




## A Step in the Right Direction: Measuring Indicators of Responsible Community Engagement in Samburu, Kenya

Roy Van Anda<sup>1</sup> · Brett L. Bruyere<sup>1,2</sup>  · Sarah Walker<sup>1</sup> · Christine Namunyak<sup>3</sup> · Apin Yasin<sup>3</sup> · Anastasia Leparporit<sup>3</sup> · Meredith Grady<sup>2</sup> · Courtney Massey<sup>2</sup> · Martha Bierut<sup>1,2</sup> · Alexandra McHenry

Accepted: 5 March 2021  
© The Author(s), under exclusive licence to Springer Nature B.V. 2021

### Abstract

The inclusion of stakeholders and knowledge systems is increasingly valued in research to address complex socio-ecological challenges around the world. Often these projects take place in cross-cultural setting where external researchers risk perpetuating historically extractive research models that not only harm local communities but damage the validity of research projects. Responsible community engagement is increasingly recognized as a practice that can improve researcher-community relationships and research quality by incorporating principles of ethics, reciprocity, and power sharing. In partnership with local community leaders, researchers from a U.S. university coded 76 research articles for indicators of responsible community engagement conducted in the Samburu, Kenya community since 2000. Findings from this study suggest that most of the research in Samburu has followed extractive models. Of the 76 articles reviewed many failed to acknowledge ethical protocols, did not address relevance of the study to the local community, and did not report any indication of outreach or community change as a result of the research. While a portion of articles showed evidence of community involvement in the studies, the involvement was primarily limited to secondary roles with little to no shared decision-making power over the research process. We discuss methodological considerations for future research and steps that must be taken in order to shift the norm and practice of academic research in sites such as Samburu, Kenya.

**Keywords** Responsible community engagement · Power · Reciprocity · Research ethics · Institutional Review Board · Samburu

---

✉ Brett L. Bruyere  
brett.bruyere@colostate.edu

<sup>1</sup> Human Dimensions of Natural Resources Department, Colorado State University, Fort Collins, CO 80523, USA

<sup>2</sup> Conservation Leadership Through Learning Program, Colorado State University, Fort Collins, CO 80523, USA

<sup>3</sup> Community Leader, Samburu, Kenya

Published online: 24 March 2021

 Springer

## Introduction

Samburu pastoralists of northern Kenya are among many pastoral communities around the world facing complex and simultaneous socio-ecological challenges, including increased drought frequency and drought severity, land fragmentation, human wildlife conflict, population growth and increased prevalence of human and animal disease (Opiyo et al., 2015; Reid et al., 2014). Further, the region is a poignant example of the close interactions between the social, ecological and economic aspects of a system, as even minor changes in one aspect lead to dramatic changes in another. For example, improvements in infrastructure recently led to economic diversification, which led to more settlement and more intensive grazing of areas near settlements. Systemic relationships such as these have led researchers to Samburu over the years, ranging from disciplines of anthropology (e.g., Lesorogol, 2008), wildlife biology (e.g., Muoria et al., 2007), education (e.g., Ng'asike, 2019), and health (e.g., Omwenga et al., 2009).

Research in Samburu shares a long and mixed history with other Indigenous regions of the world, in which extractive models of inquiry benefit external researchers but lack reciprocity, benefit and/or inclusion of local community members (David-Chavez & Gavin, 2018; Hodge, 2012). These research projects are designed and implemented by external researchers working in intensive cross-cultural settings where understanding local context is paramount, but oftentimes not practiced. This has, intentionally or not, allowed power differentials to be exploited, affected local communities adversely, led to negative perceptions of external researchers, and led to questionable validity of study findings (Hodge, 2012; Verney et al., 2016).

As socio-ecological change grows in complexity and scale around the planet, the integration of diverse perspectives and knowledge is arguably more vital now than ever (Adger et al., 2014). Garnering and integrating these perspectives can be achieved through responsible community engagement (RCE) strategies, strategies which establish equitable partnerships between researchers and community members (Jagosh et al., 2015; Reed, 2008). When practiced appropriately, RCE leads to greater involvement of stakeholders and creates the possibility for locally relevant and locally influenced solutions, which in turn helps to improve research relevance, efficacy, and application in a variety of fields (Bisong & Andrew-Essien, 2010; Correa, 2002; Ng'etich, 2005; Armon et al., 2019; Verney et al., 2016).

However, challenges can arise with RCE when conducting research cross-culturally. These challenges are rooted in a community's history, cultural nuances, researcher characteristics, power differentials, and other aspects. Empirical guidance about how to responsibly and ethically practice community engagement in research with Indigenous communities, like the Samburu region, remains relatively unexplored (David-Chavez & Gavin, 2018; McDowell et al., 2016; Pearce et al., 2009) and until recently there has been no clear framework for evaluating RCE efforts (David-Chavez & Gavin, 2018).

## Purpose Statement

This paper seeks to determine the extent to which published research since 2000 has employed RCE in the Samburu region of northern Kenya using indicators developed by David-Chavez and Gavin (2018). Findings from this research can contribute to shifting

the norms within research and academic communities about how to practice and document cross-cultural research in ethical ways that employ RCE methods.

## Literature Review

### Responsible Community Engagement and Research

RCE in research resembles aspects of similar concepts including participatory research (Cochran et al., 2013), participatory action research (MacDonald, 2012), community-based research (Runnels & Andrew, 2013), and community-based participatory research (Jagosh et al., 2015). In this paper we conceptualize RCE similarly to David-Chavez and Gavin (2018), as a set of principles that reflect ethical conduct in the *practice* of research and which provide *benefits* to the local communities where research is conducted. This RCE conceptualization is broader than terms such as *participatory action research* or *community-based participatory research*, which primarily focus on local communities as co-investigators and co-producers of knowledge (Jagosh et al., 2015; Wallerstein & Duran, 2006). Such benefits align with some aspects of our conceptualization of RCE, but RCE encompasses additional elements, such as an explicit focus on the ethical considerations about how research is conducted (see Flicker et al., 2007; Ng'etich, 2005).

