

Co-designing livestock-based circular agri-food systems in developing countries rural areas

The CLiMiT living lab approach

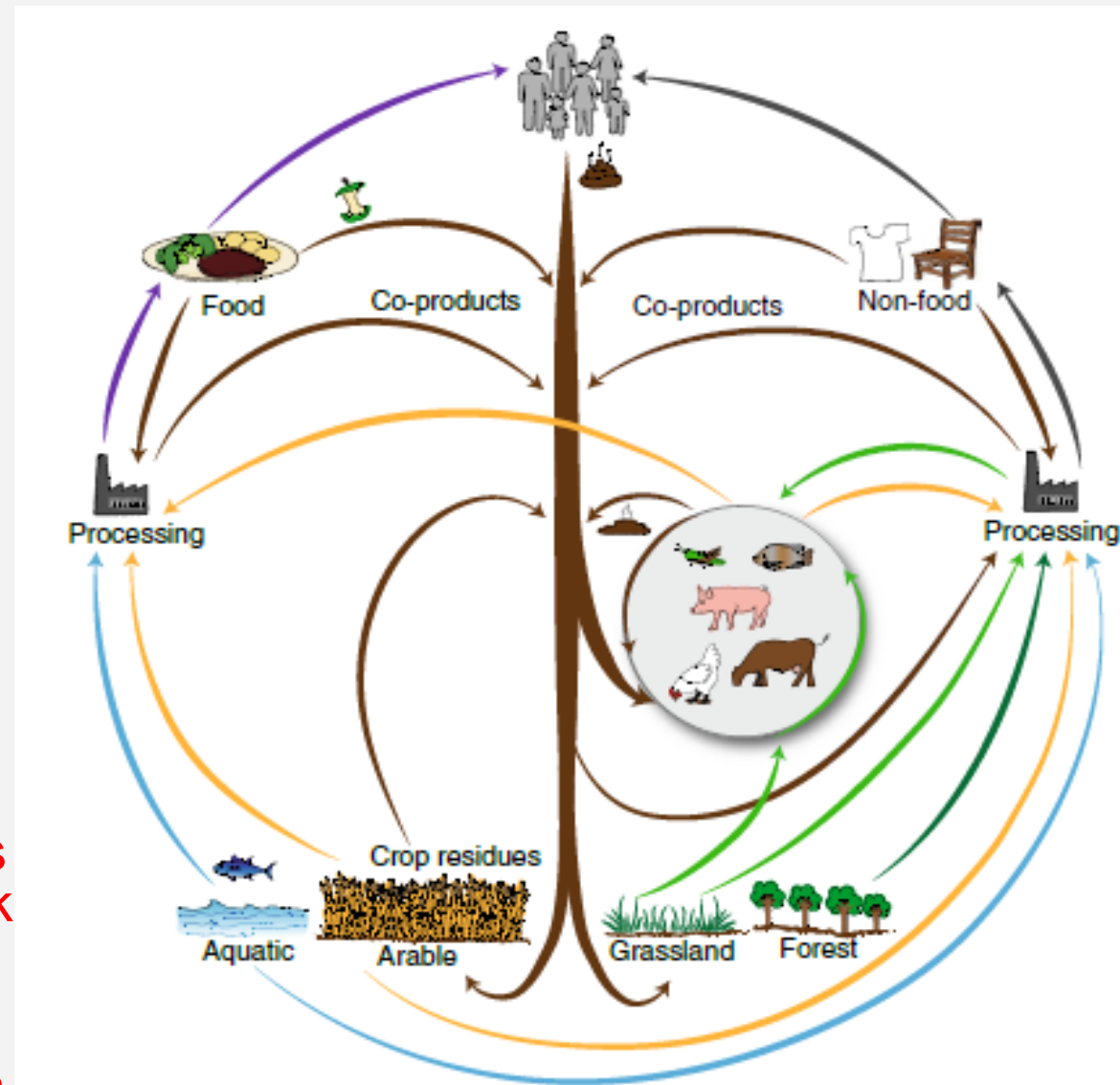


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Session 94 "Living labs and demonstration farms: approaches to improve sustainability of LFS globally"

Livestock into circular agri-food systems

- The creation of synergies in biomass, nutrient and energy flows
 - Reduction of environmental losses and impacts
- Contribution to the socio-economic development of territories
 - Create activities that generate wealth and jobs locally
 - Reduce household and territorial vulnerability
- Reduce the arduousness of field work and facilitate transport
- **But, lack of considerations about:**
 - How territorial dialogue through biomass flows can contribute to include livestock in a construction of a circular and sustainable agri-food system ?
 - Which should be the most suitable scale to develop circularity ?



