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Common-pool Resources and Governance in Sustainability Transitions

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Common-pool resources (CPRs) are critical in sustainability transitions. They are often important means for environmental and societal innovation, and object of unsustainable extraction and governance practices. We argue why CPRs and their governance matter in transitions and point to issues for further research: (i) conceptualization of sustainability and transitions in light of common-pool resources and governance; (ii) the roles, potentials, and challenges of commoning practices, beyond the market–state dichotomy; (iii) interactions between CPRs and commons with markets/firms and the state/governments in processes of sustainability transitions. These overarching questions bring fresh perspectives to transitions literature: (i) CPRs/commons help advance the integration between ecological and socio-technical systems (ii) nonexcludable resources affect entrepreneurial activity and innovation processes in the dynamics of socio-technical system; (iii) CPRs/commons add new viewpoints to the question of directionality of transitions. We conclude by advocating for building bridges with new institutional and environmental economics, and social practice theory.

Keywords: Common-pool resources, CPR, commons, collective action, polycentric governance, sustainability transitions.

In this viewpoint article we make the case for sustainability transition scholars to engage with common-pool resources (CPRs) and governance. Ostrom defines a CPR as “*natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use*” (1990, p.30); these resources are finite, hence “*one person’s use subtracts from the quantity of resource units available to others*” (2002, p.1317). CPRs are crucial for sustainability transitions across industries, and many green innovations draw on them. They are key for natural-resource-intensive industries, which rely on provisions from

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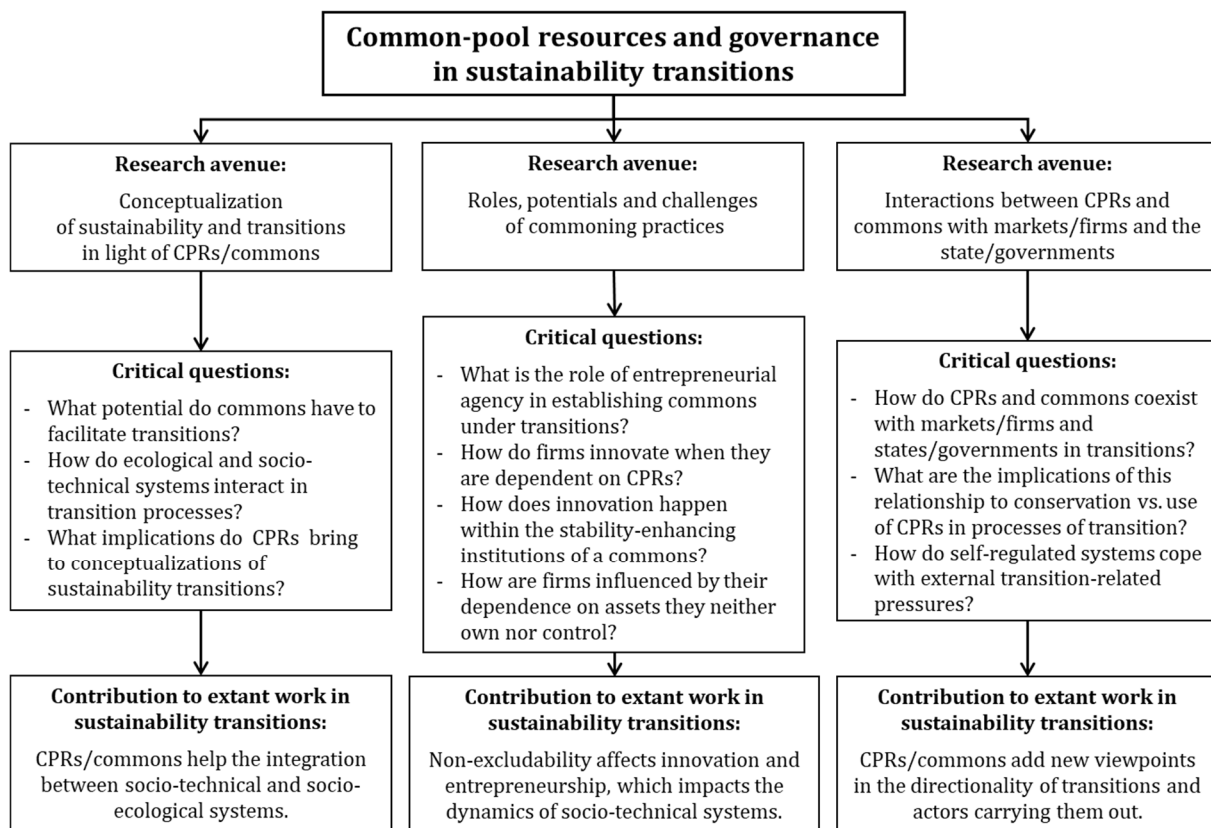
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well-functioning ecosystems (Rodela et al. 2019) and are increasingly found in knowledge-intensive industries, such as open-source software and peer-to-peer exchange. CPRs lie at the core of a paradox: they are crucial for green innovations, but engender the risk of overexploitation (Cohen and Winn 2007), mobilization inefficiencies (Wigger and Lauvås forthcoming), free-riding behavior (Ansari et al., 2013; Hardin, 1968), and high transaction costs for enforcing common-property rights (Coase 1960; Anderson 2004). When supply is characterized by CPRs with distributed governance, but demand is characterized by markets, these tradeoffs are accentuated.