Despite recent and promising levels of commitment to conducting research following principles of RCE, there appears to be plenty of room for improvement. David-Chavez and Gavin's (2018) reviewed 125 articles about Indigenous engagement with climate change research, and evaluated each article based on six RCE criteria:

- *Access*: community members have access to study findings and materials
- *Relevance*: study findings and focus are relevant to the communities concerns and needs, as expressed and identified by the community prior to commencement of research
- *Credit*: acknowledging and crediting the contributions of community members in the research process
- *Ethics*: the study follows ethical protocols or requirements, including those associated with institutional review boards or ethics committees
- *Does no harm*: the study considers and appropriately addresses intellectual property rights of the community. This has some conceptual overlap with the "ethics" indicator above, but is described by the authors as being narrowly focused on intellectual property rights, including review and/or ownership of data
- *Local outputs/outcomes*: the study findings are shared in locally relevant ways that leads to a possibility for positive change

The researchers' results noted that a high proportion of studies initiated by outside researchers performed poorly across the board on all six indicators (including a lack of reporting information about an indicator). Further, they found that 87% of studies practiced an extractive research model, with limited decision-making by local people and little to no indication of researchers sharing their results, despite Indigenous participation in providing data. Conversely, studies which were initiated either mutually with or entirely by local communities showed much higher commitment to ethical and responsible practice.

Extractive research leads to a number of negative outcomes. In Hodge's, 2012 article, for example, she outlined a long history of unethical and marginalizing research with Native American communities that resulted in substantial distrust of researchers and government (i.e., a common funding sponsor of research), reluctance to participate in additional research, and the need for tribes to invest resources to develop their own research ethical review processes. Other negative outcomes include the use of culturally inappropriate methodologies (Khatri & Ozano, 2018), community research fatigue (Ford et al., 2016), diminishing potential for future research in the community (Holland et al., 2010; Reed, 2008), not sharing research findings (Citation removed for blind review), and the improper access, use, and dissemination of sensitive intellectual property (Flicker et al., 2007; Ng'etich, 2005). Such outcomes are likely to persist, based on David-Chavez and Gavin's (2018) findings, unless there is a shift by researchers toward more ethical and responsible approaches (Williams & Hardison, 2013).

## Ethics

Mechanisms to hold researchers accountable for ethical research with people are typically developed by Institutional Review Boards (IRB/REC), Research Ethics Committees (RECs); or their equivalents, which are often housed at universities in the case of many Western universities, as well as within tribal governments (in the U.S.). These groups require researchers to submit research protocols for approval, and researchers are generally bound by those approved protocols when implementing their data collection. However, a number of individuals have noted numerous shortcomings with this approach of ethical clearance.

For example, Brittain et al. (2020) noted that the typical institutional processes used by IRB and RECs focus on consent or rights of *individual* participants and are not appropriate or relevant in some cultural contexts where rights and decisions are usually considered in a more collective process. The need for collective consent processes for conducting ethical research with Indigenous communities has also been highlighted by scholars in multiple disciplines (Chilisa, 2019; Hudson, 2009; Healy, 2019). More specifically, Hudson (2009) argued that collective consent processes must respect local and traditional governance structures, and make distinctions between the ethical issues that need individual versus collective consent. In Brittain et al. (2020), the authors also questioned the capacity of IRB/REC members, regardless of their expertise and prior experiences, to make judgements about ethical research in a place without knowing its specific cultural nuances. This can be especially important for intellectual property rights; local attitudes towards the sharing of certain knowledge systems often differ between communities, causing a universal definition of governance over this knowledge to be lackluster (Ng'etich, 2005).

Finally, Brittain et al. (2020) also noted common IRB/REC requirements in many instances to acquire written informed consent, and questioned the appropriateness of such requirements in locations where literacy and formal education is low. Overall, the authors argued that the process of IRB/REC approval-seeking can lead researchers to consider such approvals as a pre-research bureaucratic "box-ticking" step, and as a result, discourages researchers from continuing to consider the ethical implications of their work throughout the entire inquiry process once receiving their IRB/REC approval. Walker et al. (2020) drew similar conclusions in their recent article about the reflections of ethical practice by six individuals engaged in cross-cultural research in the same study area as our study.

Given that unanticipated ethical issues are almost certain to arise when outsiders conduct research in cross-cultural settings, and specifically in settings with a history of stark power differentials (stemming from colonialism and related histories of marginalization toward local people), ongoing consideration about ethics is imperative. This can be accomplished via consistent reflection throughout the research process, rather than only during research preparation stages (Karnieli-Miller et al., 2009). A number of approaches to facilitate such reflection have been advocated, including critical consciousness (Aluwihare-Samaranayake, 2012) and reflexivity (Khatri & Ozano, 2018). Both approaches describe a process of researchers regularly conducting in-situ assessment of their positionality (i.e., power and influence; see Edwards & Alexander, 2011), to inform and adapt their research along the way. However, as Brittain et al. (2020) and Walker et al. (2020) noted, the rigid processes of IRB/REC require a thorough design of research protocols in advance; adapting protocols later while on the research site, where time is often limited and efficiency is important, requires follow-up and additional approval-seeking by IRB/RECs.

## Power

RCE by researchers is most likely to occur when research is created by or in tandem with community members, and when community members are involved throughout each research step (David-Chavez & Gavin, 2018; Reed, 2008). This helps distribute and share *power*, a key leverage point that determines the extent to which responsible RCE is practiced and effective. Poorly designed research can exacerbate existing power inequalities and contribute to negative perceptions and outcomes of research (Reed, 2008).

