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Do We Really Have to Scale Up Local Approaches? A Reflection on Scalability, Based upon a Territorial Prospective at the Burkina Faso–Togo Border

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Abstract: Scaling up has become an objective and an indicator of success across many fields. We challenge this norm in the field of agricultural development, where it has recently become widespread, offering a critique and alternative approaches by presenting work conducted on the border between Burkina Faso and Togo. Our territorial and prospective approach to cross-border transhumance draws on 30 years of statistical data, 61 interviews, a survey of 568 people and a demographic projection. A collective ambition grew out of the three workshops. Local cross-border debates and the subsequent dialogue between actors across territorial scales demonstrate that contextualized results can be valid without being "scaled up". A real change in scale means going beyond individual perceptions by identifying and debating the connections between actors and with resources. Resource sustainability is considered through a collective process-based approach rather than through norms. To support practical work on sustainability, rather than fantasizing about perfectly generalizable objects of study or, on the contrary, getting wrapped up in a "small is beautiful" ideal, collective reflection should be encouraged on prospects for local actions. Where tensions run high—as in the territory that we study—these are all emerging resources in the negotiations of public action.

Keywords: territorial approach; prospective; pastoralism; transboundary; Burkina Faso; Togo; relational sciences; ecology of context; scalability

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1. Introduction

Our approach questions the concept of scalability and the common injunction to "put research results at scale". When policymakers and funders examine approaches to local development, they expect them to be able to draw general recommendations that can inform decision making. They expect "scalability", which may mean (1) reproductible/replicable results (results can be applied widely and elsewhere), (2) extensibility (results can be applied widely and the approach can be considered as a pilot), and (3) institutionalization (results can be systemic and accompanied by a set of principles and policies for their implementation). Eligibility and thus funding have therefore tended to become dependent upon a program's potential to produce while retaining their characteristics and remaining robust.

Within the existing literature on sustainable changes in rural areas where agro-pastoralism is the main activity generating incomes, our research presents new observations of both the social and economic interactions on a territorial level, and on the driving forces identified by local experts. As such, it differs from scenarios produced in this regard on technologies and food production [1], as well as from research result on productivity and technology as drivers of change [2]. Our approach to territorial development in the transboundary areas of Burkina Faso and Togo might range in the series of studies questioning

the development in margins from varied sociological perspectives, from negotiations about belonging for the nation in Oman [3] to seeking innovative entrepreneurship in eastern Poland [4], to reference only two examples distant in their epistemological approaches as well as in their geographical contexts. Beyond the common assessment that transboundary regions remain marginalized from policymaking processes and have limited access to basic public services and policies to support food security and production, we aim to explore the dynamics at play. We agree with Oliveira et al. [5] that the synergistic use of resources is context specific and pivotal for sustainability, and should be optimized by decision makers.

In the first section, we examine the status of "scaling up" in its different assumptions in the field of agricultural development through an analysis of an institutional corpus, the recent critical literature on scalability and its different levers. In the second section, we present the methods and results for a territorial prospective [6], conducted through a participatory approach on the border between Togo and Burkina Faso. Anticipation, reflexivity and inclusion are corner stones of the process; they also appear to be three out of four of the core principles of the emerging concept of responsible research and innovation (RRI) (responsiveness being the fourth) analyzed by Gremmen, Blok and Bovenkerk [7], when they examined the applicability of responsible research and innovation in the context of agriculture, and the nature of responsibility in light of the specific context of agricultural innovations. In this regard, we consider what it tells us about scalability. We argue for the generic value and scope of contextual analysis that is resolutely territorially anchored. In the third section, we re-examine the territorial prospective and the lessons it provides in light of works on non-scalability in relational sciences, agroecology and anthropology, asserting our ambition that with this anchored approach we will not only be scientifically validated, but will also have a political impact beyond the confines of the territory under study.

2. Scaling Up Territorial Studies: An Initial Analysis

2.1. Navigating between Two Normative Pitfalls

Historically, researchers have always depended on intellectual and material interactions with their socioeconomic context [8]. However, with research being privatized and growing increasingly dependent on funding agencies, communication is becoming more strategic (for example, some research organizations promote the "marketing of science"). At the same time, the growing convergence of the work conducted by specialists in research institutions and aid agencies, who sometimes alternate between the two, promotes the use and spread of an inherited common vocabulary of buzzwords and standard social engineering models [9]. It is therefore necessary, in order to mark out our scientific path, to identify the normative pitfalls emerging in the field.

2.1.1. The Drivers Promoting Scalability

Among the newly popular slogans in development aid institutions, seeking/demanding/promising the scaling up of results and policy recommendations has become both a goal and an indicator of success. For example, a sustainable system must be designed on a scalable framework; non-scalable systems are flawed and good practices must be scaled up, etc. A brief bibliometric analysis shows that scaling up has inspired an ever-increasing number of publications over the last three decades across all research fields (indexed in the "Web of Science" database accessed on 11 May 2022). The following two graphs (Figures 1 and 2) present this spectacular growth, as well as the research fields that feature most often in the results recorded in the Web of Science database. The environmental sciences are in the fourth position.

