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## Social-Ecological Innovations and Outcomes of Community-Based Conservation in Africa: Implications for the Future

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**The XXIV International Grassland Congress / XI International Rangeland Congress (Sustainable Use of Grassland and Rangeland Resources for Improved Livelihoods) takes place virtually from October 25 through October 29, 2021.**

Proceedings edited by the National Organizing Committee of 2021 IGC/IRC Congress

Published by the Kenya Agricultural and Livestock Research Organization

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# **Social-Ecological Innovations and Outcomes of Community-Based Conservation in Africa: Implications for the Future**

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## **Key words:**

**Abstract:** Community-based conservancies (CBCs) are growing in numbers throughout Africa, particularly in the arid and semi-arid (ASAL) regions where pastoralists raise livestock and live among much of Africa's remaining wildlife. CBCs emerge around national parks and other protected areas of wildlife spaces apart from people. Community conservancies, in contrast to national parks, are land tenure and land use governance arrangements to conserve wildlife while providing for the livelihoods of African pastoralists. Some conservancies develop by communities in partnership with public agencies, while others are associated with non-government organizations and/or the private sector. Others are more top-down in origin, supported by large international donors and governments. Conservancies tend to develop in nation states that, until recently, have ignored the ASALs. Currently however, ASALs are converting to towns and croplands as human populations and consumption grow. Shifting market incentives encourage different livestock strategies away from local production to commercial livestock products. Energy extraction and renewable energy production are expanding into these areas, transforming landscapes, communities, and rural cultures. Formerly communal rangelands are increasingly privatizing and subdividing as pastoralists permanently settle. Fragmentation of communal lands is the result. We assess the goals of formation of community-based conservation, the partnerships, and outcomes for pastoralists.

## **Introduction: Transformational Adaptation and CBC**

Transformational adaptations in relation to climate change or other big changes are actions taken to achieve a certain goal through a combination of technological innovations, institutional reforms, behavioral shifts including gender roles, production patterns and cultural changes in values and worldviews (O'Brien 2012). Transformations can be carried out across multiple scales and dimensions, and they challenge entrenched systems and the powerful interests that maintain them (O'Brien 2012, Pelling 2015). Community based conservation (CBC) can then be considered a transformational adaptation to the myriad forces affecting the rangelands Africa. Community based conservation institutions deal with natural resource issues (e.g., maintain biological diversity) and human well-being (e.g., livelihoods), seeking to achieve the dual objectives of ecological conservation and improved rural livelihoods by offering incentives to sustainably manage natural resources and having some measure of devolution of resource management responsibilities (Berkes 2007, Suich 2010). They tend to function well when nested, flexible and contingent (Berkes 2007) to deal with changing circumstances such as extreme climatic events, policy and economic disruptions and demographic changes. CBC is inherently multilevel: including individual actors, endogenous government institutions within communities, multi-community bodies structured by interventions, states, multilateral organizations. These are some of the attributes of a successful CBC institution.

## Methods and Study Site

We did a systematic search for sub-Saharan Africa of refereed articles in English and some grey literature using Web of Science and Google Scholar (n=47,000+) for terms as community-based conservancies, integrated conservation, and development, etc. We screened title and abstract of 111 papers for fit with CBC definition and whether they measured social or ecological outcomes, among other criteria. There were several tiers of analysis. Spatial analyses were completed with 73 case studies, social outcomes (n=45), ecological outcomes (n=16) and conditions affecting outcomes (n=54) (Galvin et al. 2018).

We developed a conceptual model that we used to evaluate the institutional processes and social and ecological outcomes. We assessed the institutional processes (leadership, bridging/boundary organizations, diverse and multiple partnership, collaboration, social learning, devolution of rights, monetary or non-monetary incentives) thought to lead to successful outcomes.

Social outcomes can be measured by assessing the asset or capital stock held by individuals and households (Table 1) whereas ecological outcomes are measured by the factors in Table 2. These institutional processes and outcomes explained here serve as the codes and concepts that frame the textual analysis.

<b>Social Outcomes/Human Wellbeing Codes (+/-)</b> (From the Sustainable Livelihoods Framework- DFID - Ashley and Carney 1999)	
Social Capital	Networks, connections, trust, shared values, leadership, etc
Human Capital	Health, education, capacity to work, gain new skills, security, etc.
Physical Capital	Infrastructure, tools, technology, water, communications, etc
Financial Capital	Savings, wages, economic diversification, etc
Distribution of Benefits	Equal distribution