Power is a point of distinction among several community engagement categories outlined by David-Chavez and Gavin (2018), with the low end of the categories defined as “contractual” (e.g., hiring and paying local research assistants) and the high end as “Indigenous” (e.g., local individuals retain full authority over research conducted in its community). They found a majority of research with Indigenous groups either failed to engage communities altogether, or used the low-end contractual approach, in which researchers retain all decision-making power. Very few of the studies they reviewed appeared to empower local communities with influencing research decisions. When researchers remain in near total control of the process, power differentials and dynamics persist and are exploited, often to the detriment of local communities (Khatri & Ozano, 2018).

The solution to the consequences of power imbalances is to share decision-making and provide avenues for local people to influence the process, or what Brittain et al. (2020) label as researchers acting as “external allies.” Khatri and Ozano (2018) made a similar argument in their study about community health in Cambodia, encouraging researchers to practice reflexivity to consider how different actors in the local community can positively influence research at different stages. Such approaches can also positively influence social justice and build local capacity (Castleden et al., 2010; MacDonald, 2012; Verney et al., 2016).

## Reciprocity

Historically, research conducted in cross cultural settings has followed an extractive model (Khatri & Ozano, 2018; David-Chavez & Gavin, 2018), where little to no benefits are extended to research participants or their local communities. Yet reciprocity can yield mutually positive impacts. In Walker et al., (2020) work about external researchers’ experiences with a local women’s village in northern Kenya, the researchers and the

women participants each noted the importance of reciprocity, noting that the relevance and utility of the research to the women's lives was important for research to be ethical.

In general, reciprocity implies that both researcher and participants contribute something to the other, resulting in benefits to both (Trainor & Bouchard, 2013). Researchers benefit via publications, professional recognition, and career advancement while participant benefits can take many shapes and forms, such as dialogue and discussion that leads to practical change, building social capital, and enhancing research literacy. David-Chavez and Gavin (2018) advocate for reciprocity to at least include sharing research findings in a locally relevant way. For example, Walker et al. (2020) described their approach of sharing results with illustrations and photographs (for inclusiveness due to varying levels of literacy), food, singing, and time for formal acknowledgements and remarks. To appropriately practice reciprocity, researchers must have a clear understanding of local needs, values, capacity, and culture (Citation removed for blind review; Brittain et al., 2020), which requires researchers to invest time prior to research to understand the history, culture, and social norms of the community in which they intend to do research in (Brittain et al., 2020; Khatri & Ozano, 2018).

## Methods

### Study Site

Samburu County is in the north central region of Kenya (see Fig. 1), with an estimated population of 310,000 (Kenya National Bureau of Statistic, 2019) across 21,000km<sup>2</sup>.

Fig. 1 Samburu County, Kenya

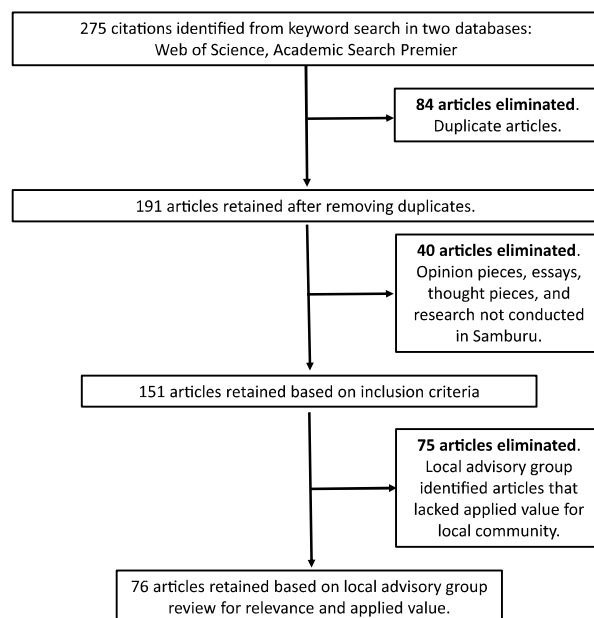


Approximately 17% of the population live in four communities in the county of more than 6,000 people, with the remainder living in rural remote settings. An estimated 71% of the population live below the national poverty line of less than USD 30 per month (Kuria, 2019; Njonjo, 2013). Samburu County is also home to an abundant wildlife population, featuring expansive rangelands which pastoralists have shared with wildlife for hundreds of years. The landscape is protected in part by a mosaic of protected areas, conservancies and land management schemes that have changed dramatically over the past 30 years. Precipitation is variable, averaging between 200–250 mm annually throughout the region, and has become less predictable compared to previous years (Opiyo et al., 2015). (see Fig. 2)

Like other pastoral communities in northern Kenya, the tribes of Samburu County are among some of the most marginalized communities in their country. Further, they face complex socio-ecological change, including land use and tenure change, increased drought, tribal conflict, and a shift in values that supports women's rights and education for youth. Regarding the latter, these shifts stem from transitions in prevailing social norms due in part to formal education and advocacy work, greater awareness of one's rights, and national policy that supports women's rights and formal education access, among other factors, and have mostly taken place within the past 20–30 years. These changes affect livelihoods, family and community structures, and the sustainability of semi-nomadic pastoralism, which is the primary livelihood of the region. In response, pastoralists in Samburu are adapting in a variety of ways, including livelihood diversification and complex socio-spatial mobility (COMESA, 2009; Opiyo et al., 2015; Pas, 2018). The dynamism of Samburu region in its social, economic, and ecological systems has led to it serving as an area of interest by researchers for many decades, even more so in the past 10 years as access has improved through improvements in infrastructure and connectivity.

