

Organisational & institutional innovations in Indian agroecological transitions: a focus on livestock

Context and socioeconomics challenges

Agroecology is emerging in India and France as a concept that integrates the repositioning of agriculture in the national social metabolism. It refers to an in-depth transformation of food systems, favouring a redesign of a diversity of agro-ecosystems, a rapprochement between producers and consumers (FAO 2018; Gliessman, 2016), between prevalent administrative and scientific silos of crop production and livestock.

Livestock is particularly important in agroecological transitions. Crop-livestock integration, the hallmark of Indian agriculture (Voelcker 1893; Rangnekar 1995), supports the cycle of nutrients in agroecosystems (Dumont et al. 2018). Furthermore, grass-based or by product-based livestock farming transforms non-assimilable plant products into assimilable ones. It also contributes to biodiversity conservation (Aubert et al. 2018, Dumont et al. 2019). It is marked as well by local knowledge and agency, especially of rural women (Ghotge 2004).

However, the livestock production designed as part of the industrialisation of agri-food chains over the last 70 years suffers from major drawbacks: among them are low capacity for nutrient recycling, extremely high levels of energy use, water and air pollutions by off-land large specialised dairy farms, low remuneration for the farmers, and increasing subsidy burden on the national exchequer.

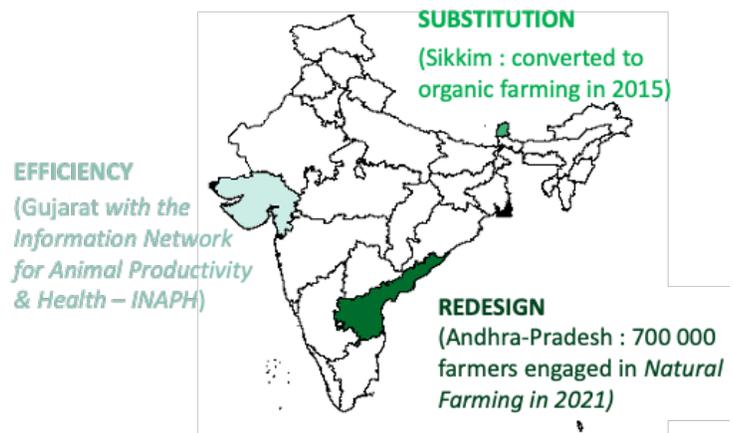
The India's dairy development with the white revolution followed this trend but preserved small-scale farming as well as different forms and scales of crop-livestock integrations in many parts of the country.

India is the success symbol of the green (for cereals) and white (for milk) revolutions thanks to which it reached national self-sufficiency. Conscious of the environmental and social un-sustainability of these successes, Indian Union and states' governments are also one of **the first states to embark on large-scale agroecological transitions** (Dorin, 2021). In addition, the country highly contrasted pedoclimatic conditions and cultural differences make the piloting of the diversity of meso-agroecosystems particularly challenging. India emerges therefore as a strikingly interesting **living laboratory**.

Scientific challenges

TransIndianDairy is a 48-month Franco-Indian transdisciplinary project funded by the French National Research Agency, in continuity of previous projects (ICSSR project, 2017-2020; Agro Eco2020, IndiaBio, 2020-2022).

This transdisciplinary project aims to understand the systemic role of institutional, organizational and technological innovations in the implementation of **large-scale agroecological transitions in three Indian states** (Gujarat, Sikkim and Andhra Pradesh), wherein the role of livestock farming in these transitions plays a major role.



PhD objective and methodological approach

To research the modalities of collective action (public policies and sectoral and rural community regulations) capable of stimulating the production of local value, notably through the creation of new competitive/communitarian advantages (differentiation of local ways of producing, exchanging and consuming food as well quality upgrading through participatory certification in longer food chains) and the development of ecosystem and territorial services.

A particular focus will be put on Information systems, social learning and their relation to property rights elaboration and distribution. An institutional view of property as "concerted action, which regulates the conflict of ownership over scarce resources" will be adopted.