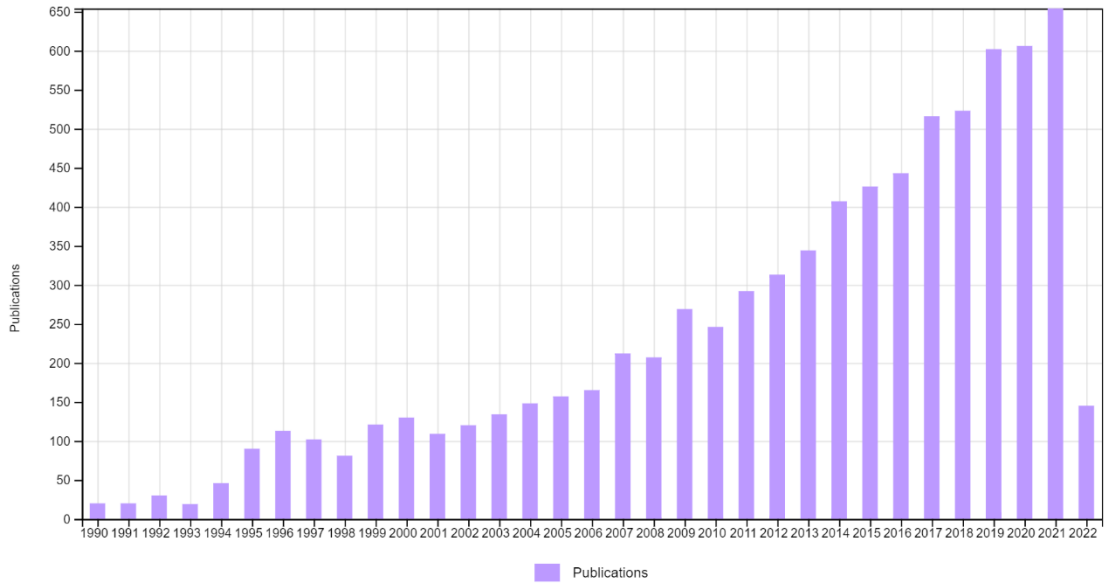

Figure 1. Publications on "Scaling up" 1990–2022. Source: Web of Science Core Collection, consulted on 11 May 2022. Articles, proceedings papers, meeting abstracts, whose title contains "scaling up" and all research areas. Publications from 1990 to 2022.

Figure 2. Publications on "Scaling up", main research areas (WoS). Source: Web of Science Core Collection, consulted on 11 May 2022. Articles, proceedings papers, meeting abstracts, whose title contains "scaling up" and all research areas, 1990–2022. 7816 results.

Spread out in industry first (chemical engineering and applied microbiology), the notion of scaling up is less common in the sciences relating to agriculture and development (162 cumulative results in the WoS categories of agronomy, sociology, development studies, agriculture, economic policy and geography).

We did not analyze the content of the publications or their stance on scaling-up. However, a book on economics [10] and the terms in which it was presented in a Food and Agriculture Organisation (FAO) webinar illustrate both the ambition to spread this language and the thinking behind it, and the readiness with which these ideas are received in *"all sectors looking to take their ideas to the next level"*. The author traced the origin of scaling-up programs among start-up pioneers, which he observed as a clear call to science.

"'Scale' is probably a term you have heard before—a buzzword amongst Silicon Valley entrepreneurs and tech start-up circles. But at its core, 'to scale' simply means to achieve a desired outcome when you move from a small group—of customers, students, or citizens—to a much larger one. And it is not just for start-ups. Scaling ideas underpins all social and technological progress, since [. . .] 'the innovations that change the world are those that reach the largest number of people'".

The book was presented at the FAO with the aim of explaining "why some ideas take off (or scale) and why others do not, using a mix of original research and real-world anecdotes. [The author's] ideas are brought to life in this engaging presentation with actionable, science-backed takeaways for leaders, teams, and organizations in all sectors looking to take their ideas to the next level" (announcement of a webinar organized by the Economic and Social Development Stream of FAO, April 2022, about the book *The Voltage Effect: How to Make Good Ideas Great and Great Ideas Scale*, by John A. List).

Our observations led us to identify two main ways in which scaling up is promoted. The first approach is illustrated by the book cited above. Let us recall three postulates of the neoclassical Chicago school of economics from which the author comes: a) the fields of analysis are interchangeable, as presented in the brief note introducing the lecture: "In the early 1990s, List pioneered field experiments as a methodology for testing behavioral theories and learning about behavioral principles that are shared across different domains. To obtain data for his field experiments, List has made use of several different markets, including charitable fundraising activities, the sports trading card industry, the ride-share industry, and the education sector, to highlight a few"; b) economic modeling provides a satisfactory account of various aspects of social life and c) rational management will guarantee improvements, through the logic of efficiency. Following Brown [11], this assumption illustrates how the neoliberal thinking spread beyond the market, by twisting the norms of reference and value (imposing interchangeability, fungibility and law of numbers).

The second approach mobilizes researchers and communicators separately: the former is responsible for producing knowledge; the latter for ensuring that deliverables have visibility and impact with policy makers and, above all, public and private funders. This can be interpreted as a product of the first approach, with communication and the use of targeted and "recognised" expertise going hand in hand with neoliberalism. Aid institutions' growing dependency on voluntary funding from their contributors has meant that communication has become strategic, with research being no exception to the rule. Just as there has been a proliferation of new social media platforms exploited by reconfigured civil societies, most technical documents now undergo a smoothing out process. As a result of both this division of labor between external experts and institutional communicators and the structure of institutional relations of dependence, research is now marketed through buzzwords, of which "good practices" and "scaling up/scaling out" are recent examples. Though poorly defined, these same objectives determine efforts to "scale up actions that accelerate progress on the Sustainable Development Goals (SDGs)", "scale up the response to the urgent [food security] needs in the country", "scale up agroecology through market systems (using technology justice in agriculture to leave no one behind)", "scale up conservation agriculture (sharing best practices to ensure increased crop production while safeguarding the environment in southern Africa)" or even "scale up nutrition" (SUN) to engage all sectors of central and local governments in efforts to improve nutrition. What next? Calls to "scale up family farming" or indeed scale up "small-scale agriculture"?