In addition, Kenya's colonial history is relevant to the context of this study. While various countries and regimes attempted to take control of Kenya throughout the sixteenth and seventeenth centuries, the granting of the British East African Company's charter in the

**Fig. 2** Article selection process



late 1800s catalyzed the longest period of single colonial rule. This led to land taken forcibly from Kenyans by British colonists, forced labor, and taxation schemes that marginalized Kenyans and empowered colonists, among other injustices. This persisted for many decades, leading to numerous uprisings by Kenyans throughout much of the early and mid-1900s. Eventually, Kenya gained its independence in 1964 from the United Kingdom. The relevance of this history to our study is rooted in the similarities between the demographics of those who held power during colonial rule via land ownership and government institutions, and the predominant demographic within the community of researchers in Kenya. Many Western-based and/or Western-trained researchers share characteristics that are associated with power and marginalization from Kenya's colonial era, and this history is particularly important for today's researchers to consider in order to act ethically and empathetically in their work.

## Article Selection

Our review started with searches in the Web of Science and Academic Search Premier databases. "Samburu" was the only keyword used in the searches, which allowed us to capture articles where "Samburu" was in the title, abstract, keywords or the main text of the article. Articles were limited to those published in the year 2000 or thereafter. Articles within that 20-year period were considered more likely to remain relevant (an RCE indicator); articles older than 20 years were deemed to be less relevant since the region has changed in many significant ways during that time, and therefore the research results would be less, if at all, applicable today. After removing duplicate articles that appeared in both databases, we conducted an initial review of titles and abstracts for 191 articles.

Titles and abstracts were initially reviewed by three members of the research team based on the following inclusion criteria: 1) the article reported about research, and 2) the research occurred in the Samburu region. These criteria were considered straight-forward objective measures (e.g., yes/no), and were carried out by non-Samburu members of the research team. For example, thought pieces, opinion articles, book reviews and research conducted outside of the Samburu region were excluded. Following this review, 159 articles were retained.

The titles and abstracts of each of the 159 retained articles were then reviewed together by a three-person advisory team composed of Samburu leaders. The team consisted of two females and one male, all in professional positions that facilitated high levels of exposure to and interaction with a wide gamut of regional issues, challenges, and opportunities in Samburu. This included the managing coordinator of a locally focused non-governmental development organization, a community advocate working on behalf of local government, and a primary school teacher. Each of the three individuals lived their entire lives in the region. Together the three-person team read the title and abstract of each article and through group discussion, made a consensus yes/no determination about whether the results of the study addressed a community need or would be of value to the community if results were shared. Articles that met this criterion often focused on health, conservation, pastoral livelihoods, human-wildlife conflict, and similar topics. Excluded articles included research with a narrow biological focus about a wildlife species, historical (e.g., anthropological) accounts of Samburu culture, research ethnographies of their experience and similar research. This process resulted in a final sample of 76 articles deemed as 'addressing a community need.



## Coding

Each article was evaluated for RCE using an adapted coding scheme based on the approach outlined by David-Chavez and Gavin (2018). This included six indicators, including (with associated codes in parentheses):

- *access* (0=not reported, 1=directly addressed)
- *relevance* (0=not reported, 1=relevance defined generally, 2=relevance defined by local voices)
- *credit* [0=not reported; 1=local research team member co-authored; 2=local research team members acknowledged by name; 3=local research team members acknowledged but unnamed; 4=local members on research team but not acknowledged; 5=Kenyan (non-Samburu) co-authored; 6=Kenyan (non-Samburu) acknowledged; 7=local organization acknowledged]
- *ethics* [0=not reported; 1=institutional approval (e.g., IRB, REC); 2=local/elder approval; 3=institutional and local approval; 4=other (e.g., government permit reported); 5=unable to determine (e.g., participant consent mentioned passively, no mention of formal approval-seeking; 6=not applicable (e.g., use of existing or secondary data)]
- *does no harm* (0=intellectual property rights, data ownership, and/or institutional approval not reported; 1=intellectual property rights, data ownership, and/or institutional approval reported, 2=not applicable)
- *local outputs / outcomes* (0=not reported; 1=proposed how to share results locally; 2=actual outreach reported)

Eight articles were first randomly selected and coded by three researchers, to determine viability of the coding scheme. Following minor adjustments to the scheme, an additional 10 articles were selected for testing the viability of the revised coding scheme. No further adjustments were made. Each article was then reviewed thoroughly (including a review of the 18 articles in pilot-testing) and coded by three individuals. Initial codes were reviewed, and discrepancies noted, which were then discussed among members of the research team for resolution. This resulted in inter-coder agreement greater than >95%. Frequencies of codes were then calculated and compared.

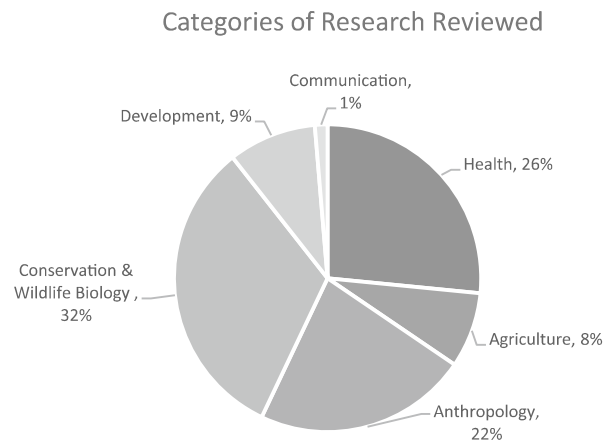
## Analysis

Coding outcomes for all 76 articles were entered into MS Excel to represent the differing categories of research reviewed and the coding of each indicator for each article.

## Findings

The 76 articles represented the following disciplines: 1% communication, 9% development, 32% conservation and wildlife, 8% agricultural, and 26% health (see Fig. 3).