An articulation between institutional economics literature and the literature on territorial social metabolism is central to this study, in order to elaborate an innovative multiscale framework that combines tangible and intangible environmental and social resource regimes.

Course of the thesis

- Literature review on institutions (norms/regulations), norm making processes, institutional change and agro-ecological transitions and refining of the problematic
- Lexicometrical analysis (<http://www.iramuteq.org/>) to identify the points of convergence and divergence in the representations of agroecology among public agents, NGO, firms, farmers, consumers.
- Mapping agroecological transitions and comparative analysis of the governance of the transitions in three States in India
- Characterisation of the emerging property rights regimes in the three State level agri-food systems in transition.
- Identification of drivers of change, especially institutions (rules/norms) that can be implemented in India & elsewhere in the world.
- Presentation of results in Indian, French and international ecological and institutional economics societies, and publications.

International supervision & work environment

Dr M. Dervillé (marie.derville@ensfea.fr), institutional economist & dairy expert, LEREPS (<http://lereps.sciencespo-toulouse.fr/>) and ENSFEA (www.ensfea.fr/) in Toulouse (South of France)

Dr R. S. Raina (rajeswari.raina@snu.edu.in), STS scholar & ecological economist, Shiv Nadar University (<https://irgs.snu.edu.in/people/faculty/dr-rajeswari-raina>)

Bi-location between Toulouse (France) & New Delhi & field sites (India); periodicity to be defined.

PhD contract as per French laws (includes paid holidays and medical insurance).

Candidate profile: Master in economics (with a minor or proven qualifications in sociology or political sciences); bachelor in social sciences or agronomy; interest and knowledge of Indian culture; experience in **mixed methodologies**, combining case studies (e.g. Dumez 2013) and statistical analysis, appreciated.

Application process: Interested candidates may send the latest CV + motivation letter + M2 grades & thesis + recommendation letter. Please not wait until the deadline to contact us.

Shortlisted candidates will be invited for a zoom interview between 21st and the 30th September 2022.

To go further

Dervillé, M. et al. 2022 The role of institutions in the territorial structuring of a sector: Evidence from the long-term transformation of the dairy sector in France and Germany] Regional studies; Dervillé M. 2022, Institutional insights into the adaptation capacities of sectoral communities: Evidence from the restructuring of the dairy sectors in France and Germany] The annals of regional sciences.

Dervillé M., Jenin L., Dorin D., Raboisson D., Aubron C. (accepté septembre 2021) Inclusiveness of the Indian dairy sector: an institutional approach] Journal of Economic Issue.

Barles, S. (2014). "L'écologie territoriale et les enjeux de la dématérialisation des sociétés: l'apport de l'analyse des flux de matières." Développement durable et territoires. Économie, géographie, politique, droit, sociologie 5(1).

Dorin, B. (2021). Théorie, pratique et enjeux de l'agroécologie en Inde. La transition agroécologique: quelles perspectives en France? A. d. A. d. F. Hubert Bernard. Paris, Presses des Mines.

Ostrom, E. (2010). "Polycentric systems for coping with collective action and global environmental change." Global Environmental Change 20(4): 550-557. Pretty, J. N. (1995). "Participatory learning for sustainable agriculture." World Development 23(8): 1247-1263.

Raina, R. S. and D. Dey (2020). "How we know biodiversity: institutions and knowledge-policy relationships." Sustainability Science 15(3): 975-984.

Raina, R. S. (2011). Institutional strangleholds: Agricultural science and the state in India. In Shaping India (pp. 99-123). Routledge India. Raina, R. S. (2020). Institutional strangleholds: Agricultural science and the state in India. In Shaping India (pp. 99-123). Routledge India.

Raina, R. S., Ravindra, A., Ramachandrudu, M. V., & Kiran, S. (2015). Reviving knowledge: India's rainfed farming, variability and diversity. IIED Briefing Paper-International Institute for Environment and Development, (17307).