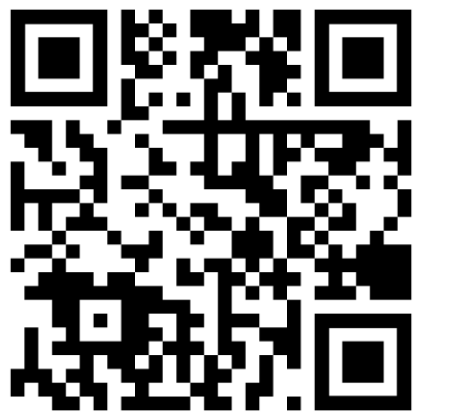


Co-Producing Knowledge on Local Food Sustainability: Stakeholder-Based Insights from Two Contrasting Landscapes

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INTRODUCTION

Food is commonly understood as a provisioning ecosystem service (ES). However, food also carries and connects multiple ES, shaped by ecological processes, agricultural practices and social and cultural traditions, influencing how landscapes are managed, perceived, and valued. Local food systems are often promoted as inherently sustainable. However, sustainability outcomes depend on how food production, processing, and waste are embedded within ecosystem limits, governance arrangements, and landscape-specific dynamics. This study compares two contrasting socio-ecological food systems: **cereal production in Berlin–Brandenburg (Germany)** and **mangrove crab harvesting in Bragança, Pará (Brazil)**. The aim was to assess when local food systems support systemic sustainability and when they generate environmental trade-offs.

METHODS, RESULTS & ANALYSIS

Fig. 1. Participatory assessment approach and methodological steps. The methodology combined scientific modelling, empirical and local knowledge, stakeholder workshops, and joint analysis to identify ES trade-offs, validate findings, and co-create context-specific sustainability pathways and solutions.



Fig. 2. Comparative overview of the two local food system case studies. Both cases highlight how food systems are shaped by interactions among provisioning, regulating, supporting, and cultural ES, as well as governance, market pressures, and local decision-making.



CONCLUSIONS

“Local” agricultural production is not always sustainable, especially if ecosystem limits are exceeded. The findings show that food systems are co-produced through interactions among ecosystems, governance, local knowledge, and cultural values. Sustainable local food systems require respect for ecological limits, adaptive governance, integration of local knowledge, and balanced ES management. Participatory and grassroot-based approaches are essential for strengthening ecosystem integrity, resilient livelihoods, and context-sensitive sustainability transitions.