Sources: Kleinpeter et al., 2023; Muscat et al., 2021; Mottet et al., 2019; van Zanten et al., 2019 ;

Living lab to promote circular agri-food systems in poor rural areas in the global south

- **Mainly focused in North context and usually product (sector)oriented**
- **Very few propose to support territorial systemic transitions through circular agri-food systems**
- **Underestimate the role of livestock in the agri-food systems**
- **How to deal with low level of education/illiterates, inclusiveness (high level of poverty), scarce human, logistic and financial resources (in which operate NGOs)**
- **Incomplete consideration of : “territory (as) common goods”, externalities and rebound effects of co-designed solutions**
- **Knowledge appropriation and application**

Goals

Co-develop an innovative living lab approach to design and implement livestock-based circular agri-food systems in developing countries rural areas

Capacity building using living labs

- Research actors

Training in new tools and developing a culture of interdisciplinary research with transformative aims

- NGOs

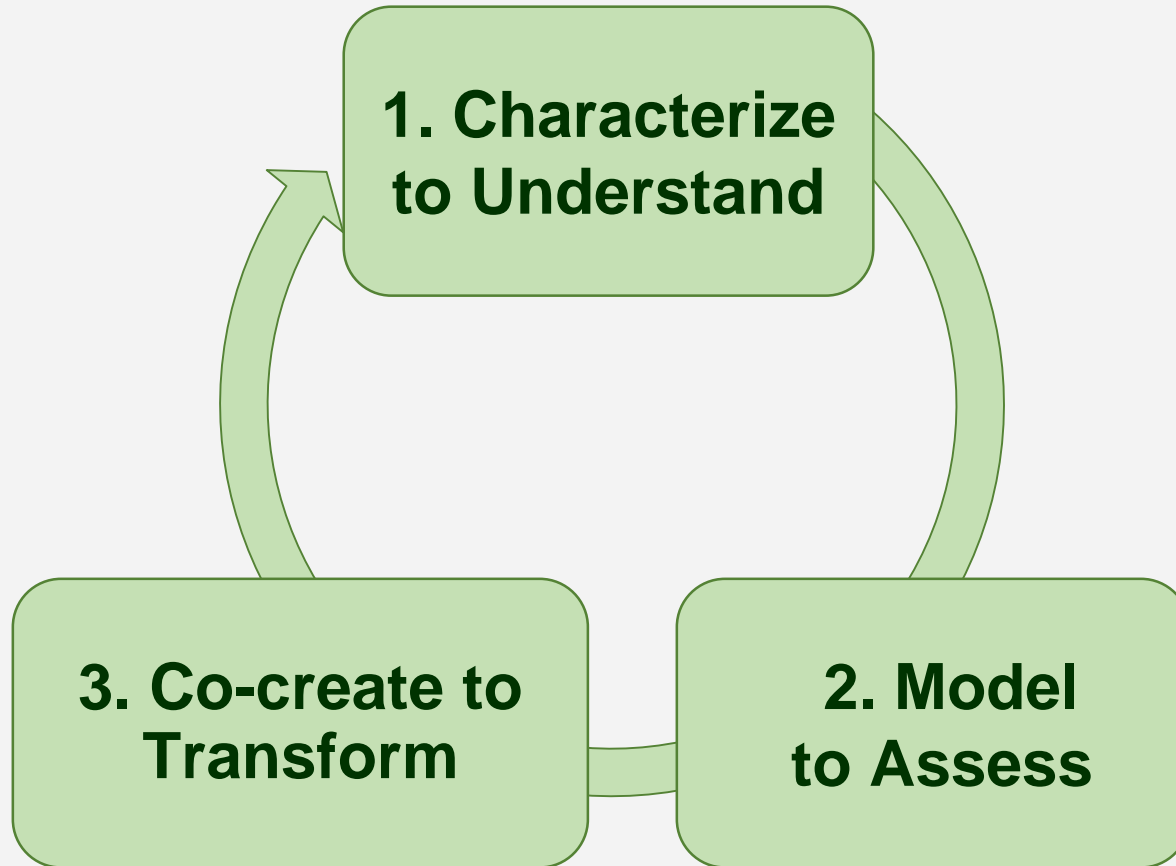
Co-develop an approach and tools to place the circularity of biomass through livestock on the development of sustainable agri-food systems

- Citizens/rural households

Empowering local communities to building up a more sustainable agri-food systems through the improvement of biomass circularity



The CLiMiT Living lab approach : 3 main steps



Interdisciplinary, multi-(level/actor) and participatory



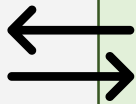
Describe production systems and animal feeding resources

Field surveys and measurements to characterize livestock production and its management. Near-infrared spectrometry to characterize the nutritional and chemical composition of local valued and valuable feed resources



Multi-level characterization of agri-food systems governance

Multi-actors interviewing to characterize (i) resources, stakeholders, norms and rules (formal and informal) and (ii) identify the obstacles, bottlenecks, and potential levers to greater circularity



Assessment of material flows in agri-food systems (metabolism)

Applying questionnaires to (i) identify and represent biomass flows (incoming, circulating and outgoing flows), (ii) model changes in the representation of these flows under different scenarios, (iii) evaluate current and modelled agri-food systems according to different (eg. self-sufficiency)



Environmental assessment of agri-food systems with circularity scenarios

Using the Territorial Life Cycle Assessment (T-LCA) to (i) characterize the environmental pressures, (ii) Assess the expected evolution of environmental pressures according to different circularity scenarios build up by the actors

