

Participatory Rangeland Management: Understanding women's engagement and implications for social change

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Abstract

Gender roles in pastoral systems across East Africa are changing. Our purpose is to better understand women's engagement in participatory rangeland management (PRM) processes and implications for broader social change, that refers to changes in women's agency in rangeland institutions and the wider community. We drew upon qualitative data collected through key informant interviews, focus group discussions and semi-structured interviews, in Baringo County, Kenya. We adapted and used a participation framework to analyze women's participation in rangeland activities, institutions and the household, to better understand implications for transformative agency. Overall, we found that women meaningfully participated in different aspects of PRM processes while changes in intra-household decision-making were fewer. PRM has increased women's voice and agency in governance of rangeland resources and potential to benefit from rangeland resources. Participation in multiple PRM activities reinforced women's agency in pastoral rangeland institutions in diverse contexts. Women's inclusion in rangeland management institutions has the potential for strategic and measurable impacts upon women's time and labor allocation. Multiple challenges however persist and include social norms and practices that hinder women's opportunities to leave their homes. Intersectional analyses into understanding adaptation to climate change and opportunities for socially inclusive efforts to enhance resilience are recommended.

Key words: Gender, participation, agency, rangelands, institutions

Introduction

Pastoralism is an important livelihood for over nine million people in rangelands that occupy nearly 80% of Kenya's land area (Amwata & Nyariki, 2015; Waweru, et al., 2021; Mugonya & Hauser, 2021). Approximately 75% of Kenya's cattle are kept by pastoral communities in rangelands (Wakhungu et al., 2014; Nyariki, 2017). Gender-based roles and practices in social, economic, and political spheres often highlight gender-based inequalities in access to, and control over resources in East African societies, pastoral and agricultural alike (Vincent 2013). In pastoral systems livestock play an important role and women, alongside men, are livestock keepers and managers of rangeland resources, however gender norms, values, and relations often prohibit women's access and ownership of resources such as livestock (Eneyew & Mengistu, 2013). Men often own and control more productive assets compared to women (Radel and Coppock, 2013). Women may not necessarily have 'rights' to or 'ownership' over livestock thus not be able to make decisions about use and sale, for example (Flintan, 2008). Men may own larger livestock such as cattle and camels, while both men and women own smaller livestock like sheep, goats and chicken (Fernandez-Gimenez et al., 2021). Women may be responsible for selling small livestock

products such as milk or chickens (Jode & Flintan, 2020). Women's limited decision making power within households is sometimes compounded by their limited access to education (Eneyew & Mengistu, 2013). Women in pastoral systems often shoulder a disproportionate burden in taking care of their families and raising children, coupled with laborious tasks like collecting firewood, fetching water, feeding livestock, and within the homestead, milking (Herrero et al., 2013).

Pastoral livelihoods and ways of life are changing in response to events that include climate change and the COVID-19 pandemic. Diversification of livestock types has increased in recent years in response to multiple factors that include greater variability in rangeland quality and quantity (Catley et al., 2013). Such changes signify the importance of updating empirical findings on social change in East African pastoral systems, especially related to understanding women's agency in rangeland resource management. Customs surrounding women's and men's roles, practices, and gender relations are changing. Livelihood strategies to adapt to environmental and economic uncertainties include increased rates of migration to urban areas. Such gendered migration patterns:

“make herd management more complex and will likely mean a greater role for women and children to share responsibilities with men: high levels of livestock diversification require flexible arrangements in family and homestead composition, and spatially extensive social networks to accommodate the different grazing needs at different times of the year (IFAD, 2018). Women will usually have responsibility for small stock (sheep/goats) and/or the larger livestock that is kept around the household e.g., milking, sick or young animals, particularly if men are migrating. Across pastoral areas more men now migrate for non-pastoralist related work, meaning many women are taking over traditional ‘men's tasks’ and often becoming the de facto heads of their households i.e., there can be a feminization of livestock keeping. Normally this means that women will also have decision making authority, though this may not always be the case with men maintaining authority over decisions such as sale of livestock despite living at a distance” (IFAD, 2020: 4)

Such shifts require more attention to understanding emerging opportunities for women to engage in rangeland governance institutions. Where women's participation has been encouraged and given long-term support to take up new roles in communal activities and decision-making processes around natural resources, they have slowly taken up the challenge and in some instances, performed at par with men (Flintan, 2008). Working with women's user groups in conservation and use of rangeland resources has alleviated some of the social constraints that inhibit women's participation, for instance (Lendelvo et al., 2012; Verma & Khadka, 2016).

Gender mainstreaming in development is the norm and efforts to increase women's participation in public decision-making processes are popular aims of interventions. However, the extent to which women's participation leads to sustainable change, or goes beyond committee membership or attending meetings, can be challenging because of restrictive gender norms and practices surrounding women's roles in the household and community. Social and cultural barriers to women's full participation are often complex and, to garner changes in gender relations requires a long-term perspective, often beyond the project duration (Flintan, 2008).

The overarching aim of this paper is to better understand women's engagement in participatory rangeland management (PRM) processes and implications for broader social change. We first describe the context of the communities in which PRM was carried out, namely gender practices surrounding livestock and women's engagement in leadership in their communities. To assess social change, it is important to understand where communities are. Contextual analyses inform our understanding of changes that may, or may not have occurred, and the influence of an intervention in a specific geography. We then focus upon understanding women's engagement in PRM. We ask 3 research questions:

1. How do women participate in decision-making processes in PRM, e.g., stakeholder meetings, development of the management plan and committee meetings?
2. What changes, if any, has women's engagement in PRM brought about in gender relations in households and communities?
3. How does participation in PRM support, or not, social change, that refers to changes in women's agency in rangeland institutions and the wider community?

This paper makes both empirical and theoretical contributions. The research speaks to the need for a better understanding of development organizations' efforts to sustainably improve opportunities for women and support long term processes of equitable resource governance in communities. Insights into these processes can be used to generate lessons and guidelines for scaling PRM in other drylands and pastoralist contexts. We incorporate and adapt a framework to understand participation (Pretty, 1995) that has been iterated, adapted and applied to understand gendered participation in natural resource management (Agarwal, 2001; Flintan, 2008; Lendelvo et al., 2012). The framework allows for a closer examination of women's participation and implications for social change, especially those related to changes in agency (Kabeer, 1999). We reflect upon the utility and the challenges of using this framework in development.