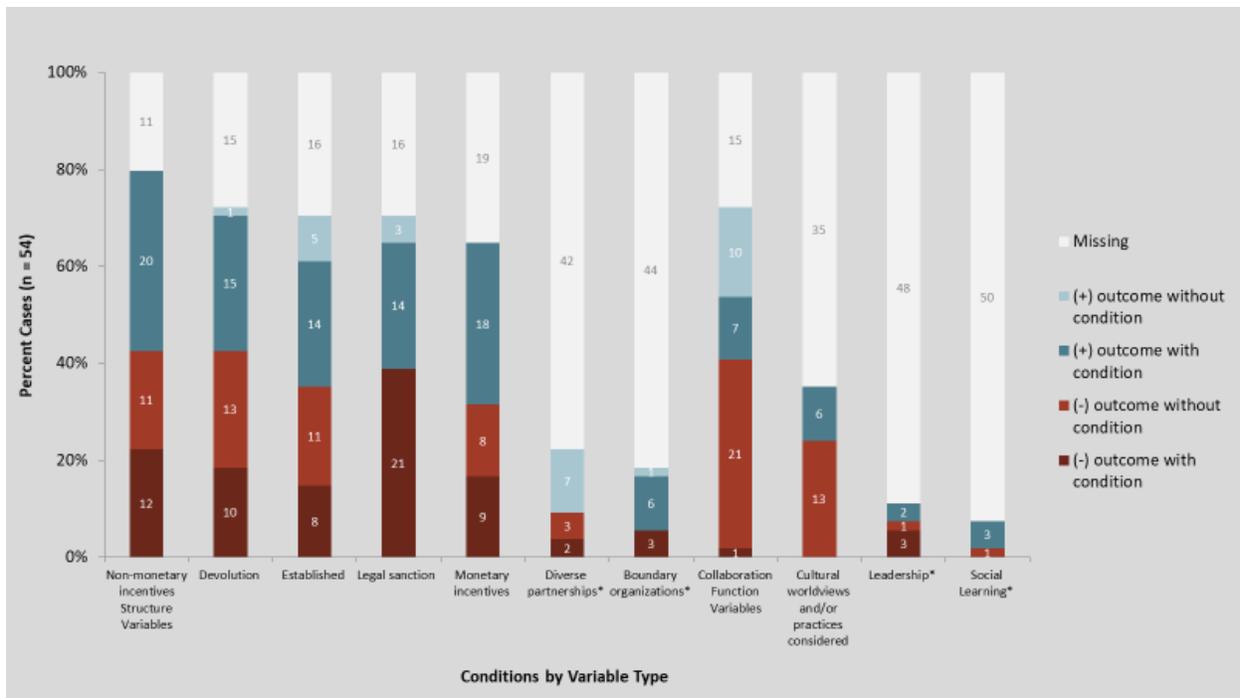
Table 1. Measures for social outcomes

<b>Ecological Outcomes/Natural Capital (+/-)</b> (Plummer and Armitage 2007; Cummings et al. 2005)	
Components	All living and non-living material, eg., keystone species, vegetation communities
Relationships	Underlying processes and interaction to ecological patterns, eg biomass productivity, nutrient cycling, change in vegetation, etc
Diversity/Redundancy	Species richness and diversity
Memory/Continuity	The ways species and processes are linked through space and time; eg. Edge effects, ecosystem/habitat integrity and connectivity, patchiness, fragmentation

Table 2. Measures for ecological outcomes

## Results

Less than half of CBC institutions produced positive outcomes. Most cases focused on social outcomes using qualitative methods. Ecological outcomes were largely positive. Monetary and non-monetary incentives are necessary but not sufficient for positive outcomes (Fig 1). Devolution of rights to the local community was significantly associated with positive outcomes.



## Discussion

Community-based conservation institutions, in general, have not consistently produced positive outcomes in Africa. More often than not the establishment of CBCs in Africa has led to negative or a mixture of positive and negative social outcomes, whereas ecological outcomes have been largely positive. Most positive social outcomes reported enhanced financial capital and human capital, while negative social outcomes reported an unequal distribution of benefits to CBC households due to elite capture at the local and broader level, and a breakdown of social capital. But there are few systematic studies and evaluation and monitoring of CBC performance is lacking. This review was only a start. CBC institutions are extremely numerous in structure, function, and goals. Further, they are difficult to start and maintain. But despite the lack of 'success' shown in the review they are an innovative, evolving institution that may be a key innovation for conservation-development initiatives.

Are CBC institutions a form of transformational adaptation? Despite the shortcomings it seems that it represents a collectively organized adaptation strategy planned and implemented to address the numerous external changes pressing on dryland pastoral systems. It represents, in principle, a 'new' institution associated with large vulnerabilities real or anticipated to conservation-development. Since adaptation produces tradeoffs with winners and losers and unintended consequences, more work is needed on the tradeoffs and the potential for vulnerability redistribution beyond CBC initiatives themselves. Further, more work on the barriers such as policies, behavioral norms and equity issues to implementation of CBC can demonstrate the risks associated with CBC institutions. Nevertheless, as an innovative transformational adaptation it is an effort to cope with the uncertainties of climate change risks and the other social/economic/policy changes occurring today.

## Acknowledgements

This paper would never have materialized without the work of my co-authors Matthew Luizza and Tyler Beeton. You are rock stars. Thank you.

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