As this quest for homogeneity takes hold, scaling up has become confused with success and thus the logical objective everywhere: no intellectual or social field to date can escape the technicist mindset. "Scaling up" is part of the same lexical field and inhabits the same mental universe as "good practices", and the terms go hand in hand in the field of social engineering of development, where there are ever more programs "scaling up good practices". When scaling up refers to a work program in which locally identified "good practices" are to be generalized, shared and reproduced—usually under the guise of an approach described as participatory and community-based—this results in the erasure of

the diversity of social relations, of the specific characteristics of local socio-ecosystems and of the anchoring of political processes [12].

We can here refer to Karl Polanyi's distinction between societies with markets and market society [13]. Market forces attempt to normalize knowledge through the marketed governance of science (including the norms of peer review), scalability being one of the market drivers. In this regard, scaling up is just another manifestation of the spread of neoliberal thinking. However, Polanyi also explained that there might be tensions between market forces and non-trade regulations. It is however necessary to go beyond the blind spots of the general technicist discourse on social transformations in order to understand how this is in fact a political operation, already identified in a number of different geographical areas, such as Indonesia, Africa and Europe, and disciplines, from agriculture [14,15] to health [16]. In what it promotes, imposes, ignores and destroys, the success of the scaling-up lexicon, but also its objectives and its methods, points to the influence of orthodox economics across a range of academic and social fields. It reveals a consensus based supposedly on rationality, but in reality on the axiom of self-interest. In other words, "a principle serving as a basis for a demonstration, a self-evident principle", is an unproven proposition used as the basis of reasoning or a mathematical theory. The axiomatic approach has been extended to the economy and sometimes to social action in a utilitarian mode, which posits that social actors cannot aim for anything other than the satisfaction of their own interests or preferences [17]. For example, the tensions between market forces and non-trade regulations revealed by Polanyi can be identified locally when context-specific production systems and livelihoods working with nature, such as pastoralism, are neglected [18] and/or encouraged to transform and align with a marketable commoditization.

2.1.2. Scalability, the Primacy of Localism and Alternative Positions

However, while this vocabulary and technicist thinking are omnipresent in the most diverse fields, indiscriminate calls to "scale up" are now scientifically criticized as magical thinking that ignores the processes of the hybridization of political action and observed as the expression of a political project that confuses its own global spread with the universality of rights and issues, and of ahistorical and decontextualized thinking [11].

Additionally, indeed, it may be useful to specify posture and conceptual dimension of scalability, depending on what "put at scale" is and what the levers are mobilized to do. The research and development implications differ according to what scalability concerns:

- Knowledge produced and mobilized. As far as knowledge is concerned, it is also necessary to insist, with Agrawal [19], on the danger of introducing a hierarchy between local and academic sciences (which may be a bias of the injunction to scale-up in the sense of generalizing). What is important is to produce contextual and activable knowledge; reality is a continuum from indigenous/local and academic spheres, with multiple hybridizations);
- Modalities, methods and practices, depending on the context and purpose of action (emergency, development, academic research, etc.);
- The supposed beneficiaries of the results (researchers, technicians, civil society organizations, policy makers, etc.).

A second stance opposed—or complementary—to the scaling up model has put forward the idea that "small is beautiful" in a variety of forms over the last forty years [20], from local-development aid projects in countries of the South following failed large-scale planning interventions by state companies, as well as the drying up of public funding, to the local utopias proliferating at present in post-industrial countries [21], either breaking with or embedding in the market economy. The risk here is to ignore the interscalar connections and interdependencies between different levels of governance and practices.

These two positions, scaling up and small is beautiful, are legacies of twentieth-century politics (and even earlier). The focus on scaling up might be thought to have become obsolete now that we are aware of both the diversity of contexts and interconnectedness

of the issues at play. However, an awareness of and attention to the living world collides with the lexicon, frameworks and tools of a technically and politically defined order—characteristic of neoliberalism—in the public (political) and private (intimate) spheres of life, replacing regimes of values and consciousness that do not share a market rationale.

Recent thinking has distanced itself from the expansionist ideals of twentieth-century economic and technical models by recognizing, for example, the creation of cultural niches in the global economy, or the value of biodiversity and the ecology of contexts [22,23].

2.2. Characterizing Non-Scalability Positively

Tsing [22] analyzed the political and ideological dimensions of the desire to scale up/scalability. She suggests that the project operates in a given time-blind framework: the pixel in computer science and the plantation in agronomy, for example, illustrate two archetypes of the unit of measurement and the ideal of propagation without transformation. Major alterations are beneficial, allowing for economies of scale (in a narrow sense of spending less and better for better results). Uniformity is the ultimate expression of the optimal solution to a pre-defined problem (artificial genetic selection, industrialization, market expansion). The optimal solution to a pre-defined problem ignores the fact that the very introduction of the solution usually changes the context, making the solution itself obsolete. Somehow, this is a variation of the Heisenberg effect, with the addition that social contexts are learning entities. Postulating scalability in these contexts removes learning from the equation).

With reference to these criteria, non-scalability can be characterized by historicity, creation, diversity and uncertainty. However, there is another criterion that moves "non-scalable" beyond the simple localism of "small is beautiful". Recognizing the irreducible diversity of contexts allows us to escape the dualism of the whole/its parts: ("Parts and wholes in an absolute sense do not exist in the domain of life" [24], quoted by Bell [25]) and the binary reductionism/holism opposition. With regard to agroecology, Bell, Bellon [25] and Bland [26] thus proposed to replace the logic of nested scales with a "cognitive triad", where understanding situated in the singularity and contingency of a context is constructed in a back-and-forth manner: an epistemological "flickering" from whole to parts, from parts to whole [25,26].

