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Harnessing Youth through Participatory Action Research for Transformative Territorial Health Solutions.

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Abstract

Integrating One Health approaches with agroecological principles presents a promising framework for enhancing the health of a given territory. This is especially true when local inhabitants define the key elements defining the health of their territories. Such integration can foster agroecological transitions guided by local stakeholders towards meaningful objectives. The present study applied participatory action research to foster result ownership through collaborative training and analysis. A particular emphasis was placed on engaging youth and balancing representation of ethnic groups and gender in implementing the method. Consequently, 20 young residents from Keur Momar Sarr, Senegal, assessed local perceptions, practices, and interactions around the health of their territory based on 148 semi-structured interviews they carried out with randomly selected community members and collectively analyzed the data during a weeklong workshop. This collaborative analysis produced comprehensive causal maps illustrating the key actors, components, and drivers affecting territorial health according to residents' perspectives. These systemic causal maps highlighted several interconnected elements related to the evolution of the communities, social relations, educational sector in crisis, adverse environmental and socio-economic impacts caused by unsustainable agricultural practices and absent water and forest services, pasture-related challenges including corruption, poor eating habits, and unsanitary conditions. This study examines how involving young residents in the research process can enhance community engagement and support mutual learning. We reflect on both the substantive findings from this causal mapping exercise and its influence on participants' sense of legitimacy, empowerment, and agency. The methodology enables understanding the complex causality and interactions that define territorial health from local perspectives, positioning researchers as critical companions rather than analysis leaders. Nonetheless, the approach necessitates building trust with local communities and developing a shared capacity for knowledge co-production, which remains challenging regarding project-based research management. Particular attention must be addressed to local power dynamics, ensuring equitable participation and fostering empowerment as catalysts for social change.

Keywords: Participatory Action Research Evaluation; Co-Inquiry; One Health; Agroecology

Introduction

Few studies connect the One Health approach with agroecological transitions. The One Health framework, as defined by the WHO, emphasizes the interdependence between human, animal, and environmental health, calling for systemic and cross-sectoral approaches to complex health challenges¹. Most research focuses on specific aspects of agroecosystem health, such as soil health (see Berthon et al., 2025), plant health (see Wyckhuys et al., 2024), or animal health (see Sautier & Chiron, 2023). However, integrating One Health approaches with agroecological principles offers a promising framework for enhancing and sustaining the health of various territories. While most studies analyze agricultural practices in relation to specific health aspects and tend to overlook the broader agroecological transition of food systems, some emphasize the need to combine these efforts with participatory action research (PAR) (as suggested by Berthon et al., 2025). These collaborations are most effective if local inhabitants are engaged in identifying the key components of their territories and the interconnections between various health issues.

¹ https://www.who.int/health-topics/one-health#tab=tab_1

Another important component for both implementing agroecological interventions and conducting them according to PAR principles is the evaluation. Indeed, the evaluation of research processes established in collaboration between actors, or even led by non-researchers, is a crucial question (Crupi & Godden, 2024; Núñez et al., 2021; Springett, 2017). This clearly relates to issues of social justice and ownership of the research object. Several studies have already developed principles and practices for evaluations in the context of social transformation interventions with multiple collaborators (Núñez et al., 2021). Such evaluations are not prescriptive; they do not encourage the *a priori* implementation of a given framework and process, as they do not direct but rather advise (Crupi & Godden, 2024). These are principle-based.

The Santeff² activity deployed within the Santé-Territoires project³ operates within the framework of the project's PAR mechanism by developing a participatory monitoring and evaluation approach focused on residents' perceptions of their territory's health (D'Aquino et al., 2025). Indeed, Santé-Territoires aspires to define and enhance local territorial health and the development of agroecology through the establishment of living labs fostering dialogue between researchers and local actors to develop solutions tailored to specific contexts (Baufume et al., 2025; Sachet et al., 2024). As such, the *Santeff* methodological framework, drawing inspiration from the work of Burns (2018, 2021), aims to demonstrate the importance of collective analysis of large system causal maps in PAR evaluation mechanisms. Thus, the co-research process described here is based on the fundamental principles of PAR, which actively aims to integrate local actors into the research processes to guide and support possibilities for collective action (see Kindon et al., 2007). This research model adopts an approach founded on interactive participation, ranging from simple consultation to partnership, delegation, and ultimately participant empowerment. This continuum of engagement levels is supported by collective decision-making dynamics, where territorial residents are encouraged to appropriate research tools and results, which promotes continuous adaptation through iterative cycles of reflection and action (see Kindon et al., 2007).