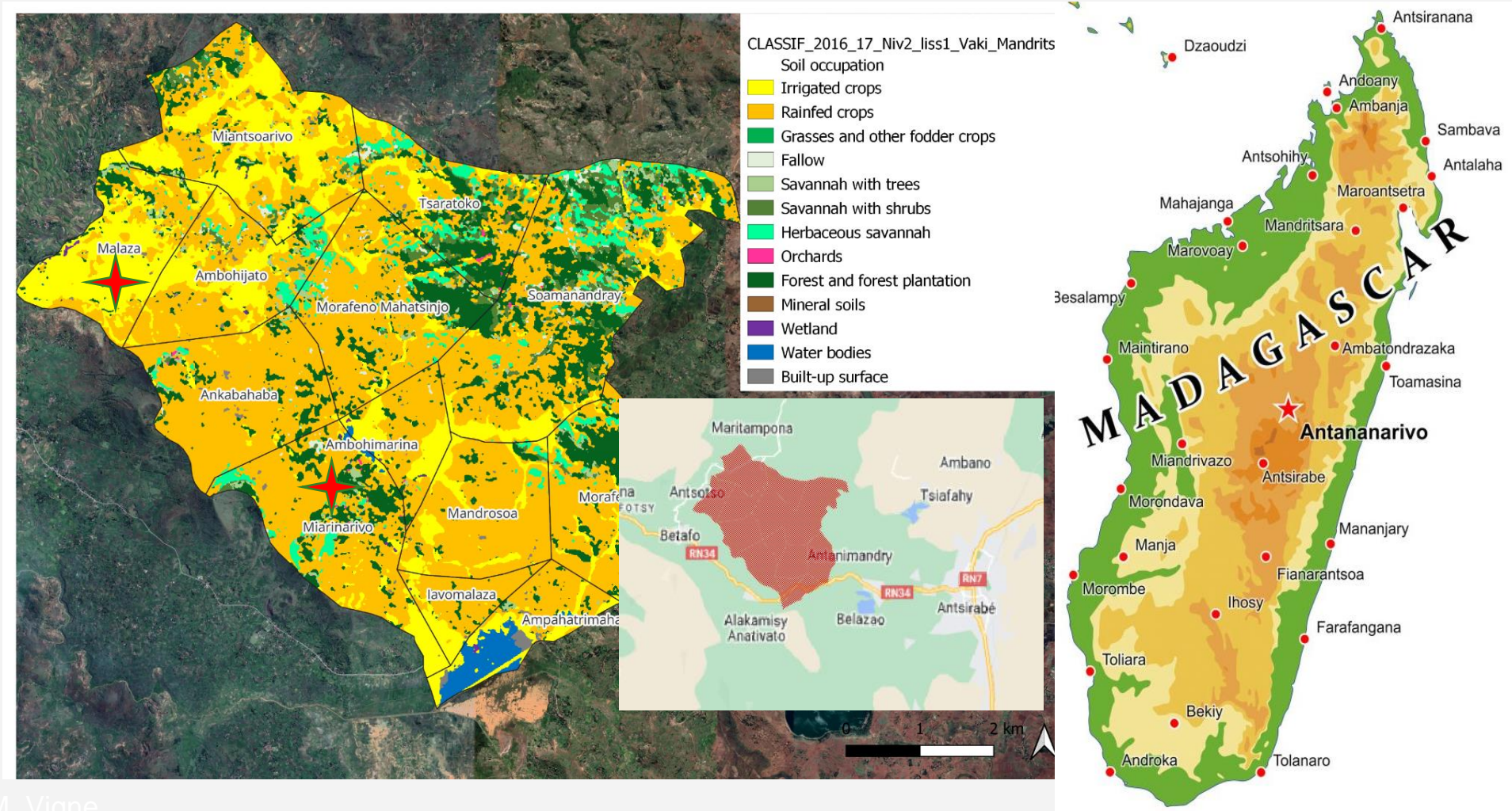


Sharing, co-designing and implementing circularity into agri-food systems

Organizing participatory workshops with local stakeholders to (i) share the collected information and facilitate the (ii) co-designing circularity scenarios and (iii) discuss the obstacles and the levers to implementing it. Finally, the NGO lead the operationalization of the co-designed scenarios.



Pilot territoires – 2 rural communities (~ 200 households)



M. Vigne

Initial finds and Conclusion



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- Work with local organisations
- Interdisciplinarity, multi-scale approach is challenging but necessary
- Long process for mutual comprehension, knowledge appropriation
- Anticipatory, collective and reflective analysis

Suitable and transferable knowledge, Supports to make knowledge appropriable, Difficulties and levers

- Actors interested, but need clearness about the living lab organization, actors interactions and timeline (how avoid excessive expectations ?)
- Ethical issues

Should we give our opinion ?

How to respect democratic ideal and balance with process feasibility in the co-designing process ? Geographical, gender, ages, etc...

- Can territorial dialogue through biomass flows « open the door » to rethink the place of livestock and its contribution into the construction of circular and sustainable agri-food systems ? Which is the better scale?



Grazie !



SCAN ME



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