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Engaging with human-to-land relationships for engaged science: A complex-systems view for African land studies

Significance:

Given the extractive nature of many Western-led scientific activities in Africa, it is important to design research programmes that have long-term investments for (and on) the continent. These programmes must engage communities from local to regional levels to be sustainable, especially if they aim to achieve the sustainability of life systems continentally. In this regard, I propose and illustrate the value of using systemic approaches that focus primarily on the historicity and evolutionary nature of human-to-land relationships, which stem from shared identities, values, etc., to conduct engaged socio-economic-land studies as a subset of *social-ecological systems*.

Introduction

For the discussions in this special issue on ‘Sustainability Science Engagement and Engaged Sustainability Sciences’ I propose that our scientific methodology explores human-to-human and human-to-land relationships as the most important variable aspects of social-ecological systems, which contain socio-economic sub-systems. Readers are referred to a presentation by Biggs et al.¹ for a useful framing of the philosophical foundations (and implications) for approaching scientific inquiry using social-ecological systems principles. This orientation for exploration would entrench and guarantee locally grounded engagement for both science and policy.

Although I am presenting a mostly economics-oriented argument here, I am going to start off with some linguistics in the form of semantics. The nuanced difference in the meanings of the two words ‘dweller’ and ‘citizen’ is unfortunate for locally engaged science. At face value, I argue that the meaning of the word ‘dweller’, as ‘a person or animal that lives in or at a specified place’, fails to invoke an individual’s emotional connection to that specified place and lacks the political commitment that individuals may have to fellow dwellers that makes the group a community. The word ‘citizen’, on the other hand, suggests stronger political *evolutionary* connectedness to a relevant geographical space and to fellow citizens who make up a nation as a group. However, those connections are mostly at a higher national level, as opposed to local connections to space and people at lower community levels. Engaging with evolving relationships intellectually and scientifically should include local to national and regional to global connections for effectiveness in communication and understanding. Some words in the Nguni languages capture these connections much better, thereby aiding the imagination and conceptualisation of ‘locally engaged research’ for exploring evolutionary human relationships that bind a mostly cohesive, homogeneous but evolving community through unifying cultural practices and purposes. Cilliers² would, for example, label these communities as *complex social systems* for scientific studies. The Nguni words that are better equipped for grasping such systems conceptually include ‘*aBahlali*’ (in the isiXhosa language of southern Africa), which is often erroneously translated into the word ‘dweller’, but is understood by native speakers to refer to individuals, their neighbours and the changing relationships that exist among them and that make them a community. The word ‘*iZakhamuzi*’ (in the isiZulu language of southern Africa) goes further in its commonly understood semantic emphasis on connection to place and space by also connoting permanency in the form of infrastructural investment made by individuals who make up some community. The literal translation of the word is ‘home builders or constructors’. This is both at local and national levels. These are some of the useful concepts for understanding human-to-land and human-to-human evolutionary relationships that make up communities bound together by shared identities, language/s and resources through time. These relationships then guide individuals and communities on how to own and manage land as a resource, and to use and consume its natural resources sustainably, in most of southern Africa and elsewhere. It is also through the commonly shared meanings of vocabulary lists, phrases and sentences (that they construct) that we can also identify the norms and values embedded in the predominant relationships in society. Palmer et al.³ provide a useful illustration of how words and their meanings from a local language are identified and used to enhance common understandings and group participatory governance in South Africa’s landscape restoration.

Connectedness and relationships

It is therefore useful and important to think of *dwellers or residents* in land discussions, especially in southern Africa, as a *settler* group of people (with multiple and interchanging roles), and who are not only connected to the land they occupy or own, but are also a group of people who are connected culturally to one another through time. These cultural connections through function and meaning (with varied hierarchies) make for more obvious responses to questions of why and how human migrations, settlements and ensuing, sustained and sometimes intractable wars (or cooperative relations) over land and related resource stocks are not only economic or political, as described by Lund and colleagues⁴. Conflicts (or threats thereof) over land and its resources are also (if not mostly) about competing cultures, traditions and identities, as described by Motala⁵ in the case of the Israel/Palestine conflict. In contrast, peace and cooperation are facilitated mostly by relationships of complementary but changing values, traditions and aspirations. In this sense, a *continuous* mapping of local connections to land and to other people in the form of relationships as institutions that define collective identities and cultures should be the main scientific guide and tool for engaged science at a local level and beyond. Beyond scientific