Participatory Rangeland Management

PRM was piloted in Ethiopia in 2010 and scaled up in 2014 in Kenya and Tanzania led by the Resource Conflict Institute (RECONCILE) in Kenya. The following section provides relevant background to PRM in Kenya and draws upon sources that include published documents, e.g., the PRM Toolkit (ILRI, 2020) and internally shared reports (RECONCILE, 2019).

Participatory rangeland management (PRM) is a means for policymakers and change agents from governmental and nongovernmental organizations to support communities to manage their rangelands (ILRI, 2020). PRM, like traditional pastoralist governance systems, involves planning and decision making at different levels, typically working through a community organization made up of representatives of all the people within a specified geographic area—that is referred to as a rangeland unit. At the rangeland unit level, a rangeland management institution (RMI) represents the community and works on behalf of that community to manage resources within the whole rangeland unit.

PRM recognizes the interlinked ecological and social values of rangelands and the importance of engaging different users to support socially inclusive sustainable management outcomes. Participation is a key principle of PRM and “implies that the process is owned and controlled by the participants [while] the role of external agencies is to support and facilitate (ILRI, 2020; 11). That being said, social inclusivity is a principle of PRM and, by virtue, women's inclusion is bolstered by Kenyan law. PRM “observe(s) the one third gender rule¹ in all committees to ensure inclusivity in decision making; ensure employment opportunities for all the stakeholders and community members at large” (RECONCILE, 2019; 20).

Learning and ongoing capacity building are common features of PRM and a core principle of rangeland governance. The first stage in PRM is the gathering of information about the different resources found in the rangelands, their uses (including at different times of the year), and the users and other stakeholders (including their institutions and groups that have a role in rangeland use and management of the resource). This is achieved through the use of different tools including resource mapping and stakeholder analysis. This mapping activity forms the basis for negotiating and deciding on the rangeland management unit—the area that the institution will be responsible for.

¹ Article 27(8) of the Constitution of Kenya 2010 states that not more than two-thirds of members of all elective and appointive positions should be of the same gender. As of 2020, specific legislation to operationalize this constitutional provision on gender equality had not been enacted.

Reaching agreement may require involving neighbours and other stakeholders and interested parties as well as discussion on implications for community land designation. Defining the rangeland management unit is followed by a detailed participatory rangeland resource assessment which considers the use and status of different rangeland resources as a baseline for developing a rangeland management plan. The community should lead and ultimately own this process. In some cases, the best course of action may be to treat a community as constituted under the Community Land Act of 2016 as the rangeland unit. In other cases, neighbouring communities may decide to work together, and in these situations the rangeland unit is made up of this cluster of communities. The outcome of the negotiation should be a consensus between all parties as to how to access resources, how the resources should be managed and by whom.

Conceptual Framework

Roles and responsibilities of women and men are often guided by socio-cultural norms and traditions that are closely linked with the different types of resources that they use (Lendelvo et al., 2012). Resource management, whether customary or formalized, is a gendered space that requires negotiation of rules regarding access and use of resources. Such domains are often occupied by men, who in many communities in SSA contexts, exercise authority in community level decision-making processes.

Development interventions have emphasized the importance of participation to support sustainable outcomes. Increasingly, these include measurable change towards gender equality that are typically achieved through targeting and engaging women in stakeholder processes and various activities. Ensuring that women's participation is meaningful, or provides opportunities for women's increased agency to negotiate access, control, and gain benefits from interventions is often difficult because of power dynamics in communities and households, e.g., local norms and women's low levels of confidence or fears of speaking up in public (Cornwall, 2008). Gender, age and other factors create and sustain power relations and marginalize social groups, that can hinder the potential for women's active participation and negotiation of rights to important rangeland resources.

A key aim of this paper is to understand women's engagement in participatory rangeland management (PRM) processes, or changes in women's participation in natural resource management institutions. In addition, we look at implications for broader social change, such as changes in women's participation in decision-making processes in intra-household level decision-making. This is based on the premise that participation in PRM processes may enhance women's transformative agency, that Kabeer (1999) refers to as agency that challenges prevailing inequalities in resources and agency rather than leaving them unchallenged. Whether or not such changes can be attributed to any one intervention, as opposed to multiple, simultaneous push and pull factors, such as climate change and migration in pastoral contexts, is notably difficult to discern through a cross-sectional case study. However, through a contextual analysis and key research questions that explore whether change has occurred in household or community relations, we assess PRM's potential for transformative change beyond PRM in Baringo County.

We adapt a participation framework that draws upon several works (e.g., Lendelvo, et al., 2012; Flintan, 2008; Agarwal, 2010; and Pretty, 1995) (Table 1). The table identifies 6 levels of participation, their characteristics (adapted from previous works) and a column entitled "PRM Application" that explains the characteristics of women's engagement in PRM that will later be used to describe women's levels of participation. The domains in which we consider agency are rangeland institutions and communities households. The first 3 levels of participation are considered less "active" forms of participation, while the last 3 types of participation are often termed as being more 'genuine' or meaningful: active, interactive and mobilizing forms of participation. The framework, to some extent, facilitates deeper insights into evaluating how participation in decision-making processes may support increases in women's agency, that is the ability to define one's goals and act upon them (Kabeer, 1999). Agency "encompasses the meaning, motivation and purpose which individuals bring to their activity, their sense of agency, or 'the power

within' and 'may take the form of bargaining and negotiation, deception and manipulation, subversion and resistance as well as more intangible, cognitive processes of reflection and analysis' (Kabeer, 1999; 438).

Agency, used here, draws on Kabeer's definition (1999) and refers to women's participation in NRM institutions and beyond, e.g., household gender relations, that change or challenge existing power relations and expand abilities and opportunities for women. Women's agency in rangeland institutions is understood by focusing on participation levels 1-5, that focus on aspects of women's engagement in PRM, e.g., voice, collective action. Beyond PRM, agency in intrahousehold relations is understood through level 6, self and/or collective action.