According to Tsing, "the first step in building a theory of non-scalability is therefore the denaturalization of scalability and the demonstration of its historicity and the alternatives surrounding it. If the world today is still diverse and dynamic, it is precisely because scalability never manages to deliver on its promises" [27].

In this line of thinking, contingency does not mean a lack of rigor, but rather taking context and all that "create context" into account. It is from this standpoint that our territorial perspective, which structures the approach described below, questioned the "scaling up" of results. This perspective led us to consider the absence of a generic policy solution, as proposed in some works on bioeconomy [28], as a feature to be viewed "positively" and not as a shortcoming or a defect. Nevertheless, our ambition was to engage the interest of politicians beyond the specific territory of our own research: our exercises developing scenarios seemed to us to "*open up a space to narrate futures where public policies will define a framework for actor strategies [...] for territorial management*" [28].

Defining an experience positively and conducting self-analysis was the aim of our study: this is what is expressed in the following section, which presents an account of a cross-border territorial prospective.

3. Narrating in Order to Denaturalize: A Territorial Prospective on Transhumance at the Border of Togo and Burkina Faso

Threatened by climate change and, more especially, human densification in the territories through which animals pass [29,30], transnational pastoralism in West Africa is also directly affected by the growing security problems in the Sahel [12,31–33]. In addition to conflicts over the use of natural resources linked to mobility and the risks that banditry

poses to herds and pastoralists, tensions have arisen between Sahelian countries (from which dry-season transhumant herds broadly depart) and the coastal countries of the Gulf of Guinea (where transhumants are observed as a potential threat to be guarded against). As a result, peaceful cross-border pastoralism has become a territorial and local challenge, which is nevertheless connected to national and regional issues [34,35].

The territory comprising the local authorities on the border of Togo and Burkina Faso (i.e., the Savanes region and the provinces of Koulpélogo and Kompienga, respectively), provides an example for this question. In order to document the situation and contribute to an easing of tensions and greater fluidity of movement, we opted for a twofold decentering approach: (i) adopting a resolutely territorial approach in order to consider animal mobility not in isolation but in terms of its contribution to the dynamics of the territory that the animals cross; (ii) opening up the field of possibilities and providing free rein to the creativity of actors by imagining this territory and the transhumance crossing it in the future.

Prior to the prospective study, a territorial diagnosis was conducted, based on 30 years of statistical data, 61 interviews with resource persons in the territory and a survey of 568 people in 239 families chosen at random on both sides of the border. This diagnosis was accompanied by an initial future projection that focused on demographic estimates for the territory and the related effects [36].

The diagnosis and demographic projections confirmed the relevance of thinking of the border as a territorial link rather than as a rupture. However, the study ran up against major methodological difficulties in the collection, assembly and integration of territorially coherent data, which bear witness to breakdowns in governance linked to the border and to a refusal at the national level to recognize that the cross-border area is a space in which people live and work. Moreover, the local authorities in question are on the margins of the two countries, far from national decision-making centers.

One of the most striking lessons learned from the diagnosis concerned the continuous densification of the territory along a front running from west to east, which displaced and reduced the size of the transhumance corridors (see the Chart 1 below). Furthermore, the demographic projections foresee population growth from 1.65 million to 2.58 million inhabitants between 2020 and 2035, which means an estimated need for an additional 350,000 ha of cultivated land over the next 15 years. Nearly one million jobs will have to be created by 2040 to meet the influx of new arrivals to the local labor market, and these jobs will have to be mainly agricultural, given the slowdown of economic diversification in recent decades. These observations and analyses point to an intensification of the processes at the root of pre-existing tensions.

However, the surveys also reveal local strengths that offer potential for solidarity and innovative, strategic thinking to devise viable solutions. In particular, setting aside the model that pits "the farmer who suffers damage" against "the herder whose animals do not stick to established corridors", it is clear that the tensions are minor in light of the number of animals that circulate. Moreover, much of the population is unaffected and deplores the economic and human cost of conflicts that could be avoided. Thus, in addition to the technical responses (creating corridors and regulating traffic, or even managing fodder reserves), social and political levers can be activated by encouraging people to feel that they are rooted in and belong to the territory.

It is this observation, finally, which is at the heart of the prospective workshops on this cross-border territory. The "experts" from different social, cultural and professional backgrounds participated as individuals, but were invited to adopt a decentering approach and move away from their personal position to construct collective representations of their territory, and then of mobile livestock farming within it. The workshop experience was therefore not an objective, reproducible experimental device, but a personal, collective and relational commitment [37]. In our case, this commitment brought together people who rarely interacted, not around transhumance and its conflicts but around their belonging to a common territory.

