Date: **Wednesday, November 19, at 15:30 (CET)**

Venue: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NmJlYzBhMzEtZGNkZi00YjBmLWIyZTYtNTVjYzMxNGYxNGQz%40thread.v2/0?context=%7b%22Tid%22%3a%2260af5f90-e3b4-47d6-8c8e-e6d6d2b117b9%22%2c%22Oid%22%3a%22418730e1-a7ab-4234-874a-6993d27a6fda%22%7d

Invitation to Online PhD defense for Adrien COQUEREAU

The RAIZ Project through its implementing partners is pleased to invite you to the public defense of my PhD entitled:

Agroecology Landscapes: building and assessing strategies toward resilient and food secure futures

This PhD was prepared under the supervision of Marc Piraux (UMR TETIS, CIRAD), Camille Jahel (UMR TETIS, CIRAD), Gatien Falconnier (UPR AIDA, CIRAD), Kefasi Nyikahadzoi (University of Zimbabwe), and with the support of Louise Leroux (UPR AIDA, CIRAD).

Members of the Jury:

1. Nadine ANDRIEU, CIRAD, Reviewer
2. Thomas HOUET, CNRS, Reviewer
3. Alexander WEZEL, ISARA, Examiner
4. Billy MUKAMURI, University of Zimbabwe, Examiner

Abstract:

In numerous rural areas of Southern Africa, smallholder agriculture sustains rural livelihoods while facing intensifying climate vulnerabilities and persistent food insecurity. Zimbabwe's communal lands exemplify these challenges, where smallholder farming systems confront environmental degradation, limited market access, and recurrent droughts. Agroecology has emerged as a transformative pathway toward sustainability, operating as a multi-scale concept spanning from plot management to food system transformation. While the agroecology landscapes concept bridges agroecology with landscape ecology, it has predominantly emphasized biophysical processes, leaving broader socioeconomic dimensions relatively unexplored. Landscape approaches offer a framework that explicitly integrates these dimensions, positioning landscapes not only as biophysical arrangements but as social-ecological

systems where ecological functions intersect with human actions. This thesis addresses a central question: Can agroecology landscapes address sustainability and food security challenges?

The thesis objective is to explore what forms agroecology landscapes might take and what potential impacts they could generate in the future. Addressing this objective requires examining both the measurable outcomes of agroecology landscapes and the forms and place of agroecology in local populations envisioned future landscapes. This dual focus structures the thesis around two complementary research components, implemented in Murehwa district communal lands, Zimbabwe. In this research, we define an agroecology landscape as a landscape that enables the optimization of agroecology principles in a given context. The first Part of this research employs quantitative, indicator-based approaches to assess agroecology landscapes and their biophysical and socio-economic components. The agroecological principles are translated into spatially explicit indicators derived from land-use composition, enabling calculation of a composite Agroecology Landscape Indicator alongside spatial analysis of synergies and trade-offs. This framework is extended to integrate food and nutrition security dimensions across availability, access, utilization, and nutritional diversity, providing insights to debates about the relationship between agroecology and food security in sub-Saharan Africa. The second Part of the thesis adopts participatory foresight methods to support local stakeholders in co-constructing resilience strategies and exploring future landscape changes. This part proposes methodological developments to integrate spatial spillovers of land use (such as rebound effects, leakage, displacement, and indirect land-use change) in a participatory manner, and to collectively translate qualitative scenarios into maps. Through this participatory foresight work, this research examined whether and how agroecological principles emerged from open-ended explorations of futures, allowing assessment of the relevance and forms agroecology takes within locally-generated visions. This thesis makes contributions of different types. Conceptually, it reframes agroecology landscapes from biophysical constructs into operationalized social-ecological systems integrating landscape multifunctionality. Methodologically, it proposed two innovative approaches for scenarios exploration. Thematically, it provides empirical evidence on two key questions: the relationship between agroecology and food and nutrition security at landscape scale, and the forms local population envision for agroecology landscapes in the future.

Keywords: Agroecology landscapes, Integrated landscape approaches, Landscape multifunctionality, Participatory foresight, Social-ecological systems, Zimbabwe