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Unpacking local perspectives on transitioning to successional cacao agroforestry: A Q methodology approach in coastal Ecuador

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Abstract

Successional agroforestry—also known as syntropic agriculture—is increasingly recognised as a regenerative farming system that mimics natural ecological processes while offering significant environmental and socioeconomic benefits. This approach is based on the principles of ecological succession and stratification, organising multiple agricultural and forestry species through successional stages and positioning them optimally in both space and time. This study investigates the behavioural and systemic factors that local actors consider critical for implementing successional cacao agroforestry systems in coastal Ecuador. We employed an adapted COM-B (Capability, Opportunity, Motivation - Behaviour) framework, supplemented by the more detailed Theoretical Domains Framework (TDF) to examine these factors. To capture the diversity of local perspectives, we applied Q methodology. In the first phase, in-depth interviews with 21 participants (6 technicians and 15 farmers) generated 61 statements reflecting enabling conditions for successional cacao agroforestry. In the second phase, 21 individuals (9 from the previous phase)—including technical experts, field technicians, and farmers with varying levels of experience—participated in a sorting exercise of the 61 statements. Factor analysis of the sorting patterns revealed three distinct perspectives, each highlighting different constellations of motivational, capability-related, and opportunity-related elements. Despite these differences, consensus emerged around key challenges: the need for reliable markets for diverse agroforestry products, technical skills for pruning biomass trees, and conceptual understanding of agroforestry’s ecological benefits. Importantly, the findings underscore the necessity of context-adapted strategies that consider the evolving dynamics of these systems, the diversity of local conditions, and the interdependence between behaviour-related factors. Moreover, the application of Q methodology created a dialogical space that bridged scientific, technical, and local knowledge systems, helping to identify context-specific conditions that may either facilitate or hinder transitions toward regenerative agriculture.

Keywords: Behaviour change, local knowledge integration, Q methodology, regenerative agriculture, successional agroforestry