TABLE 1: Participation framework (based on Lendelvo et al., 2012 among others)				Agency domains
	Level of participation	Characteristics	PRM Application	
1	Nominal	Membership of group	Women hold executive committee positions	Rangeland Institutions
2	Passive	Being informed of decisions ex post facto, attending meetings and listening	Committee members are 1) informed of conservancy planning, by laws and/or 2) attend capacity building events	
3	Activity- specific	Being asked to volunteer or undertake certain tasks	Implementing conservation tasks (voluntary or paid)	
4	Consultative/ Active2	Expressing opinions, solicited or not	Women contribute to stakeholder processes and management plans	
5	Interactive (empowering)	Having voice and influence in group decisions; formation of new local groups or strengthening existing ones	1) Women's priorities are included in planning and/or management plans 2) women's leadership 3) women strengthen or create new collective groups	
6	Self and/ or collective-mobilization	Individuals or communities take initiatives, independent of external institutions. to change systems that challenge existing power distributions	Changes in gender relations in the community or household are described, e.g., decision-making	Communities and Households

Less "active" forms of participation include 'nominal', 'passive', and 'activity- specific' types of participation. 'Nominal' participation refers to the simplest form of participation, such as membership in a group or committee. In PRM this refers to membership in the committee and/or holding a position in the executive committee. 'Passive' participation refers to receiving information. In PRM, meetings and capacity building trainings are common. The meetings may not necessarily be decision-making spaces about rangeland management. 'Activity specific' participation may be voluntary or paid and is context or conservancy specific depending on prioritized restoration activities e.g., reseeding, bush clearing and removal of invasive species.

More "active" forms of participation are consultative/active interactive, interactive, and self or collective self-mobilization. 'Consultative' and 'active' forms of participation have been combined in the above framework and, used here, refer to women's contributions of information, opinions, and perspectives during stakeholder meetings or during the negotiation of the rangeland unit and conservation tasks.

2 Consultative and active forms of participation were combined.... PRM is a process centered on negotiation so while women and men may express themselves, the process of negotiation makes it difficult....

'Interactive', participation may be empowering, or participation in which individuals expand opportunities and abilities to make choices (Kabeer, 1999) that in PRM could potentially improve women's access to and protection of the resources they value and/or support women's abilities through collective agency, e.g., expanding their economic opportunities. This form of participation is characterized here in three ways. First, women's voice and influence in decision-making processes, such as women's priorities being incorporated in the management plans. A second dimension of interactive participation refers to women's uptake of leadership roles and the third dimension refers to strengthening or creation of collectives. Groups may be spaces that women create for themselves that "consist of people who come together because they have something in common, rather than because they represent different stakeholders or different points of view. These kinds of spaces can be essential for groups with little power or voice in society, as sites in which they can gain confidence and skills, develop their arguments and gain from the solidarity and support that being part of a group can offer" (Cornwall, 2008; 275).

'Self-mobilization and/or collective mobilization' has been adapted from previous participation frameworks to incorporate influences beyond the intervention and, used here, refers to initiatives that challenge existing power relations in households and communities such as women's increased roles in intra-household decision-making, and, at the level of the community, women's increased leadership roles.

Methods

Study sites

Participatory Rangeland Management (PRM) was piloted in Baringo county in four subcounties, Koitegan, Paka Hills, Kaborian, and Irong. The non-governmental organization (NGO) RECONCILE (<https://reconcile-ea.org/>) facilitated PRM processes in all 4 locations. This study was conducted in the 4 sub-counties of Baringo county (See Figure 1). The county is situated within the Rift Valley region and is composed of six administrative sub-counties. The county has a population of approximately 666,673 people with 336,322 men and 330,428 women (KNBS, 2019). The most common ethnic group are the Kalenjin. People are primarily involved in agriculture and livestock-based economic activities. The study focused on four conservancies in the county: Koitegan, Kabarion, Irong and Paka Hills.

Characteristics of the conservancies (Source: RECONCILE, 2019):

Irong Community Conservancy is in Baringo South sub-county. The conservancy supports approximately 14,500 people, 100,000 livestock, and wildlife. The area is characterized by low productivity, increasing soil erosion, encroachment of wetlands, weak land tenure systems, prolonged droughts and poor social infrastructure.

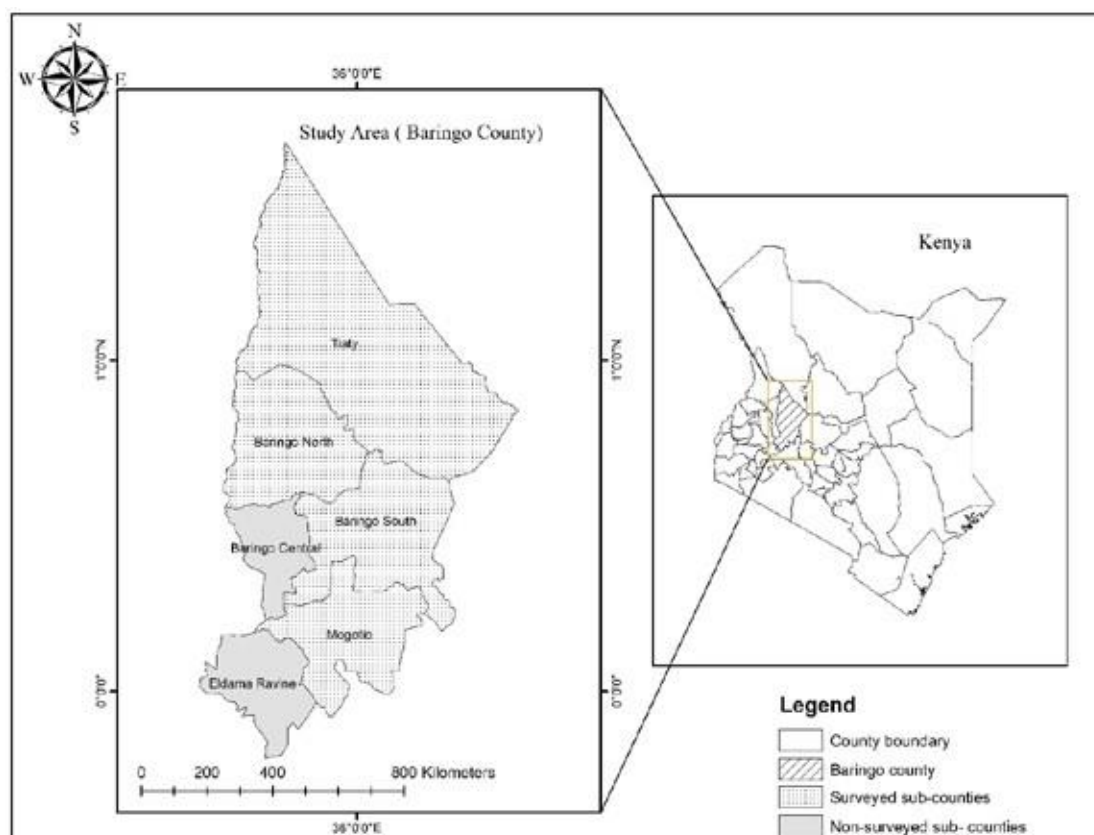
Kabarion Community Conservancy is Baringo North sub-county and approximately covers about 170 to 200 Sq.Km and supports around 58,000 livestock. Largely, the conservancy is used for grazing by wild animals and livestock. It is characterized by banditry and cattle rustling, drought and famine, weak land tenure systems and inter-community clashes.

