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Sustainable innovations in bioeconomic value chains: the case of argentina

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Abstract

Innovations play a central role in economic growth and can make a decisive contribution to the transition to a sustainable bioeconomy. However, different types of innovations can lead to different sustainable outcomes. Moreover, sustainable innovations take place in complex value chains and both can influence each other, so they should be analysed together. Yet, there is so far little empirical research to examine the role that different types of sustainable innovations play in different value chains. This case study of eleven companies in Argentina aims to analyse this relationship by combining new bioeconomic innovation and value chain typologies. Argentina represents an interesting case because the bioeconomy there includes value chains based on large biomass as well as biotechnological companies and alternative local bioeconomic initiatives. The study shows that innovations take place at different levels of value chains that complement each other. As a conceptual contribution, a distinction is made between primary and secondary innovations. Four primary types of innovation are at the core of bioeconomic activities and are fundamental to transformation pathways. Secondary innovations complement primary innovations and can thus make the bioeconomy more sustainable overall. This can also mitigate potential conflicts of interest, e.g. between food and energy use, and diminish negative environmental impacts. The results can help formulate appropriate policies that meet the various challenges of different bioeconomic value chains and promote sustainability-oriented innovations. Three strategies are crucial for how innovation models could be adapted in Argentina and beyond. In order to support private bioeconomic initiatives in the long term, a number of political framework conditions should be created. Public funding programmes should support companies from the "traditional" bioeconomy in order to implement sustainable secondary innovations. Finally, access to international funding, clear rules to protect intellectual property rights and public investment in R&D infrastructure are important to help build innovation ecosystems.

Keywords: Biofuels, biomass, biotechnologies, food industry, governance, incremental innovations

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