inquiry, the resolution, avoidance or deference of conflict and attainment of peace require us to invest in constant social, cultural and political engagement for policy aimed at sustainable outcomes. This goes beyond engagement only on technical issues in science or policy through descriptive discussions (e.g. Pakenham⁶ in *The Scramble for Africa*, Lund et al.⁴ in their presentation on land conflicts in Africa, and Harshé⁷ on the effects of the Cold War and globalisation on Africa). The requirement to engage with changing community relationships at a scientific level demands from us *improved* understanding(s) of complex systems theory(ies) as methods of inquiry (e.g. Cilliers² and Preiser⁸). In my discipline of economics, the basics would include employing tools derived from understanding evolutionary social and economic institutions as custodians (or vehicles) of culture and norms that drive and regulate our lives as members of communities.^{9,10}

A diverse sub-Saharan Africa

At local levels, the tools seem better equipped to not only encourage the interdisciplinarity and transdisciplinarity to which we aspire, but also to reveal the differentiated norms, identities, politics, and so on, across the different African regions, stemming from enduring legacies of different colonial histories. The locally engaged scientific approach toward differentiated and complex relationships (that are also evolving) with land and its resources is suitable, especially for regions like Africa, in which much diversity is encountered. As long argued by Amin¹¹, the lasting effects of colonial politics and management regimes on land resources left robust human connections to land (through identities, cultures, politics and economies) that are dissimilar across different sub-Saharan regions. Amin's¹¹ typology for understanding the continent is still useful. He identified at least three types of colonial legacies with respect to how land resources were (and in many spaces still are) used and managed. The different regions are (1) *settler*, (2) *cash-crop*, and (3) *concessionary* colonies. In settler colonies, land was (and in many cases still is) used by European settlers for farming and mining. Examples include contemporary South Africa and the former Southern Rhodesia (now Zimbabwe). In cash-crop colonies, indigenous peoples kept the land but were coerced into farming cash crops for exports to meet the needs of former colonial powers. This, to a degree, remains accurate for describing the contemporary economies of countries like Ghana or Nigeria. In concessionary colonies, land concessions were handed out to powerful European companies, some of which would total up to 70% of the colony (e.g. in the Belgian Congos (now the Republic of the Congo and the Democratic Republic of the Congo (DRC)). In the post-colonial period, there have also been some shifts in these categories. Zimbabwe, for instance, has evicted many of its white settler farmers, and Kenya has developed much stronger export markets in crops like coffee and tea

for European consumption. This reflects the evolutionary nature of the relationships that defined communities and nations as complex systems. An example of a complex system that forms a sub-part of many social complex systems is a language system. Words derive their meanings and importance from the relationships they have to other words. Many words also play different roles in the sentences in which they are used (see Elie and Larsen-Freeman¹²).

Engaging through a complex-systems approach

For locally and regionally engaged science and policy practice, I propose the study of temporal relationships, as focalised through *complexity theory*, and institutions (that are governed by societal norms and values) as treated in *institutional economics*, to establish regional group movements for *land and people relationship studies*. The policy practices and research activities of the groups would engage regional realities from within communities as evolutionary systems. The case study data would offer lessons for comparative analysis of what works and what does not work in a particular period to ameliorate conflict and move towards a peaceful state as primary goals for a sustainable continent. Building on these foundations, the research would then organically go granular, focussing on issues including best or most appropriate management or governance principles and sustainability options, as determined by the nature and form of the relationships (including market options) governed by local values and norms that are mapped out at local levels. In this sense, relationships among people and with land and its resources come out as more useful to understanding (even predicting) contemporary and future states of 'mostly competition and conflict' versus states of 'mostly cooperation and peace' based on the nature of the predominant relationships. This goes beyond merely looking at issues of scarcity, ownership rights regimes (public to private), transactional markets, and so on, as is often the case in technocratically oriented policy reform suggestions (see Detzner¹³, Lund et al.⁴ and others).