Overall, the results for all 76 articles were generally unfavorable on the RCE indicators of *access*, *ethics*, *do no harm*, and *outputs/outcomes*. In most instances, articles did not include language to illustrate these indicators, demonstrating the extent to which norms

**Fig. 3** Categories of reviewed research articles

need to change regarding the content researchers include in their manuscripts related to RCE. On *relevance*, most articles described relevance in general terms; there were few articles that either directly stated or implied that the research was influenced by local input. A more favorable RCE outcome was on the *credit* indicator, in which one-third of articles specifically acknowledged and named local research team members. On the other hand, one-quarter of articles mentioned the use of local individual as research assistants (e.g., mentioned briefly in a methods section), but did not acknowledge the individuals anywhere in the manuscript, such as in an acknowledgements section or as co-authors. See Table 1 for a summary and percentages, of RCE indicators within the entire article sample.

Social science research poses unique ethical implications and considerations since it involves collecting data from “human subjects; therefore, we also calculated results for the sub-sample of social science articles. The results closely resemble the outcomes for the entire data set, with low marks for *access*, *ethics*, *do no harm*, and *outputs/outcomes*, and better results for *relevance* and *credit* (see Table 2).

As mentioned, most of the indicators were unreported in the articles, pointing to a need for researchers to be more explicit about their RCE practices, which can then have a ripple effect on the academic community and contribute to shifting current norms. Without this documentation of RCE, researchers cannot properly and collectively deconstruct the historically one-sided extractive relationship between researchers and communities. As researchers we need to take these steps to acknowledge, give credit, and other actions to respect those who play an important role in making our research possible.

### Ethics and Do No Harm

The majority of articles failed to acknowledge any approved ethical or do no harm clearances or protocols. While this does not necessarily indicate whether these projects were carried out with such approvals (many studies likely had such approvals but did not report it), it is an indicator of the perceived value or expectation in reporting ethics and do not harm. What we include in a manuscript is arguably also a proxy for what researchers, publishers and others in the research community deem to be important. As Brittain et al. (2020) noted, it may be that these protocols are considered as a box-checking exercise and considered unimportant for inclusion in a manuscript. In order to change this “check the

**Table 1** Coding results of responsible community engagement in research articles about in Samburu, Kenya (n = 76)

Access	Relevance	Credit <sup>1</sup>	Ethics	Do No Harm	Outputs/Outcomes
Not reported	95%	17%	8%	54%	88%
Directly addressed	5%	75%	14%	8%	1%
	Relevance defined generally	member co-authored	IRB/REC approval	Reported	Proposed how to share results locally
	Relevance defined by local voices	Local research team members acknowledged by name	Local approval	4%	Actual outreach reported
		Local research team members acknowledged but unnamed	24%	8%	
		Local members on research team but not acknowledged	24%	5%	
		Kenyan (non-Samburu) co-authored	Other	18%	
		Kenyan (non-Samburu) acknowledged	50%	4%	
		Local organization acknowledged	Not applicable		
			29%		
			14%		

<sup>1</sup> = percentage total exceeds 100% as codes were not mutually exclusive for all REC indicators

**Table 2** Coding results of responsible community engagement in social science research articles about Samburu, Kenya (n=56)

Access	Relevance	Credit <sup>1</sup>	Ethics	Do No Harm	Outputs/Outcomes	
Not reported	93% Not reported	18% Not reported	11% Not reported	67% Not reported	82% Not reported	87%
Directly addressed	7% Relevance defined generally	71% Local research team member co-authored	25% IRB/REC approval	9% Reported	18% Proposed how to share results locally	2%
	Relevance defined by local voices	11% Local research team members acknowledged by name	27% Local approval	4%	Actual outreach reported	11%
		Local research team members acknowledged but unnamed	27% IRB/REC & local approval	9%		
		Local members on research team but not acknowledged	23% Unable to determine	7%		
		Kenyan (non-Samburu) co-authored	45% Other	5%		
		Kenyan (non-Samburu) acknowledged	18% Not applicable	4%		
		Local organization acknowledged	14%			

1 = percentage total exceeds 100% as codes were not mutually exclusive

box” culture which can lead us to devalue the importance of ethics, we need to shift the requirements. Editors, funders, peer-reviewers and authors alike, need to push for article formats that require explicit references to ethical protocols and consideration.

While a required acknowledgement in manuscripts of institutional approvals can help, it is likely not sufficient engagement for thinking about the ethical implications of our work; a research team can strictly adhere to all the IRB or REC protocols and still be vulnerable to conducting research poorly. For example, as discussed earlier, the Western-based IRB/REC approach generally prompts researchers to consider ethics at an individual scale; we are required to describe how *individual* participants will give informed consent, but in a place like Samburu, approval from elders and chiefs can also be imperative, and collective decision-making is far more common than individual decision-making.

The IRB/REC process can also limit the ability of researchers to adapt as issues emerge in the field during data collection. IRB/REC protocols are strict, and for many good reasons since they play a critical role in safeguarding research participants. However, reflexivity, which we encourage, can lead to researchers needing to adjust, and the bureaucratic processes and time required for making changes to an existing approved IRB/REC protocol while in the field can be prohibitive. We believe researchers and their institutions would be served well by IRB/REC processes that support efficient changes in research protocols, since the need for most changes would often become apparent when researchers are on-site, already conducting their discovery work.

## Credit

Credit is both a measure of recognition for the contributions of local individuals, as well as a proxy for involvement by individuals, including the degree to which local individuals are involved in designing and implementing research about their own communities. Our findings here are a good news/bad news scenario. Overall, most of the reviewed articles included some level of involvement by Samburu individuals on the research team, from co-authors to translators and data collectors. This experience and exposure to research can build a foundation from which to build research capacity for the future, working toward a day when most research about Samburu is led mostly by people from the region.