Koitegan Community Forest Association is in Mogotio sub-county and covers about 880 acres of land and it is the only source the surrounding community can access rangeland resources such as pasture, herbs, natural salt and water. It is characterized by overgrazing and stress on natural vegetation, soil erosion, occasional droughts and poor infrastructure.

Paka Hills Community Rangeland Association is in Tiaty sub-county and supports about 8,500 people. The conservancy has wild animals, birds, indigenous trees and pasture. It is characterized

by prolonged droughts and famine, cattle rustling, insecurity, invasive species and poor infrastructure.

Figure 1: Baringo county map highlighting the study areas



Data collection

The study used a mixed-methods approach that included focus group discussions (FGDs), key informant interviews (KIIs) and semi-structured interviews (SSIs). A summary table of the methods is presented in Table 2. Gaining information about PRM processes was an explicit research aim. Thus, we purposively sought research participants engaged in, or familiar with PRM. As a result, the sampling approach presents limitations in understanding processes of exclusion and marginalization of social groups in PRM, for example. Furthermore, our analysis of semi-structured interviews in this paper is limited to PRM members. Next steps in our analyses will be to understand PRM spouse's experiences, who may or may not be involved in PRM.

TABLE 2: Summary of study methods

Method	Women	Men	Total
Key informant interviews	15	19	34
Focus group discussions	8 (61)	8 (65)	16 (126)
Semi structured interviews	27	29	56
Total # participants	103	113	216

A field team of 2 women and 2 men participated in a 3-day training. The training program consisted of translation of instruments from English to Swahili, revisions and review of the instruments to ensure clarity followed by practice sessions.

A total of 34 KIIs were performed across the four conservancies and included conservancy field officers, PRM executive committee members, committee members, elders, women's group leaders and local administrative staff across the four conservancies. Field officers are hired by RECONCILE and reside in each conservancy. Their main roles are to support implementation of the project and to mobilize participants for committee meetings, community meetings, capacity building and workshop meetings; prepare quarterly reports about the progress of the conservancy activities; report minutes of meetings and; support planning and implementation of PRM activities. The key informant guide captured information about the conservancies, including agro-ecological characteristics, PRM processes and activities, and community wide characteristics such as market access and climatic events. Each interview lasted approximately one hour.

Sixteen FGDs (8 with women and 8 with men) were conducted to understand rangeland livelihoods, women and men's use of resources, climate change and participatory rangeland management. In each of the four conservancies, 4 disaggregated FGDs by sex and age were carried out in each sub-county with 7-9 members per group discussion. Each FGD took about two hours. Participant selection criteria included knowledge of the area on issues around climate, natural resource management, livelihoods, and social and gender issues in the community. To include perspectives of community members who are not directly engaged with PRM, we asked that the composition of FGDs be mixed. Half of the participants of each FGD were engaged with PRM, while half were less familiar, or not directly engaged with PRM.

A total of 56 semi structured interviews (SSIs) were conducted with PRM executive committee members, committee members and their spouses (not yet analyzed), totaling 29 men and 27 women. Respondents were purposively selected to capture intra-household level details about PRM engagement (from both women and men's perspectives) and to identify any potential impacts that engagement has on household gender relations. Topics included and analyzed here include close and open-ended response format questions about PRM participation, satisfaction and changes in time, labor and participation in household decision-making. The interview took about 1.5 hours.

Data analysis

Data analysis consisted of four sequenced steps. First, data from all sources, the FGDs, SSIs and KIIs were transcribed from Swahili into English. Transcripts were imported into NVivo and a systematic content analysis was performed. A codebook that detailed deductive and inductive coding approaches guided the analysis. Next, key themes within select codes of interest were identified based on a reading of the content. In other words, inductive analyses were conducted to extract key themes related to women's engagement in PRM, leadership in the community, gender norms, roles and relations. Observations were made for each location and compared to develop a better understanding of similarities and differences across the 4 sites.

Table 3 provides an explanation of the coding, that is based on how each source was coded in NVivo. Each source was anonymized to protect the privacy of the research participant. The same codes accompany each of the cited text passages in this paper. The first 2 letters indicate the location where the data was collected, those being Koitegan, Kaborian, Paka Hills and Irong. The third and fourth letters refer to the different instruments, that were key informants, semi-structured interviews and focus group discussions. The last letter differentiates from whom the data was collected, that included field officers and spouses of PRM committee members, for example.

TABLE 3: Coding

Location	Full name
KO	Koitegan
KA	Kabarion
PA	Paka Hills
IR	Irong
Instrument codes	
Code name	Description
KI_A	Key informant interview with community member
KI_B	Key informant interview with field officer
SSI_C	Semi-structured interview with PRM community member
SSI_D	Semi-structured interview with PRM spouse
FG_E	Focus group with adults
FG_F	Focus group with youth
General naming	
<i>Village name + instrument code name + '_' + sex of participant(s)</i>	
<u>Example:</u> KOKIA_M	
<u>Description:</u> Key informant interview with a male community member from Koitegan	

Results

The results are composed of two overarching sections, context and PRM processes. The first section, community contexts, highlights salient similarities and differences between the 4 sites, that includes descriptions of livelihoods, major events and insecurity. Next, gender roles and practices in livestock are described, followed by a section that focuses on women in leadership. In the second main section we describe PRM processes, beginning with descriptions of the institutions that managed rangelands before PRM. We then incorporate the participation framework to structure results about women's engagement in various stages of PRM. At times this was admittedly difficult since PRM processes are complex and participation may be ambiguous in real contexts (Cornwall, 2008). Reflections on the use of the framework are reserved for the Discussion.