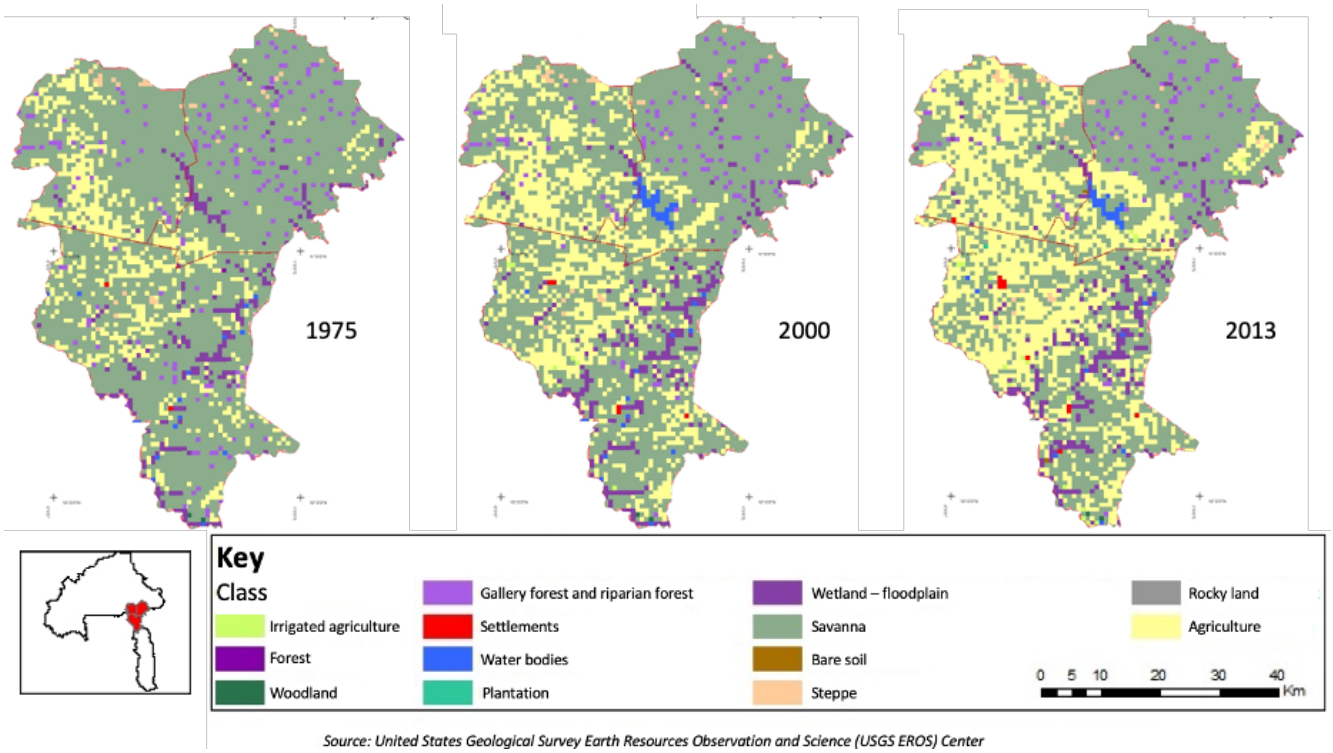

Chart 1. Evolution of cultivated areas: Densification and the "front" of the advance from west to east. Source: USGS EROS Data Center, adapted by Ibra Touré.

A series of work sessions over three weeks gradually brought together and consolidated an initially fragmented group, which remained diverse while also collaborating on a collective ambition. Two video animations present the study method (https://youtu.be/cjrzsasrzs8/ accessed on 23 May 2022) and five of the eight scenarios for the territory and the place of transhumance in it that were constructed collectively (https://youtu.be/dyjoi52isls/ accessed on 23 May 2022).

The prospective itself took up two thirds of the workshop time. The diagnosis, which was presented at length, provided a shared framework for the exercise and timeframe for forecasts, in this case 2035. A historical overview then presented the events that influenced the territory in recent decades, making it possible to identify the factors of change in the territory, i.e., the dynamics perceived as having a potential influence on the evolution of the territory. In the next stage, the mutual influences between these factors were analyzed and eight factors were selected for having a major influence but low dependence on the others. Then, for each of these eight driving forces, the experts defined plausible but contrasting future states. The results are presented in the morphological chart in Appendix A.

The experts then constructed images of the future, by first sketching out fifteen outlines—i.e., combinations of the future states of all the driving forces—and then developing fifteen fuller narratives, incorporating the other drivers of change within a coherent and plausible scenario. At this stage, the group selected eight of the most contrasting of these fifteen complete narratives in order to reincorporate the issue of transhumance.

Lengthy exchanges were necessary at every stage because the various outcomes required collective choices and decisions. The choices of the factors of change and the driving forces among them, and then of future states and their literary development, all reflected each person's perception of the territory and of transhumance. As the method required everyone to agree on the plausibility of the system's functioning and the different elements driving its evolution, contrasting visions were regularly pitted against each other during the workshops. These debates provided insight into both the territory and

transhumance themselves, and the different views that different actors may have had of the system.

For example, on the question of border porosity, a gendarme from the Pognon checkpoint attested to the large number of transhumant Fulani who were arrested on the basis of their name and what he considered to be tenuous information. Those in the workshop not involved in transhumance, on the other hand, had an image of largely unconstrained and uncontrolled movement, while the herders present not only supported the gendarme's statement but also provided information on the fate of those arrested and imprisoned in Ouagadougou.

In another discussion, people learned about the requirement for transhumants to carry a professional pass to allow police to distinguish them from bandits or terrorists. Some recognized that this measure, which contributes to the marginalization of a profession that is already singled out in the territory, was not only ineffective but also discriminatory and stigmatizing, but others insisted that it was justified from a national sovereignty perspective.

Ultimately, this series of encounters and exchanges provided the foundations for the construction of a group and its intellectual working methods. The lines have shifted: the herders have a better grasp of the local population's distant vision of the reality of their daily lives, while the tradesmen and representatives of the administration have softened their critical view of the situation, recognizing that the majority of animal movements are peaceful and that they bring unanticipated resources. Without erasing diversity, consensus rules were established and accepted, partly because the group was exploring different futures that left room for creativity and diversity.