A comparative case study of a social system (Figure 1) of village stakeholders as *aBahlali* (who take on varied roles, including as small-scale farmers, traders, etc.) and all available markets for their livestock in the uMzimvubu River Upper Catchment of the Eastern Cape Province (South Africa), serves as a useful illustration for this institutional and systemic approach.¹⁴

In the study, an institutional comparison was made with a very different socio-economic system of small-scale farmers as *traders* at auction markets in Western Kenya. Lessons are drawn for each case in what is possible for nature conservation alongside sustainable livelihoods. In South Africa, in particular, relationships bound by tradition, trust and different forms of economic incentives matter for environmental

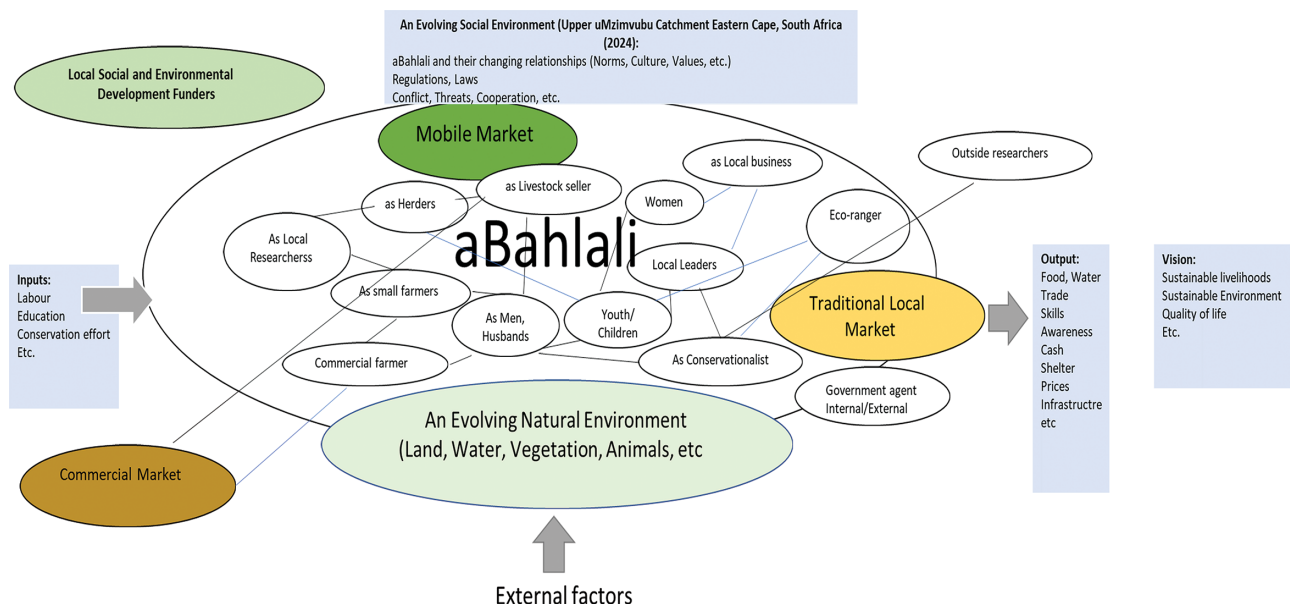


Figure 1: An evolving complex socio-economic system of changing relationship networks forming a community.



restoration efforts. *The Kenyan case stands out by virtue of its singular market-oriented approach, which is mostly competitive and efficient, but less accountable to the natural environment.* Although efficient, and therefore more enticing economically speaking, the latter is a case of a less sustainable option when viewed through a social-ecological system lens. Nevertheless, the cases contain plenty of lessons concerning what should be embraced and avoided, especially for policy formulation and practice. In the Eastern Cape Province system, where farmers are tagged as identifiable connected parts of a bigger social and ecological system, a stream of positive externalities (benefits) can be observed to characterise the system. In Western Kenya, where traders were almost anonymous as participants in frequent market auctions, a stream of externality costs characterised a system of low unit prices, leaving traders with marginal profits from stock sales. More studies of a similar nature (and better) on engaged social relationships are required for *engaged science*. The proposed regional science groups or clusters on *land and people relationships*, and many similar others, would be effective vehicles to drive this research and policy thinking forward.

Declarations

I have no competing interests to declare. I have no AI or LLM use to declare.

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