Whether a resource is a CPR or not depends not only upon its characteristics, but also on choices concerning its governance (Ostrom 1990). For instance, a mine is in principle a CPR, but it can be enclosed and privatized, becoming a private good governed through markets. Resources managed in polycentric self-organizing systems, alongside relevant actors and practices, constitute a commons (Bollier and Helfrich 2012; Ostrom 2010). Commoning practices encompass infrastructures, competences, and social arrangements upon which commons rely. In this process, collaboration is valued more than competition, and sustaining livelihoods more than growth (Bollier and Helfrich 2012). Collective action has been central to understanding how CPRs are created and governed through commons (Agrawal 2014; Vermunt et al. 2020), and enabled by trust and reciprocity (Nayak, Werthmann, and Aggarwal 2015).

Questions concerning CPRs and commons-based governance matter for transitions because CPRs are critical for green shifts, and because commons open possibilities beyond the market-state dichotomy. For transitions towards sustainability to happen, we need goods other than private ones and governance systems other than states vs. markets. This entails knowledge on how actors balance between preservation and exploitation of CPRs, as they are mobilized for green innovation and entrepreneurship (e.g., Wigger and Shepherd 2020). Transition scholars have thus far overlooked these questions. Early on in EIST, Ménard (2011), touched on themes related to institutional economics, which underpins existing research into CPRs and commons. Since then, contributions have been sporadic and dispersed (e.g., de Rivera et al. 2017; Gamache et al. 2020; Kostakis, Roos, and Bauwens 2016; Vermunt et al. 2020). Figure 1 summarizes these points in three research avenues.

Research at the intersection of CPRs/commons and transitions brings new perspectives to the literature. First, CPRs and commons help move forward the integration between ecological and socio-technical systems (Smith and Stirling 2010). The literature has been short of analysis of how ecological processes impact socio-technical change and has treated ecological dynamics as a landscape factor (Ahlborg et al. 2019). CPRs and commons address this shortcoming, as the natural environment shapes industry dynamics and sustainability transitions (Andersen and Wicken 2021). Given that it is crucial to keep economic activity within planetary boundaries (Steffen et al. 2015), CPRs are useful for understanding the interplay between *preserving* ecological systems (i.e., matters of continuity) and *transforming* socio-technical systems (i.e., matters of disruption).

Figure 1: Critical issues and research avenues (source: the authors)

Second, CPRs are concerned with non-excludability (and subtractability) of resources, whereas transitions scholarship has thus far primarily been concerned with excludable (and subtractable) goods. For instance, there is little empirical transitions research in sectors in which CPRs are prominent—e.g., tourism, fisheries, and forestry. Mining has been discussed in broader social sciences energy research (Karakaya and Nuur 2018), but less so in transitions studies. Non-excludability has implications for how firms innovate and how entrepreneurship takes place when firms depend on assets they neither own nor control (Wigger and Shepherd 2020), which we expect affects the dynamics of both niches, regimes, and landscapes of a socio-technical system. Also, the polycentric nature of commons adds to the predominant hierarchical lenses in the literature so far and contributes a better integration of local perspectives into global transitions. A CPR/commons approach adds multiple bottom-up initiatives operating at different spaces and scales to the dominant focus on the role of the state and incumbents firms in transitions (Goldthau 2014), and contributes to emerging perspectives on alternatives (to) capitalism (Pansera and Fressoli 2019; Feola 2020).

Third, CPRs and commons also bring about a fresh perspective on the directionality of socio-technical transitions (Andersson, Hellsmark, and Sandén 2021) and the actors in charge, including the state (Robinson and Mazzucato 2019). CPRs and commons in transitions are less about decarbonizing socio-technical systems through technological innovation in niches (which can generate further social inequalities and marginalization), and more about decentralized bottom-up experimentation and co-creation of pathways by heterogeneous actors (Arora et al. 2020). This entails a more democratic and just view on transitions, with greater buy-in from individuals and local communities.

A CPR focus can also add to the transitions policy toolkit. First, it encourages cross-fertilization with environmental economics and policy, for instance in valuating natural resources and nonmarket goods through contingent valuation techniques (Carson 2012). Second, policy can support self-initiated and self-governed collective networks, which enable citizen-driven (rather than market/state-driven) institutional arrangements to address sustainability challenges (Farley et al. 2015). Finally, policy can create and enforce regulation for CPRs to be governed as commons that emphasize cooperation over competition (Vivero-Pol 2017).

To conclude, although interest in CPRs and commons is not new, we know little about them within sustainability transitions. The field could benefit from building bridges with new institutional economics (Coase 1960; Ostrom 1990), environmental economics (Carson 2012; Nunes and van den Bergh 2001) and social practice theory (Geels et al. 2015). This approach can support the ongoing work in the STRN network, and we hope to inspire research in this area.

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