These exchanges expressed a diversity of perceptions and perspectives giving shape to the issues [38] citing Plumwood [39–41]. As such, collective understanding highlighted the complexity of the issues and brought the researchers together with local experts in ongoing social, ethical and political debates over the territory. This dialogue extended beyond highlighting the diversity, antagonisms or competing interests between resource users, to open up a space for imagination and debate on a common future for the territory. This is where the real change of scale comes into play, transcending the narrow confines of individual perception by identifying and debating the connections between actors and with resources. This way of considering the challenges around resource use unquestionably cuts across academic approaches, often compartmentalized by discipline or sector, while leaving room for a diversity of perspectives and interests.

In the final third of the workshops, the group was invited to link the imagined futures back to the present day. The objective was then to consider recommendations for action, within the limits both of the powers and authority devolved to each person and of the legitimacy of this group of individuals as opposed to representatives of local or sectoral authorities.

For this purpose, one inspiring story was selected from the eight by which the group presented a vision to aim for: "in 2035, there is autonomous, democratic and competent territorial governance in the cross-border region of Togo and Burkina Faso. Integrated and multisectoral consultation frameworks are effective. Security is guaranteed and the transhumance is peaceful." The aim was not to cover all the issues, let alone to be exhaustive in the recommendations, but rather to illustrate the concrete outcomes that the collective dynamic could deliver. The most important actors for realizing the vision were thus identified, and the changes required and the obstacles to be avoided were precisely defined. The "experts" then focused on writing very concrete proposals for action to improve cross-border governance in the fields of security, cooperation between local authorities and transhumance.

By way of example, the Figure 3 presents some recommendations for institutions developing and implementing mechanisms to monitor cross-border dynamics and transhumance in the territory.

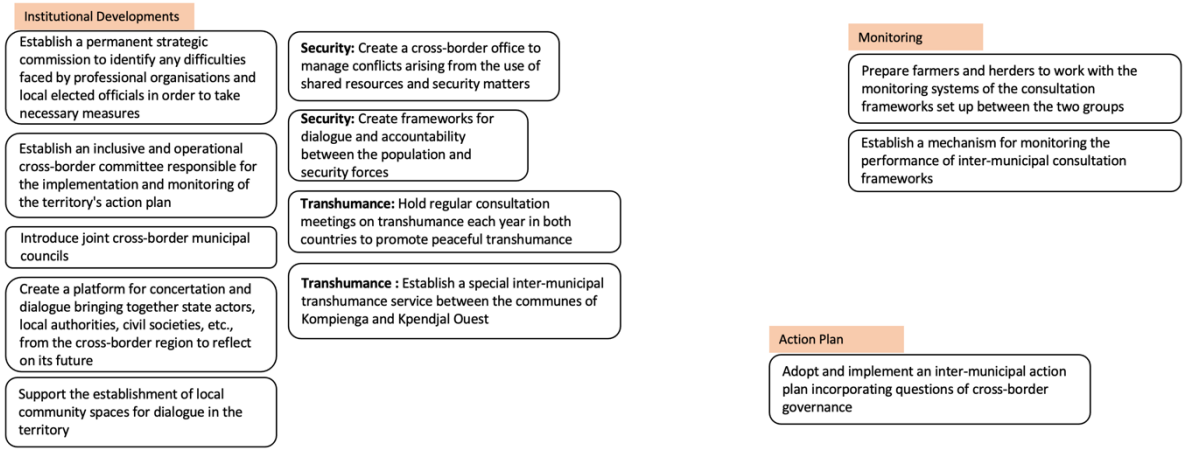

Figure 3. Recommendations from the workshops. Source: authors.

These final sessions were remarkably fluid thanks to the processes in the previous sessions that built the group. The recommendations that are again fragmentary and would benefit from being expanded upon and improved, seem to us to highlight the diversity of the group of experts and its capacity for consensus.

This experience of local and cross-border debates, and the dialogue that plotted its course across different territorial scales, seem to us to demonstrate that contextualized results can be scientifically and politically valid without being "scaled up".

4. Lessons from the Field: Ecology of Contexts, the Limits of Scalability and the Power of Relationships

The reasoned and flexible approach described above created relationships through a process in which time not only "passes" but is "at play", creating and transforming perceptions and relationships and collective intelligence. Time is not merely the backdrop of the calendar, but a decisive factor in the transformation of relationships and perceptions.

Sharing the narratives of practices and facilitating the dialogue between actors have shed light on the rationales and trends that are only incompletely and provisionally captured by approaches by discipline, sector or production systems. Moreover, the experience illustrated several themes of relational sciences [38]: in addition to the insights obtained from situated experience, which were described above, process analysis and engagement in transformative action are presented below.

4.1. Unfolding Processes, Revealing Relationships

The category of "agro-pastoralists", initially created to allow for greater precision in the range of activity and production systems, is often mistakenly understood to refer to a stable entity distinct from pastoralists and farmers, despite the to and fro between these categories and the fluidity of the combinations of practices in use [42]. These categories stem from descriptions that recall, for example, the classification of pastoral systems in terms of the magnitude of transhumance movements. In reality, in order to understand a situation and its dynamics, one needs to replace fixed and incomplete *descriptions* with robust *analytical* criteria. One of the characteristic features of pastoralism is not the distance of rangelands, but more fundamentally the specialization of pastoralists whereby they strategically adapt their mobility to fully exploit the variability of resources and constraints [43,44]. As such, what might be perceived as a system made up of entities (herders–herd–environment) appears in fact to be essentially determined by its dynamics [45].

This complex relational reality was shared and mobilized through the workshops. The dialogue on the practices made it possible to rethink systems, resources and territories as sets of relationships and to consider resource sustainability through a collective approach to processes that as complementary to an approach based on flows/stocks/extraction.