Community contexts

Ethnic groups are primarily Kalenjin, and the subtribes are Tugens and Pokots in the sites. Household arrangements are primarily monogamous in Koitegan and Irong whereas half of the households in Kaborian are polygamous and almost all households are polygamous in Paka Hills. Population growth has increased pressure on farmland and grazing areas across the 4 sites.

Organizations working in Baringo County include World Vision and the Food and Agriculture Organization (FAO), who have conducted trainings on conservation, sensitized the community on ways to improve livelihoods (Irong & Kaborian & Koitegan). Services and NGO interventions are fewer in Paka Hills, that is more remote and affected by periods of insecurity and conflict. In the communities, cooperative societies have provided training and capacity building to bee farmers, exploring modern honey harvesting techniques in the area, and organizing workshops and seminars for bee farmers. Cash transfers and government support were also mentioned in Paka Hills.

Livelihoods

Livestock keeping and, to a lesser extent crop farming, are important livelihood activities in all areas. Typically, households keep indigenous breeds of goats, sheep, cattle, and chickens. Donkeys and camels are also kept in Paka Hills. Livestock are generally fed through extensive feeding in pasture or in communal grazing areas. More people are keeping chickens, that women generally manage and control.

“The major livestock kept in the area is chicken, goats, sheep and cattle. The livestock are left to graze on open grounds throughout the day. In the evening the livestock are brought home and put in livestock sheds. For chicken they are normally kept in some structures (hen house) within the homestead” (KOKIA_F1).

Drought tolerant crops that are grown include millet, sorghum, and, in Irong, horticultural crops such as tomatoes and kale. Beekeeping is an important income generating activity in all locations.

In Koitegan, women and men may work as casuals in the neighbouring sisal plantations. In Paka Hills employment opportunities are available at the Geothermal Development Company. Small kiosks are operated by women and men in all locations. Women may sell chicken and eggs, vegetables, hay or grass. Women and young men fetch and sell water. Women and men burn and sell charcoal while women may sell firewood, men may sell timber. Men provide motorcycle transport services, security and protection for animals at night, and make ballast. Casual labor on farms is also carried out by women and men in all locations.

When asked about changes in prosperity responses were mixed. Factors that support prosperity include overall higher incomes and diversification, increased opportunities for capacity development, such as collectives, and increased access to technology and social media. In addition, references to religion and changes in traditional practices were made. Multiple references were made to increased school enrolment rates and education over the last 10 years. Education is especially valued for expanding the possibility of securing employment. Female genital mutilation (FGM) was mentioned as having decreased in all locations, and, in Paka Hills, appears to still be practiced at low levels.

Episodes of food scarcity affect the communities and coping strategies include rationing food, selling livestock, honey, seeking casual work, producing and selling charcoal, sourcing wild fruits, and joining groups such as merry go rounds. Women and men may use different, complementary strategies. Women may sell chicken and eggs, while men may sell larger livestock and migrate in search of work or pasture.

“Men sell some livestock so that they can buy food, migrate to other areas where there is no drought, seek support from friends and relatives, burning and selling of charcoal while others seeks casual work so that they can get some money to purchase food” (IRKIA_M2).

Male temporary outmigration in response to hardship is common. An estimated 40% of men in Irong and 50% of men in Koitegan migrate. Estimates were higher elsewhere do to insecurity and displacement, 75% in Kaborian, while all men were said to migrate, at least temporarily, in Paka Hills. Youth in particular leave Paka Hills because of harsh living conditions.

Key events over the past 10 years

All sites are affected by climate change that has led to significant losses of livestock. Climatic shocks that are common among the study sites are prolonged drought, drying of rivers and pan dams, changes in rainfall, and in Paka Hills and Irong, flooding. Lake Baringo has risen remarkably in recent years. Adaptation strategies in response to climatic shocks include migration in search of pasture, livelihood diversification strategies that include charcoal production and sale, working as casual labor, selling grass seeds and local brew. Also, new water related business opportunities have developed, such as fetching and selling water.

The COVID-19 pandemic has had mixed impacts on livelihoods. The pandemic resulted in government mandated market closures, restrictions on mobility and decreases in livestock market prices. COVID-19 effects also led to job and income losses. Those who previously migrated for work returned to the village, which, in Kaborian, was perceived to have somewhat increased local economic activity.

“COVID -19 has brought a lot of challenges. It has infected people in the community and resulted in death of the elderly. It has contributed to early pregnancies among teenage girls and led to job losses. On the other hand, we have experienced positive effects of COVID -19, the people who came back in the village due to disruption of their livelihoods helped spur economic activities in the community, for example working in communal activities such as flattening of roads and financial contributions when we have fund raisers” (KAKIA_M2).

COVID-19 and effects on school closure were key drivers of school dropouts, early marriage and pregnancy among school going children in all sites.

“COVID -19 led to increased incidences of school drop due to teenage pregnancies and early marriages after closure of schools. On the other hand, life has improved especially due to formation of women groups such as merry go round and reduction of female genital mutilation practices (FGM)” (PAKIA_F2).

Security challenges

The contexts of the four locations differ in terms of security. Koitegan and Irong are relatively secure locations in contrast to Kaborian and Paka Hills, where there are high rates of insecurity due to cattle raiding and contestation over land, communal or otherwise. Conflicts are exacerbated during times of drought and water scarcity.

Insecurity and conflict are frequently associated with displacement, migration and increased levels of poverty. In Kaborian there are conflicts with the neighboring communities, between Tugen and Pokot ethnic groups over resources such as pasture, water and land. Impacts of conflict have included the death of people and livestock, closure of school and displacement of people. Loss of livestock has reduced income and abilities to pay school fees and purchase food. The inter-related impacts of conflict, forced displacement, shifts in population and rangeland resource quality and scarcity were described by a key informant in Kaborian.

“Kesumet sub location borders East Pokot sub county, where there are escalating security issues. This led to displacement of people who migrated to the highland areas. Currently, we have a lot of congestion on the highland areas. The economic livelihood of the community members was shattered due to destruction of property and loss of life. Over congestion of people has resulted in over cultivation of land, clearing of bushes and vegetation. On the positive side, where people migrated from, there has been regeneration of vegetation and general improvement of the vegetation cover” (KAKIA_M3).