On the other hand, most of the local involvement in our articles was relegated to a secondary role (e.g., field assistants), and in more than half of our articles where methods described local involvement, local research team members were either not acknowledged at all, or only acknowledged generally, such as authors thanking their “research team.” By contrast, in some articles authors specifically named and acknowledged their institutional colleagues for minor tasks such as reviewing a draft of their manuscript, but failed to similarly acknowledge their Samburu field assistants, who presumably played a more significant role in the research.

We believe a desirable vision for research in places like Samburu is when it is led by individuals from the region. For that vision to come to fruition, exposure to research is needed (which seems to be occurring), as well as training and motivation to pursue research as a vocation. Researchers can contribute to that training through actions such as mentoring and supporting their research assistants to pursue formal education programs, linking them with individuals in their communities or countries who can help guide them toward research opportunities and degrees, funding support or guidance on how to secure funding to support to pursue research, and they can bolster motivation through positive feedback and acknowledgement.

The limited roles in which local people are participating in research in Samburu coincides with findings from David Chavez and Gavin's (2018) in which most community engagement occurred through contractual employment. This does not adequately respond to the findings and suggestions of Brittain et al. (2020) and David-Chavez and Gavin (2018), that community members should be in positions to influence every step of the research process. While the contractual level of participation may expose individuals to research processes and help build local research capacity over time (as suggested by Allen et al., 2011) it risks perpetuating power dynamics between the researcher, research assistant, and participants (Brittain et al., 2020; Holland et al., 2010; Khatri & Ozano, 2018).

## Relevance

While 75% of articles discussed the general relevance of the research to the region, often framed around a persistent issue or problem, but it was typically unclear if local voices weighed in on these descriptions of relevance. In other words, an external research might make a case for why the research was important to the region, but whether individuals in the local communities felt similarly was usually unclear.

A typical approach in places such as Samburu is for an external researcher to arrive in a community prepared to collect data that addresses established research questions, following protocols approved by their IRB/REC or similar institutional approval. Community involvement is designed based on the pre-existing research question and subsequent data needs, rather than empowering the community to inform and direct the study's focus and questions. We recognize that the relevance of some research may be more scientific or abstract in nature, and still have important value in the absence of direct applied relevance for the local community. As we note later, we also argue that there is still a role to engage local communities in these instances by sharing findings, for purposes of reciprocity, which also leads to important outcomes such as relationship-building, positively influencing attitudes toward research, and exposing community members to the scientific process in order to achieve greater literacy about the role of science in society.

## Access, and Outputs/Outcomes

A majority of articles did not report any indication of providing community access to research findings, data, or materials. While some articles appeared in open access journals and are theoretically available to the world, we argue this is not a viable form of community access. Open access journal articles are primarily relevant to academics and researchers, written for an audience with high levels of technical capacity and knowledge of research jargon, and with the literacy and tools required to access and understand online material.

Similarly, most articles did not include any descriptions of specific actions or evidence of community outreach or change that resulted from the research. Recall that our three-member advisory team made the final selections for inclusion of articles, based on the articles' potential usefulness to the community. So theoretically, every one of the articles reviewed has at least value to segments of the Samburu region, if only the results were shared. We realize that a general lack of institutional incentives exists for many researchers to conduct this type of outreach. Researchers from many Western-based academic institutions are typically rewarded and acknowledged for conducting their research and disseminating it via peer-reviewed journals and academic conferences, and not the application or sharing of their research locally.

In social science with local participants, or in *any* research where the outcomes can obviously provide a benefit to local people, we argue that sharing results locally is not a *service* activity, but a tertiary step in the *research* process, and should be categorized as such by the institutions and people who review the merits of researcher activity. Our study includes articles about hotspots of wildlife conflict, child nutrition, livestock husbandry, and similar highly relevant topics to people living in Samburu, yet our local advisory group expressed that there is little to no awareness in the region about research outcomes of these topics, and hardly any articles reported sharing their results or making them locally accessible.

### **Methodological Considerations**

The framework developed by David-Chavez and Gavin (2018) describes six indicators of responsible community engagement; their framework was highly useful for providing guidance on how to approach our study. However, our application of this framework revealed a few considerations that can help future researchers in their application and adaptation of the same framework.

#### **The Assumptions of IRB/REC Approvals for Ethics and Do No Harm**

Since the *ethics* and *do no harm* indicators are both measured at least in part by the mention of IRB/REC approvals (or equivalents), we felt it was hasty at times to assume that such a mention, often just a few words, adequately covered everything those two indicators encompass: participant rights, informed consent, voluntary participation, intellectual property, etc. To elevate the importance of *ethics* and *do no harm* in research, we encourage researchers (and journal editors and article reviewers) to require more than a mention of IRB/REC, and require at least a brief elaboration of how they determined the appropriateness and local acceptability of their approaches to protect participant rights and intellectual property, such as, but not limited to, data sharing and ownership agreements.

#### **The Distinctions Between Access and Outputs/Outcomes**

*Access* and *outputs/outcomes* are inherently connected, as both describe linking local people and institutions to the results. *Access* guarantees communities a way to easily retrieve deliverables from the study (e.g., articles, technical reports), whereas *outputs/outcomes* require sharing results in locally-relevant ways. As discussed earlier, *access* to a journal manuscript is not a very relevant strategy for sharing information in Samburu or most any community in the world given the jargon, statistics and academic tone of academic articles. The *outputs/outcomes* indicator goes further; the intent for sharing results is for it to influence action. As a result, we felt there was limited usefulness in assessing *access* to research deliverables compared to *outreach/output*, and in the future would put more weight on the latter.

#### **The Blurry Lines on “Credit” About Who is Local and Who is an Outsider**

*Credit* was the indicator with which we struggled most and made the most revisions to our coding approach during the pilot tests. In some instances, we conducted internet searches of individuals to help determine how to categorize an author or acknowledged individual,

and at times were stuck about how to settle on a code, leading to extensive work to track down individuals' affiliations and locations.

