological systems approach contributes to the agroecological transitions of productive systems? How it can facilitate agroecological transitions in a resilient pathway?

- At what scale it is relevant to understand the socio-technical and socio-ecological interactions in agroecological transitions? To what extent do socio-technical approaches to agroecological transitions make it possible to better understand the adaptation or the transformation of socio-ecological systems to a given change or regime shift?

**Keywords:** Agriculture, Socio, ecological systems, Transformation, Regime shift, Resilience