In Paka Hills conflicts over resources commonly occur around livestock watering points during the dry season or droughts. Also, people from other communities graze livestock on the hills while the community members are grazing on the lowlands, which also creates conflicts. Through PRM, agreements to reduce conflicts over resources were made to conserve pasture on the hill during the rainy season so that when the dry season arrives, livestock can graze there rather than migrating to the neighboring communities.

Migration and precarity threaten both PRM social and ecological objectives. In Paka Hills and Kaborian, insecurity and tensions with neighbouring communities are key drivers of displacement and livelihood precarity. Migrants, notably in-migrants, often have fewer resources and limited access to grazing areas.

A young man from Kabarion describes the ways that migration, motivated and exacerbated by insecurity and climate change, have led to income losses.

“In the past we were living in regions that had plenty of resources, unfortunately after being displaced due to insecurity/fights we came to this region that has scarce resources... In the process of migration due to banditry, we lost our tracks of land hence grazing land... Migration made people lose their livelihood; they had beehives in their previous area, they could harvest and sell the honey and get money to educate their children. For a long period of time, our major source of income has been livestock keeping such as sheep, goats, cows, bee keeping, and millet growing; migration due to insecurity made people lose these assets and their fortunes and became poor. We also have no freedom to freely co-exist and graze our livestock freely as we used to” (KAFGE_M).

Conflicts occur in Irong less frequently, and are similarly related to resource scarcity and contestations over access and use. People migrate in search of pasture to other areas within Irong, for example people from Kapkuikui have migrated to Kamar. Conflicts are often addressed by elders, chiefs and the the grazing subcommittee. More common are human wildlife conflicts. Greater Kudu and antelopes invade crops such as green grams, beans and sorghum. Community members are encouraged to register cases of human-wildlife conflicts so that they can be compensated.

Gendered livestock practices

In many married households' livestock ownership and related tasks are gender specific. Men typically own and purchase livestock, especially cattle. They often make decisions about selecting breeds.

“Goats and cows belong to men. Women and children have the responsibility of milking the cows, selling milk. Men are the ones who sell livestock, look for pasture for the animals and make decisions about treatment of animals. Women and children also take the animals for grazing. Men are the ones who mostly take livestock for grazing especially because of insecurity. Women take care of calves and goat kids.” (KAFGE_F).

Men select animals for sale, take livestock to the market, and transport milk to collection centers. In fact, men assume responsibility in many of the marketing activities, including transport. Widows were reported to hire men to sell livestock. However, not all livestock sales were reported to be managed by men. A man in Kaborian reflected on how livestock roles and practices have shifted livestock towards more joint decision-making processes in married households.

“In the past women had to ask for permission from their husbands to sell livestock but now things have changed, they have to both agree. They both have a say in it. In the past if a woman sold livestock without her husband's permission then she would have been summoned to appear in front of council of elders, reprimanded and asked to pay a fine” (KAFGE_M).

Women may manage small livestock, e.g., goats, sheep, chicken, care for young and lactating livestock, and identify sick animals and inform their husbands. Women's autonomy in decision-making about livestock purchase and sale is often limited, rather decisions about purchase and sales are made in consultation with husbands, or alone if her husband has travelled. Given that outmigration has become more common, women also have to take up more roles in livestock keeping such as taking care of the livestock and buying and selling livestock. Women assume many livestock tasks when husbands aren't around, such as caring for goats that remain behind at the homestead when men migrate in search of pasture. Women milk animals and clean sheds and may also take animals to cattle dips. Women play key roles in identifying sick animals and men are often responsible for seeking medical treatment.

“Diagnosing if an animal is sick can be done by both men and women. But the women are most of the times first to notice sickness in animals since in the morning they are the ones who do the milking, it is hard to find a man milking. They will spot the ailment and inform the man as soon as possible. Then the man will come to treat the animal. Again, when the man takes the animals for grazing he can notice if there is a sick animal. Women clean the livestock sheds or their daughters may help them. The women also look after the young animals. The women are also responsible for counting the animals when they get back to the homestead after grazing the whole day since they are first to get home and the men might still be in the market center” (IRSSID_M4_3).

Wives’ and husbands’ efforts are often complementary in sustaining herd health and rangeland quality. Men’s tasks include management and planning of grazing, that includes scheduling migration in search of pasture and purchasing land for pasture. Both women and men graze and take animals to water sources and collect water when animals are kept in the homestead. Women seldom slaughter animals but clean intestines following slaughter and distribute meat. Men slaughter animals and manage medical treatments such as spraying and vaccination and cattle dips. Men often construct sheds, purchase animal feeds and, when women are not around, care for lactating animals.

Women’s leadership

Women hold leadership positions in all 4 communities and are active in school, health, and religious committees. Women hold positions in community level governing institutions, such as Nyumba Kumi and Council of Village Elders. Women’s leadership varies by type of group and, in many cases, women lead women’s groups. Women’s leadership in mixed groups is less common. Women tend to occupy specific positions, namely those of secretary and treasurer, owing to perceptions that women are trustworthy and honest.

“In Kalenjin culture, women are not allowed to take up leadership roles; they cannot have power over men, they can only give views but men are the leaders...In the committees, women can get positions such as secretary but they cannot chair the committee. Women mostly lead in the women groups merry-go-rounds” (KOFGE_F).

Women’s entry into leadership positions is recent and our data indicate that those women leaders have had to “prove” that they are able to lead. A woman holding the position of assistant chief in Koitegan described her experience and how her visibility has influenced men’s perception of women holding leadership positions

“Women are currently holding leadership positions unlike in the past. When I was elected as an assistant chief, men questioned my capability to successfully hold the position but now they have seen that me and other women have done it. Men are now seeing the importance of having women in leadership” (KOSSIC_F6_56).

Furthermore, education is an important metric and requirement for women to enter leadership positions. In Paka Hills, a woman explained.

“Most women are not educated and cannot get chances to engage in any leadership positions” (PAFGE_F). In an FGD in Irong, a woman further explained that: “Women are less active because they still perceive themselves incapable of leadership (IRFGE_F).