Material and Methods

In *Santeff*, the research team developed a participatory evaluation system aligned with the PAR objectives and the One Health approach promoted in *Santés-Territoires*. This approach sought to capture inhabitants' perceptions, practices, and interactions regarding the "health of their territory", while strengthening local capacities for collective analysis. We accompanied a group of 20 young residents of Keur Momar Sarr in Sénégal, who were trained to act as local investigators and co-analysts of their community's perceptions. The approach was grounded in the idea that understanding "territorial health" requires combining scientific and experimental knowledge through iterative cycles of training, field investigation, and collective interpretation. Central to this co-research is the role of local actors, who collaborate in all phases of the process, from validating the framework and methodology through data collection, analysis of produced data, and their subsequent dissemination (see Figure 1).

² *Santeff* stems for *Système de suivi-évaluation participatif des changements de perception de la santé du territoire et de leurs effets sur les pratiques, comportements et interactions des populations*, i.e., participatory monitoring and evaluation system for perceptions' changes of health in the territory and their effects on the populations' practices, behaviors, and interactions.

³ <https://www.santes-territoires.org/>

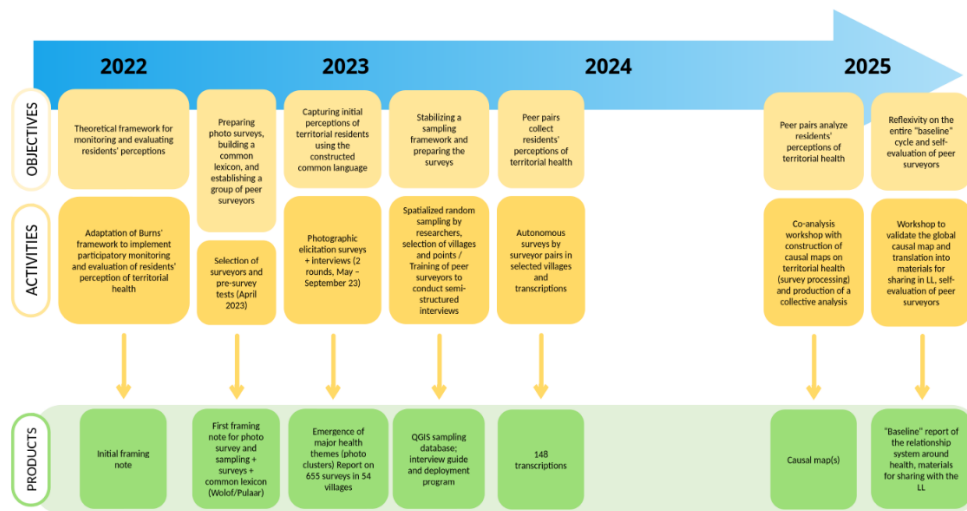


Figure 1. Steps of the participatory evaluation process in *Santeff*

To address PAR principles and the objectives of a participatory monitoring and evaluation system, several structuring stages were developed and implemented in 2023 and 2024. Qualitative data on health perceptions within the communities were collected within the Keur Momar Sarr living lab. The main stages are as follows:

1. *Contact with selected investigators and photographic elicitation survey*: Local young residents were selected and trained in Keur Momar Sarr to conduct a photographic elicitation survey on the perception of territorial health. The analysis conducted allowed us to prepare the co-construction of the main survey through various categories and themes (Hopsort, 2023).
2. *Co-construction of interviews guidelines and analysis framework*: Working with selected youth investigators originating from Keur Momar Sarr (n=20), we jointly defined an interview guideline adapted to conduct autonomous qualitative interviews and transcriptions.
3. *Data collection*: 148 individual qualitative interviews were conducted with inhabitants of Keur Momar Sarr communities.
4. *Co-analysis*: Peers collectively analyzed the collected data, enabling a collective and contextualized interpretation of territorial health perceptions. It involved validating three group causal maps that were developed, representing different zones around the lake, followed by the construction of a comprehensive global map. The methodology involved consolidating key geographical categories (lake, fields, bush, village) and developing important thematic elements. Groups then recreated connections within and across geographical categories, verifying and reintegrating overlooked boundary elements.
5. *Transmission of analyzes for action (on-going process)*: The final phase will focus on sharing analyses and facilitating local appropriation of results within the Living Lab. Peers will be mobilized in results dissemination, strengthening the capacities of living lab actors.

Results

During the data collection phase, the investigators reported that the qualitative interview approach proved more fluid and less constraining than the previous photo elicitation methods. The open discussion granted respondents the opportunity to express themselves more freely, leading to rich and sometimes unexpected exchanges. A key finding was that allowing respondents first to express grievances freely was essential for obtaining detailed and sincere information; without this initial listening phase, respondents would close up and limit engagement. However, investigators also encountered significant challenges with the categorization framework, particularly regarding the distinction between “household” and “village” levels of analysis. Respondents often perceived these spheres as an almost indivisible continuum rather than separate entities. This finding suggests that territorial health is experienced through relational dynamics that transcend administrative or spatial boundaries.