Additionally, our posture, mixing diagnoses obtained from the literature and surveys, but also production knowledge crossing and confronting visions of pastoralism by pastoralists and others, mixing data and "representations", was part of the anchorage of the process. By shedding light on the important differences within the general concept of scale and scalability (see above, Section 2.1.2), these results contribute to, and call for, a more fine-tuned analysis of the epistemological charge and practical implications of scalability. In terms of the knowledge produced and mobilized, the Ministry of Livestock of Benin refers to the results produced in the transboundary region of Burkina-Faso and Togo, with the purpose of replicating this research on the borders of Benin. However, the methods and practices should be partially adapted to the regional political context that has been dramatically worsening over recent years since our work was conducted. Finally, the panel of stakeholders involved (researchers, technicians, civil society organizations, policy makers, etc.) followed up on the results beyond our expectations, by advocating, at a national scale in Burkina Faso, for transboundary cooperation.

This experience allowed us to draw parallels between the relational sciences and philosophy of sustainability [46] by considering the multiple interactions and practices (indissociable from the values, references and norms that underpin them) within a socio-ecosystem that produces the resource in question. Sustainability, i.e., the reproduction and continuity of this socio-ecosystem, depends on the interactions that support it, or in other words on its "functional integrity" [47]. This approach to sustainability "fits" with the ecology of contexts, which warns us against generalizing sustainability.

4.2. Engaging in Transformative Action

Following on from the territorial diagnosis and workshops, the participants defined the courses of action that were likely to create political conditions. However, the group of local "experts", while representative of the dynamics and combinations of uses, governance and visions of resources, did not have authority to make political decisions at the local or territorial levels. This discontinuity presents the limits of the diffusionist model of "good practices" outside of a given context. Even if the "experts" had had authority, and even if the workshops had been more formal and institutional, decision-making processes are long and complex, and it is rare that recommendations are immediately acted upon (often for the better).

The impact of the workshops played out in other ways: through ongoing informal exchanges and the sharing of the diagnosis and recommendations in the various official arenas in which the experts participated, the ideas found their way into planning work in Togo and shaped advocacy by professional networks (RECOPA Pastoralism Communication Network in Burkina Faso), NGOs (CDD Communication for Sustainable Development in Togo) and civic movements (regional coordination of civil society organizations in the Est region, in Burkina Faso). This phase of transformative action reflects the complex and hybrid dimensions of public action in general. In the case of aid-based public action, it demonstrates the role to be played by coalitions of actors (local authorities, professional organizations, ministries, national agencies, donors, aid agencies and organizations running development projects) in the design, implementation and evaluation of territorial policies.

4.3. Sustainability and Its Political Underpinning

The approach that we developed, anchored in the territory and in the institutional context, was also relevant to and fed into the work on sustainability from a practical perspective.

Our results and approach highlight a gap between, on the one hand, exchanges and relations within the population, which maintain and renegotiate the bases of livelihoods often under difficult conditions (access to and use of land resources negotiated locally and in the cross-border territory, circulation of populations and livestock capital, information exchanges, alliances and local authorities), and on the other the limits of regional integration and national transformative powers. By failing to take into account the specific characteristics of the territory, these powers prove incapable of devising relevant and sustainable

institutional arrangements (regulation of herd mobility; cross-border cooperation; successful decentralization through the provision of basic social services; support for attempts at economic diversification to improve the viability of family farms).

The study shows that the abstract prescriptive discourse too often used by partner institutions in public action, which targets categories but obscures relationships, leads to a dead end. Examples of the generalizable points of this discourse raised by the workshops included:

- General calls for "inclusion—of women and young people" did not specify the factors and forms of their exclusion, what they were to be included in, the distinct conditions of different groups within these categories of women and young people or power relations and compromises that defined their circumstances. These apparently risk-free demands had no political cost: they went no further than an agreed-upon declaration of intent that stifled any discussion of social issues.
- Recommendations for scaling up failed to consider states of crisis or breakdowns that were apparent across a number of scales and in a range of ways. The cross-border territories between the Sahel and coast were affected by tensions in socioeconomic relations and a deterioration in relations with public authorities which, in the Sahel, have led to the "jihadisation of the agrarian question" [48]. Moreover, such recommendations ignored intermediate (local, meso-economic) forms of institutional arrangement and stability, which are in crisis at present, but were nonetheless essential to secure livelihoods and production systems and to allow them to evolve.

Finally, our approach insisted on the need to promote connections between sectoral policies (agricultural, employment, social policies) and sub-national and regional arrangements allowing for some stability (provision of basic services, regulation of circulation, mobility, cross-border exchanges, value creation, resource management). In our view, connection (from sector-specific to holistic) might be an interesting dimension of (or alternative to) scaling up to explore. Similarly, promoting economic exchanges in regulated regional economic areas (going beyond regular calls for simple "access to markets" as a means to facilitate individual enrichment) is a prerequisite for the revitalization of regenerated cross-border areas. Another avenue to pursue is to take into account the unique local dynamics of peace and conflict and their transformation processes: the histories, knowledge and practices that were not included in the blueprint for modernization. Social relations, kinship ties and the functions of livestock have played and continue to play a central role in the stability of production systems and shared and complementary relationships with the territory. Cross-border transhumance, which is now seriously threatened by central policies, has historically fostered solid networks between host territories and migrants' territories of origin.