In our study region, surnames in the region are easily attributable to specific tribes. Surnames from Samburu, Turkana and other tribes have distinct characteristics in their structure and spelling. As a result, members of our research team could often make an easy determination about the tribal affiliation of a name based on the last name. However, that approach has limits as well, and in studies in other regions, linking surnames to specific groups and regions is obviously not as easy. However, even for us, defining who is and who is not a local community member or an outsider was difficult to discern. Can we count someone with a local name as a local author? Do they live there now? Maybe the "local author" has a local surname by marriage; does that count as "local author?" Future projects looking to utilize similar methodologies might consider working with local community members to determine a set of criteria to determine how to recognize a local author.

In addition, non-Samburu Kenyans or non-local institutions (e.g., NGO's, government committees) were often acknowledged for their help in the project. As a result, our research team had to create a variety of different codes for classifying *credit*. In hindsight, some of the codes were not useful (e.g., acknowledging non-local institutions) in our analysis, and we would have simplified our coding to be focused on local individuals only.

### Local Advisory Team and Relationship-building

Our research aimed to integrate *relevance* and *reciprocity* by convening a local advisory group composed three Samburu community members to determine which articles were of value to the community. With the contributions of these individuals, our research was strengthened tremendously. This process also provided an opportunity for co-producing knowledge for this article, for the advisory team to learn extensively about research in their region, and co-authorship that was collaborative and mutually beneficial. It was only by working with community members that had a long history of working with the non-local members of our team that we were able to employ a rewarding collaborative process. We were reminded that building relationships and trust is at the root of conducting ethical research and community engagement in cross-cultural settings. Future research that may follow a similar methodology to our own should emphasize the value of building and retaining trusting relationships through practices like reciprocity. Doing so is imperative and reporting such efforts is necessary for community-academic relationships to be established and continually enforced through trust and respect.

### Limitations

This study relied on the explicit reporting of RCE indicators within each study. Therefore, we cannot assume that articles that failed to fully describe their studies were unethical in their research or community engagement. In addition, our sample of articles was limited to studies published in English, and thus may not provide an accurate representation of all research conducted in Samburu. Finally, as described above, it was necessary to make some assumptions, such as whether some authors' should be considered "local" based on surnames and/or their affiliations.

**Data Availability** Data is available at Colorado State University Digital Repository.



## Declarations

**Conflicts of Interest** The authors declare they have no competing interests or conflicts.

## References

- Adger, W. N., Pulhin, J. M., Barnett, J., Dabelko, G. D., Hovelsrud, G. K., Levy, M., Oswald Spring, Ú., & Vogel, C. H. (2014). Human security. In C.B. Field et al. (eds) *Climate change 2014: Impacts, adaptation, and vulnerability. Part A: Global and Sectoral Aspects* (pp. 755–791). Cambridge, UK: Cambridge University Press.
- Allen, M. L., Culhane-Pera, K. A., Pergament, S., & Call, K. T. (2011). A capacity building program to promote CBPR partnerships between academic researchers and community members. *Clinical and Translational Science*, 4(6), 428–433.
- Aluwihare-Samaranayake, D. (2012). Ethics in qualitative research: A view of the participants' and researchers' world from a critical standpoint. *International Journal of Qualitative Methods*, 11(2), 64–81.
- Armon, J., Scoffham, S., & Armon, C. (2019). *Prioritizing sustainability education: A comprehensive approach*. Routledge.
- Bisong, F., & Andrew-Essien, E. (2010). Indigenous knowledge systems for promoting community conservation education in a Nigerian protected area. *International Journal of Biology*, 2(2), 149–157.
- Brittain, S., Ibbett, H., de Lange, E., Dorward, L., Hoyte, S., Marino, A., & Lewis, J. (2020). Ethical considerations when conservation research involves people. *Conservation Biology*, 00, 1–9.
- Castleden, H., Morgan, V. S., & Neimanis, A. (2010). Researchers' perspectives on collective/community co-authorship in community-based participatory indigenous research. *Journal of Empirical Research on Human Research Ethics*, 5(4), 23–32.
- Chilisa, B. (2019). *Indigenous research methodologies*. Sage Publications.
- Cochran, P., Huntington, O. H., Pungowiyi, C., Tom, S., Chapin, F. S., Huntington, H. P., Maynard, N. G., & Trainor, S. F. (2013). Indigenous frameworks for observing and responding to climate change in Alaska. *Climate Change*, 120, 557–567.
- Common Market for Eastern and Southern Africa. (2009). Income diversification among pastoralists: Lessons for policy makers. Policy brief. <http://fic.tufts.edu/pacaps-project/Pastoralism%20&%20Policy/COMESA%20Economic%20Diversification%20Pastoralists%20Policy%20Brief%203.pdf>. Accessed 20 April 2020.
- Correa, C. M. (2002). *Protection and promotion of traditional medicine: implications for public health in developing countries*. South Centre.
- David-Chavez, D. M., & Gavin, M. C. (2018). A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters*, 13(12), 123005.
- Edwards, R., & Alexander, C. (2011). Researching with peer/community researchers—ambivalences and tensions. In M. Williams & W. P. Vogt (Eds.), *The SAGE handbook of innovation in social research methods* (pp. 262–292). Sage.
- Flicker, S., Travers, R., Guta, A., McDonald, S., & Meagher, A. (2007). Ethical dilemmas in community-based participatory research: Recommendations for institutional review boards. *Journal of Urban Health*, 84(4), 478–493.
- Ford, J. D., Cameron, L., Rubis, J., Maillet, M., Nakashima, D., Willox, A. C., & Pearce, T. (2016). Including indigenous knowledge and experience in IPCC assessment reports. *Nature Climate Change*, 6(4), 349–353.
- Healey, R. (2019). From individual to collective consent: The case of Indigenous Peoples and UNDRIP. *International Journal on Minority and Group Rights*, 27(2), 251–269.
- Hodge, F. S. (2012). No meaningful apology for American Indian unethical research abuses. *Ethics and Behavior*, 22(6), 431–444.
- Holland, S., Renold, E., Ross, N. J., & Hillman, A. (2010). Power, agency and participatory agendas: A critical exploration of young people's engagement in participative qualitative research. *Childhood*, 17(3), 360–375.
- Hudson, M. (2009). Think globally, act locally: Collective consent and the ethics of knowledge production. *International Social Science Journal*, 60(195), 125–133.
- Jagosh, J., Bush, P. L., Salsberg, J., Macaulay, A. C., Greenhalgh, T., Wong, G., & Pluye, P. (2015). A realist evaluation of community-based participatory research: partnership synergy, trust building and related ripple effects. *BMC Public Health*, 15(1), 1–11.