Education levels vary across generations and by socioeconomic status. While access to higher levels of education is more common among younger than older generations, challenges of school quality and gender still influence young boys’ and girls’ potential to achieve a good education. References to the importance given to educating children are common in the dataset and signify an important change in the last decade. For older women, however, education may not have been possible. Furthermore, poorer

households seldom can afford to attend or complete primary school. Since education underpins women's qualifications to enter leadership positions, the potential for less educated, older women to lead is lower in Paka Hills and Kaborian.

While women leaders are present in Koitegan, the possibility to lead is more limited in the communities of Paka Hills and Kaborian, where leadership is sometimes explicitly challenged at both community and household contexts. Women's voices are restricted, for instance, in Kaborian.

"Leadership positions are mostly held by men because women are mostly not allowed to talk or address men but in the committee we have some women leaders. No major changes because men have not embraced women leadership. Very few women are coming out to take leadership positions. They leave it to the men" (KASSID_F2_38).

At the household level, women's exposure to information, through travel and interactions with people outside the home, is a source of concern, even fear, among some men, who worry their wives will acquire "bad behavior". In Paka Hills, one woman explained:

"There are no women in leadership in this area; the only woman leader is the area MCA... Women are afraid to take up leadership roles because they are afraid of their husbands; men do not want their wives to be leaders because they feel they will acquire bad behaviour and habits e.g., prostitution" (F1_20, PA).

Increases in women's agency in livestock decision-making and community leadership are more prevalent in Koitegan and Irong than the other communities. Paka Hills and Kabarian differ in significant ways from Koitegan and Irong. The nexus of conflict, migration, and climate change are particularly acute in the latter. Gender roles and practices, such as leadership, are more restrictive in these locations. Context specific details explain, to some extent, women's participation in PRM and challenges to increase their agency in RMIs, communities and households.

Participatory Rangeland Management

The PRM intervention, over the course of 3 years working with women and men, has strengthened rangeland institutions, supported women's leadership in rangeland governing institutions, facilitated gender sensitization and capacity building activities, and created and supported collective action initiatives. The following sections are structured using the participation framework described in the Conceptual Framework.

Strengthening Rangeland Institutions

PRM worked with and strengthened existing institutions in all 4 locations. However, communities' acceptance of PRM varied due to mismatches in project expectations and fear of privatization and loss of land. In this section, we draw primarily upon key informant interviews with field officers in each location to describe the rangeland management institutions (RMIs) that existed prior to PRM and some of the early challenges in the establishment of PRM.

Koitegan had created a community forest association (CFA) prior to PRM. A self-help group was started by a small group of university students who approached the county government concerning the conservation of the forest and secured funding to initiate fencing of the forest. Eventually the self-help group became an association that included various stakeholders in the community. PRM helped to strengthen the internal structures of the CFA. An early challenge was the prioritization of activities whereby RECONCILE outlined some of the activities such as conservation of natural resources and improvement of pasture while the

community had different expectations. For example, the community wanted all available funds to be used to construct pan dams. The funds were also viewed as being inadequate to successfully complete all activities.

In Paka Hills the Council of Elders had created a management plan that was later formalized in PRM. Prior to PRM the rangelands were protected by the local community and included youths who monitored the resources. During the rainy season, they advised that livestock not be grazed on the hills but in the lowlands so that during the dry season the pasture on the hill could be used as a reserve. Although community members generally accepted PRM, there were fears that the creation of a conservancy would lead to losses of land due to privatization. The community gave a local name “Karantili” to the rangeland unit, which means reserved land for grazing. There were challenges in the disbursement of funds and surrounding insecurity. Government coordinated efforts were made to flush out bandits, that led to road closures and limitations on movement.

Irong created a conservancy committee and RECONCILE worked closely with those who were in the committee. Additional activities supported by RECONCILE included the buying and issuance of beehives, removal of invasive species and rehabilitation of the borehole. The community did not readily accept the project at first because there were expectations of the construction of roads and dams. Over time the community understood and accepted PRM activities.

Kaborian created a committee, largely in response to insecurity due to cattle rustling and fighting over resources such as pasture and water, that led to the displacement of people and prompted elders to form an interim committee to address the challenges, which then led to the idea of establishing a conservancy. The interim committee that was formed by elders was not very active prior to PRM. PRM helped to strengthen and formalize the plans. The community was fearful of losing land, because of the perception that land can be taken away from the community since it is not registered. There was fear that, although they may implement PRM activities, the land could be taken.

Nominal Participation: Committee Composition

Women hold positions in executive committees, that represented a change in women’s inclusion in rangeland management institutions. Women’s level of education was said to be an important qualification of holding a position in the committee.

The gendered composition of PRM Executive Committees is an indication of nominal participation, or women’s representation in PRM committees. Women’s engagement beyond Executive Committee membership, e.g., common membership, while important, was not explored here. RECONCILE, the NGO that implemented PRM, ensured that committee compositions were lawful, or aligned with the commonly referred to 2/3 gender rule in the Constitution of Kenya, that states that not more than two-thirds of the members in any elective or appointive positions such shall be of the same gender.

Committee membership in each location ranges from 13-17 members. At the time this study was conducted committee membership ranged from 13-17 and 27-46% of the committee were women (Table 4). Kaborian has the lowest proportion of women in the committee. Women hold positions that include vice-chair, and more commonly secretary, treasurer, but not chairperson. Committee executive members, such as secretaries or treasurers, are not necessarily limited to their roles or tasks in the committee. For example, treasurers may engage in PRM activities, such as bush clearing and planting.

TABLE 4: Committee membership composition

Conservancy	Men	Women	Total	Men (%)	Women (%)
Koitegan	7	6	13	53.85	46.15
Irong	10	7	17	58.82	41.18
Paka Hills	11	6	17	64.71	35.29
Kaborian	11	4	15	73.33	26.67

Women's participation in committees often represented a change and created opportunities for women to participate in the management of natural resources. In Irong, a 29-year-old widowed committee member explained:

"When RECONCILE came in with the idea of PRM they changed things up. In the past it was only men allowed to be in the committees, they were opposed to women holding any leadership positions, but RECONCILE changed this completely. Women were encouraged to be part of leadership so that both genders were represented. Both genders had to be represented and that made us women happy. So I became part of the committee" (IRSSIC_F3_1).

The importance of education levels of PRM women executive committee members was emphasized.