5. Conclusions

Calls to "scale up", currently omnipresent in the development sector, bear witness to a diffusionist model of social engineering in which technological and social progress (the advent and form of which are left unexamined) are the result of a standard process combining investment and good practices. In this view, inequalities, antagonism and political trade-offs are erased and replaced by the technical vocabulary of removing barriers to access to resources, goods and services. Removing barriers for all (another name for deregulation) effectively favors those who are most powerful. Removing from view the inequalities and antagonisms effectively hides this dimension. Thus, it is not simply a shift towards a more sanitized technical language or embellishing a reality of tensions. It is effectively a different program. The territory, the agricultural system or the principles of governance that are the focus of the research or development action are ideal types or models, with the lessons and recommendations drawn from their critical analysis and their transformations intended to be reproduced on a large scale.

On the contrary, the contextualized and processual territorial prospective approach that we implemented and described here aimed to consider the diversity of possibilities in

order to support the collective reflection on prospects for local action, and more specifically to work towards a peaceful system of transhumance. The proposed twofold decentering, through a territorial approach and forecasts about the future, makes it possible to (i) consider animal mobility not in isolation but in terms of its contribution to the dynamics of the territory that the animals cross; and (ii) open up the field of possibilities and give free rein to the creativity of actors by imagining this territory and the transhumance crossing it in the future. Localism is thus at the heart of an approach strongly anchored in the territory, and animal mobility is resolutely contextualized.

The feedback underlines how the empirical results open up the possibility of mobilizing the lessons of the study beyond its geographical limits, but in other ways. The principles of dialogue and a clearer understanding of the processes of animal mobility and its complex systemic relationships with society as a whole, which in turn fosters a commitment to transformative action, can be used to build links and bridges between the socio-ecosystems of the territory in question and the regional political context of the Sahel and the coastal countries of West Africa. In the current context of major local tensions that could possibly lead to geopolitical crises between states or even between wider sub-regions, these are all emerging resources in negotiations around public action.

Thus, rather than fantasizing about perfectly generalizable objects of study or, on the contrary, getting wrapped up in a "small is beautiful" ideal, it is surely better to promote and support a collective intelligence and to make this a central requirement of the objectives of action research. This could have the benefit not so much of offering a change in scale as of generating local resources to be mobilized, which may prove to be an effective lever for boosting the impact of the research.

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Appendix A

Table A1. Morphological chart: driving forces and states in the future.

Driving Forces	1	2	3	4	5
A. Cross border cooperation	Entente Cross-border cooperation is dynamic and effective: twinning, agreements, inter-municipal cooperation, joint planning of projects.	Non-Cooperation There is no inter-municipal cooperation: the municipalities see their powers transferred to the central administration.	Administrative retreat The administration lags behind the communities: problems on both sides of the border hamper cross-border cooperation.	A local parliament A local cross-border parliament: coexistence of the current institutions and a "Gourma Country", with administrative, budgetary and security powers.	A wall A wall separates Togo and Burkina Faso, trade is ultra-regulated and greatly reduced.
B. Preservation of ecosystems	Lush nature The ecosystem (forests, animals, waterways) is lush with extensive and diverse resources functioning together in balance.	Desert A vast desert space characterized by the weakness of its flora and fauna, and the drying up of water bodies.	Degradation Significant reduction in natural ecosystems, strong pressure from agricultural activities, drastic reduction in fauna and flora, poisoning of waters, ecological imbalance.		
C. Demographic growth	Managed growth Population growth rate is well controlled, families can look after their children who are in school.	Trends The population doubles and demographic growth is at 2.8%.	The boom continues High population growth, high total fertility rate.	Demographic decline Demographic decline with high mortality, falling birth rate.	
D. Human capital	Quality Quality education and vocational training in line with actual needs available to all.	An education desert There are no more schools. The population is illiterate and lacks professional skills relevant to its socio-economic needs.	Discrimination Only part of the population has access to education and training.	Obscurantism People are educated in systems specializing in a given ideology.	
E. Mines	El dorado Modern, sustainable mining with transparent management that allows the entire population to benefit from its positive impacts.	Capture A minority exploits and profits from the country's mineral resources without regard for the environment and the interests of the people.	Anarchy Proliferation of small-scale mining sites with anarchic practices causing environmental degradation.	Non-Exploitation Mineral wealth is not exploited.	Nothing left There is nothing left to exploit.

Table A1. *Cont.*

Driving Forces	1	2	3	4	5
F. Local governance	Transparency Governance by locally elected officials. Decentralization is a reality and the principles of accountability, transparency, participation, gender equality and operationality are respected.	A Centralized deadlock Decentralization is called into question. Local governance is by appointees who exercise power without accountability to the grassroots in an opaque and unilateral manner.	Unclear governance Decentralization remains theoretical with little transfer of powers and resources. Transparency and accountability are limited. Local elected officials have little authority.	Feudality The territory is dominated by local potentates, management of the commons is familial and ethnocentric, resources are confiscated by organized and violent pseudo-landowners.	Turmoil The territory is dominated by extremists, rights are violated, the whole system is questioned.
G. Professional structures	The leadership of POs Local professional organizations (POs) are well organized and dynamic and influence public policy.	Failure There is confusion between professional and political organizations. POs prioritize the wishes of the government over those of the organization.	Misappropriation The objectives of POs are distorted in the pursuit of self- and sectional interest and profit.	The collapse of POs Break-up of professional organizations. Actors depend on individuals or family organizations for representation. The sectors are dominated by private and political actors.	
H. Security	Peace Communities collaborate with security forces in a cross-border defence strategy which employs robots, preventing community conflict and ensuring the free movement of goods and people in a secure environment.	Chaos The population is in a situation of widespread insecurity. Cross-border collaboration between security services and the population has broken down. There are tensions within the security services.	Self-Defence Growing mistrust among the population and towards the forces of law and order sees communities set up self-defence groups.	The far west War between communities.	

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