- Karnieli-Miller, O., Strier, R., & Pessach, L. (2009). Power relations in qualitative research. *Qualitative Health Research, 19*(2), 279–289.
- Kenya National Bureau of Statistics (2019). Population by county and sub-county (volume 1). Nairobi, Kenya: Kenya National Bureau of Statistics.
- Khatri, R., & Ozano, K. (2018). Reflexivity, positionality and power in cross-cultural participatory action research with research assistants in rural Cambodia. *Educational Action Research, 26*(2), 190–204.
- Kuria, W. D. (2019). Influence of the pastoralists' formal education level on economic prosperity: A case study of Samburu pastoral community, Kenya. *European Journal of Education Studies, 5*(12), 73–79.
- Lesorogol, C. K. (2008). Land privatization and pastoralist well-being in Kenya. *Development and Change, 39*(2), 309–331.
- McDowell, G., Ford, J., & Jones, J. (2016). Community-level climate change vulnerability research: Trends, progress and future directions. *Environmental Research Letters, 11*(3), 033001.
- MacDonald, C. (2012). Understanding participatory action research: A qualitative research methodology option. *The Canadian Journal of Action Research, 13*(2), 34–50.
- Muoria, P. K., Muruthi, P., Kariuki, W. K., Hassan, B. A., Mijele, D., & Ogue, N. O. (2007). Anthrax outbreak among Grevy's zebra (*Equus grevyi*) in Samburu, Kenya. *African Journal of Ecology, 45*(4), 483–489.
- Ng'asike, J. T. (2019). Indigenous knowledge practices for sustainable lifelong education in pastoralist communities of Kenya. *International Review of Education, 65*(1), 19–46.
- Ng'etich, K. A. (2005). Indigenous knowledge, alternative medicine and intellectual property rights concerns in Kenya. In Codesria (Ed.), *Rethinking African development: Beyond impasse, towards alternatives* (pp. 6–10). Maputo, Mozambique: Codesria.
- Njonjo, K. S. (2013). *Exploring Kenya's inequality: Pulling apart or pooling together*. Kenya National Bureau of Statistics.
- Omwenga, E., Okemo, P. O., Mbugua, P. K., & Ogol, C. (2009). Ethnobotanical survey and antimicrobial evaluation of medicinal plants used by the Samburu community (Kenya) for treatment of diarrhea. *Pharmacognosy Magazine, 4*(18), 165–176.
- Opiyo, F., Wasonga, O., Nyangito, M., Schilling, J., & Munang, R. (2015). Drought adaptation and coping strategies among the Turkana pastoralists of northern Kenya. *International Journal of Disaster Risk Science, 6*(3), 295–309.
- Pas, A. (2018). Governing grazing and mobility in the Samburu lowlands, Kenya. *Land, 7*(2), 1–24.
- Pearce, T. D., Ford, J. D., Laidler, G. J., Smit, B., Duerden, F., Allarut, A., & M., Baryluk, A., Dialla, A., Elee, P., Goose, A., Ikummaq, Kataoyak, F., Loring, E., Meakin, S., Nickels, S., Shappa, K., Shirley, J., & Wandel, J. (2009). Community collaboration and climate change research in the Canadian Arctic. *Polar Research, 28*(1), 10–27.
- Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation, 141*, 2417–2431.
- Reid, R. S., Fernández-Giménez, M. E., & Galvin, K. A. (2014). Dynamics and resilience of rangelands and pastoral peoples around the globe. *Annual Review of Environment and Resources, 39*, 217–242.
- Runnels, V., & Andrew, C. (2013). Community-based research decision-making: Experiences and factors affecting participation. *Gateways: International Journal of Community Research and Engagement, 6*, 22–37.
- Trainor, A., & Bouchard, K. A. (2013). Exploring and developing reciprocity in research design. *International Journal of Qualitative Studies in Education, 26*(8), 986–1003.
- Verney, S. P., Avila, M., Espinosa, P. R., Cholka, C. B., Benson, J. G., Baloo, A., & Pozernick, C. D. (2016). Culturally sensitive assessments as a strength based approach to wellness in native communities: A community-based participatory research project. *American Indian Alaska Native Mental Health Research, 23*(3), 271–292.
- Walker, S. E., Bruyere, B. L., Grady, M., McHenry, A., Frickman, C., Davis, W. & Unity Women's Village (2020). Taking stories: The ethics of crosscultural community conservation research in Samburu, Kenya. *Gateways, 13* (1).
- Wallerstein, N., & Duran, B. (2006). Using community-based participatory research to address health disparities. *Health Promotion Practice, 7*(3), 312–323.
- Williams, T., & Hardison, P. (2013). Culture, law, risk and governance: contexts of traditional knowledge in climate change adaptation. *Climate Change, 120*, 531–544.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.