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“Filling gaps and removing traps
for sustainable resource management”

Systematic Review on the Social-Ecological Impacts of Urbanisation on Agricultural Systems

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Abstract

Though urban land covers only around 5% of the Earth's land area, urbanisation often leads to significant changes in land use and land cover through the conversion of natural or semi-natural ecosystems to urban ecosystems. Urban land conversion often threatens agrobiodiversity and modifies the provision of multiple ecosystem services. However, specific knowledge on the social and ecological impacts of the conversion on agricultural systems is largely fragmented across a multitude of local-level studies. This paper explores the social-ecological impacts of urbanisation in agricultural systems based on a global systematic review of the scientific literature to identify the positive and negative impacts. Our review follows the established guidelines called Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A scoping exercise using different combinations of key words on ecological and social dimensions of urbanisation is performed using Web of Science and CABI Direct. Out of 7904 articles hit in the scoping, 1850 articles are selected from the titles and the key words screening. The number is further reduced to 559 after reading the abstracts, and finally to 110 after reading the full-text. The following three inclusion criteria are considered in the process: (1) a study must cover the topic urbanisation; (2) the study must be based on an empirical fieldwork; and (3) the study must present original findings. Data on positive and negative impacts of urbanization on variables such as water quality, soil fertility, income, and food security are extracted. How these impacts are mediated by the explanatory variables (such as continents, household wealth, ecological degradation, and population) is also assessed. The robustness of the impacts is assessed by using a scale from 1 (poor evidence) to 5 (best evidence). Fisher's exact test is conducted to examine significant differences of reported impacts of urbanisation. Different types of synergies and trade-offs between social and ecological outcomes are categorized. Identifying positive and negative social-ecological impacts of urbanisation in agricultural systems contextualizes the regional focus of the research unit with a global perspective and allows a meaningful interpretation and upscaling of scientific insights.

Keywords: Agricultural systems, social-ecological impacts, systematic review, urbanisation