In a few cases, some respondents declined to participate due to a lack of prior communication with village chiefs, local political tensions with elected officials, or survey fatigue from repeated studies in the region without results being shared with communities. Based on these experiences, the youth investigators proposed two key improvements for future surveys: (i) merging some sections of the interview guide to better reflect collective perceptions of living spaces, while retaining targeted follow-ups on household-specific dynamics;

and (ii) implementing systematic advance notification and communication of objectives and returns to the community to village chiefs by municipal authorities to ensure acceptance and facilitate fieldwork.

During the co-analysis phase, three causal maps were developed. Each map revealed both common patterns and zone-specific challenges and contrasting developments, reflecting the diverse realities experienced by Keur Momar Sarr communities. Although it was not possible to explore a global synthesis map in depth due to time constraints, the process fostered strong group dynamics and encouraged critical reflection among participants.

Globally, the lake was increasingly perceived as a source of both life and constraint, providing livelihoods but also spreading diseases to livestock and humans while becoming difficult to access. This ambivalence reflects how residents perceive their environment not only through ecological challenges but also through questions of equity and governance. The typha proliferation (*Typha L.*) emerged as a significant obstacle, reducing pastoral areas, blocking fishermen's access to fishing grounds, and carrying pathogens. Herders particularly stressed reduced lake access due to field expansion and typha invasion, while drinking water access problems primarily affected herders rather than large village residents. Furthermore, illegal waste dumps posed serious risks to livestock through ingestion.

Other forms of environmental degradation included rainfall scarcity, local species extinctions, and significant deforestation, which directly impacted livestock by reducing pasture and fodder availability. Bushfires exacerbated these conditions, necessitating transhumance. Bush reduction, attributed to agricultural expansion (especially on the western shore) and quarry mining, along with excessive tree cutting by farmers for fencing, intensified farmer-herder tensions. Causal maps showed that agricultural yields were declining due to rainfall reduction, animal straying, and pest invasions, though some farmers maintained productivity through mechanization and chemical inputs, which had further impacts on straying livestock. As such, pasture scarcity forced herders into transhumance and into a reliance on often corrupt feed distribution systems.

Economic activities were evolving beyond traditional agriculture and livestock. According to the findings presented, positive developments included agricultural mechanization and crop intensification. However, these were accompanied by soil impoverishment, chemical-related health impacts, and difficulties with product preservation. Positive village evolution was evident in improved access to water and electricity, the transition from straw to permanent dwellings, and enhanced women's living conditions. Nevertheless, community and family relations showed mixed dynamics: strengthened inter-village and intra-family communication existed alongside tensions from social media influence and youth unemployment. Plus, the concept of “living together” (*vivre ensemble*) faced modern pressures such as decreased mutual assistance and reduced social interactions due to information technologies. Critical challenges included infrastructure deficits—healthcare, electricity outside large villages, and functional schools—as service access varied dramatically—acceptable in villages but severely limited in remote camps.

In summary, the analysis revealed both the fragility and the resilience of local socio-ecological systems. Despite structural challenges, participants identified multiple adaptive strategies and emphasized the importance of collective action, transparency in resource management, and knowledge sharing within the community. The process itself became a learning experience that enhanced participants' confidence, reflexivity, and sense of contribution to their territory's future.

Conclusions and Outlook

This study demonstrates that involving young residents as co-researchers extends beyond methodological innovation to reshape how territorial health knowledge is produced and legitimized fundamentally. Notably, by positioning researchers as critical companions rather than external experts, the approach generated a shared analytical language that enabled participants not only to articulate their lived experiences but to collectively envision pathways for change, underscoring that knowledge co-production serves dual purposes: generating actionable understanding while simultaneously building local capacity for ongoing critical inquiry. It thus reinforces the recognition that diverse forms of expertise are not merely an ethical imperative but an essential condition for producing contextually grounded knowledge that can inform meaningful social transformation.

However, sustaining such participatory approaches within contemporary research economies presents significant challenges that warrant critical attention. The project-based funding model often conflicts with the extended timeframes required to develop collective analytical skills and establish genuine partnerships with researchers, local communities, and investigators. Moving forward, the Santé-Territoires Living Labs framework must prioritize institutional mechanisms that support long-term engagement, particularly with youth populations, while remaining vigilant to local power dynamics that can reproduce inequities even within participatory spaces. Future research should focus on establishing robust feedback loops connecting research outputs to local governance structures and everyday practices, thereby ensuring that co-produced knowledge translates into tangible improvements in territorial health.

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