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Using digital tools to enter new adaptation domains in cocoa and coffee climate adaptation planning

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Abstract

Climate change threatens the viability of smallholder cocoa and coffee farming globally, with shifting agro-climatic zones and crop-specific hazards posing significant challenges. Current climate adaptation efforts prioritise broad practices like agroforestry and regenerative agriculture. Leveraging climate projection data for targeted adaptation is seen as complex and seldomly used. Adaptation domains categorise areas by incremental, systemic, and transformational adaptation needs, offering strategic guidance, yet operationalizing them remains challenging. We developed a digital tool, ACLIMATAR, utilising human-centered design (HCD) principles to facilitate structured discussions and offer targeted adaptation planning support. Drawing on local knowledge and expert workshops, we compiled sets of climate adaptation practices tailored to specific hazards and adaptation domains, bridging climate projection data with agronomic advice. Our review spans major cocoa and coffee producing regions in Latin America and East and West Africa. Our study underscores core farm system enhancements crucial for effective climate adaptation, including ground cover, shade levels, pruning, soil quality enhancement, and water management, as well as post-harvest techniques. ACLIMATAR proofed to transcends typical timescales in extension work, facilitating long-term planning. While adaptation domains offer useful planning frameworks, differentiated adaptation action is needed across regions. Incremental adaptation regions may suffice with Good Agricultural Practices and hazard mitigation, whereas systemic adaptation regions require deeper understanding, possibly benefiting from climate analogues. Transformational adaptation regions demand integration with viable livelihood options and realistic business planning. Our findings underscore the vital role of structured frameworks like HCD and digital tools in fostering climate adaptation discussions, challenging conventional approaches. By integrating risk analysis with adaptation planning, our approach provides a structured framework for action, empowering stakeholders to navigate climate change complexities and bolster resilience in cocoa and coffee smallholder farming communities.

Keywords: Climate change, decision support tools, digital tools

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