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"Reconcile land system changes
with planetary health"

The evolving concept of multifunctional landscapes: do shifting priorities drive contemporary rural planning?

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Abstract

Rural planning has evolved significantly over time, transforming from a focus on food production to a more integrated, system-based approach centered on Multifunctional Landscapes (MFL). This shift reflects growing recognition of the need to balance productive, ecological, social and economic dimensions. Supported by transdisciplinary frameworks that align natural resource management, value creation, and inclusive governance, MFL contribute to zero deforestation and low-emissions development, strengthened social cohesion, and enhanced food and nutrition security. MFL acknowledges their interconnectedness and influence on the evolving scales, instruments, and mechanisms used to address the challenges. In this study, we present a systematic review conducted following PRISMA guidelines, analysing the historical evolution and contemporary applications of MFL. Applying exclusion criteria and inclusion criteria a total of 176 papers were selected for in-depth review. Our findings trace key transformations in rural planning from the 19th to the 21st century, identifying challenges, shifting priorities and definitions, and instruments. Findings suggested that major transformations of MFL definition had been closely linked to sustainable development, climate change, and shifting priorities, including the integration of environmental concerns and multifunctional rural development. Despite variations in scale and emphasis across conceptual approaches, the agricultural sector has evolved from recognising Ecosystem Services (ES) to adopting the concept of agricultural landscapes, then expanding to rural landscapes, and ultimately arriving at the notion of MFL. This conceptual progression captures how land-use analysis, management practices, instruments and mechanisms integrate multifunctional attributes, and ES co-benefits across sectors and landscapes, highlighting their role in territorial development. Rural planning instruments associated with this evolution include land-use regulation tools, legal recognition of cultural and socio-ecological landscapes, resilience and sustainability indicators, and policy incentives. Traditional knowledge systems and cultural ES emerge as key enablers of transitions towards MFL. Consequently, mechanisms such as participatory multilevel governance, multifunctional spatial planning, and ES compensation are increasingly promoted to achieve transdisciplinary research and policy integration. Our analysis highlights the persistent challenges of resources conflicts, rural population decline, environmental

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degradation, and the loss of cultural heritage. This requires collaborative planning approaches that transcend sectoral boundaries and support sustainable transformations through stakeholder engagement and MFL approaches.

Keywords: Challenges, Multifunctional Landscapes, Rural Development Transitions, Rural Planning, Sustainable Rural Transformations.