"Some committees like the conservancy committee, members are elected by the community while members of other committees are just appointed. For one to be elected or appointed in the committee, the level of education is a major consideration" (IRKIA_F2).

Education was described, at times, as being more important than gender and age considerations of committee membership.

"We cannot say there are specific roles for women in committees because you know nowadays people are educated and in issues to do with groups people look at education a lot. So you cannot say there is a seat set aside specifically for women or men or youths. You will not pick people for the committees just randomly, it is a must for them to be picked according to their level of education. Nowadays you cannot just put anyone there, a lot of things will become hard. We have to pick people who can at least read and write. (KOFGE_M).

Passive Participation: Sensitization & Capacity Building

Women and men participated in gender sensitization and capacity building activities. Gender sensitization was important to emphasize why women should be included in resource management processes. For some, sensitization and training convinced men to 'allow' women to attend meetings and to engage in income generating activities previously reserved for men.

Gender sensitization

In most of the locations, there was initial resistance from men to include women in resource management institutions. Men hold authority in community and natural resource forums. To include women, and gain men's support of women's inclusion, sensitization efforts were needed. Women and men frequently referred to the importance of sensitization about gender equality and positive effects upon women's opportunities.

"Before PRM, men dominated in all activities in the community. Sensitization about the importance of women was done, and they were included in various activities like issuance of beehives. During meetings women were given chance to give their suggestions and currently the vice chair of the committee is a woman. During preparation of pasture farm, women supervised those who were broadcasting seeds. Women were majority in some of the activities such reseeded" (PAKIB_M).

In Irong, a woman who first explained that 'women are viewed like children' in her culture, went on to elaborate:

"When PRM sensitized the community and women, the women began to appear in leadership, for example we have assistant chiefs who are women" (IRSSIC_F4_15).

Sensitization led to increases in men's support for women to attend trainings, form groups, and engage in income generating activities, for example. A Pokot woman living in Paka Hills explained the importance of sensitization:

"Initially, men resisted women to be involved in any activity within the community. We had to do sensitization meetings with men, -with time they agreed women could be included on the committees and they could even allow them to attend to meetings in Kabarnet" (PAKIA_F3).

Capacity building activities

RECONCILE facilitated multiple capacity building activities for women and men that included technical skills in beekeeping, financial and business management, wildlife conservation and restoration activities such as managing pastures and planting grass. Capacity building opportunities have been valued, especially for those who are less educated, who are able to gain access to knowledge and ideas through exposure. Capacity building has supported livelihood changes.

"When PRM came and trained us I saw a lot of changes. Like now I know how to manage growing grass and even in business they trained us that we can do some small activity and make some profit to educate our children. They gave us knowledge in growing tomatoes, growing vegetables and even growing, harvesting and selling grass to people" (IRSSIC_F4_15)

Gender relations also have changed as a result of women's access to trainings, that, as a woman Koitegan explained, expands possibilities of earning income.

"Women have been able to gain skills from trainings that has so far improved their livelihoods. Before women were not involved in decision making process or leadership but they now are. In the past men used to undermine ladies and think that they cannot take up leadership positions; men were the only participants in Baraza; but things have changed now...Women in PRM receive varied trainings on different subjects and this helps to open up their mind and identify opportunities, like building a school or borehole, which in turn creates employment" (KOSSIC_F6_55).

Among the many activities, women's uptake of beekeeping is especially notable. Beekeeping is an important adaptation activity in drylands contexts, and, prior to PRM was reserved for men due to cultural norms that prohibited women from owning and managing beehives. In Irong, for example, women could not own beehives and through PRM, bought 31 beehives that were issued to 6 women's groups. In Koitegan, Kalenjin traditions were cited as the main reason why women could not previously own beehives.

"PRM enabled us to get knowledge on beehives. In the past our men did not want us to have anything to do with beehives, they used to view it as their own but when PRM came in they gave us beehives and we hang them and we harvest honey now and we get money. Before we did not have them, men were the ones who used to harvest" (IRSSIC_F4_15).

Similarly, in Paka Hills a 46-year-old married woman who did not complete primary school explained how beekeeping has become a source of income that is used in the household.

"I am happy with the things that we have been able to do such as the grass that we have planted and the beehive project. We eat some of the honey and sell the surplus; this gives us an income that we use to buy household consumables such as sugar and tea leaves. All genders can own beehives" (PASSIC_F1_20).

Activity Specific Participation

Various activities are identified by the community members based on restoration needs, that may include grass planting, tree planting, removal of invasive species and fencing around water points. Committee members and community members, women and men alike, participate in these activities and these activities supported community cohesion efforts.

“When I recall us doing the tree and grass planting, we were all together, there was equality. If we planted five they would also plant five, so there was equality. In giving opinions we are together; we all contribute to helping each other, we cannot discriminate. Things have changed nowadays. Education has changed almost everything” (KOFGE_M).

Gendered division of labor in certain tasks was evident. In some cases, including Kaborian, there are perceptions that women are better at some tasks than men.

“The tasks have been accomplished in a satisfactory manner; for example, in grass growing, women are the ones who know how to do it well, they do it better than men. Ladies have better ideas and are more organized than men. Women plant grass better and faster because they have experienced in doing farm work. The teamwork in management of the rangeland between men and women is good; it creates synergy and makes the process more efficient”(KASSIC_F2_40).

In Irong, and similarly in other locations, activities were carried out by PRM members and community members from different locations that supported community cohesion in rangeland management.

“We wanted to grow grass at the conservancy but we first cleared the invasive bushes growing there that do not allow grass to grow, and then we planted indigenous trees that will allow us to grow grass later. We got people from every sub location to help. We have also participated in preservation of springs like Sukta and Lorwai by fencing them off so that livestock do not drink directly from there” (IRSSIC_F1_5).

Consultative, Active, and Interactive Participation

These 3, more empowering forms of participation are considered together and specifically describe women’s contributions in management planning, leadership in rangeland forums, and collective action initiatives. In many cases women actively contributed to resource management and planning by identifying resources they value and advocating for protection of those resources. Support for existing groups and the creation of new collective groups were instrumental for women to take up new income generating activities.

Managing Rangelands

Women participated in meetings during PRM processes that included resource mapping and stakeholder analysis and meetings to negotiate bylaws and details of the management plan. PRM committee meetings were important spaces in which women advocated and influenced resource conservation and management. Women access and use certain rangeland resources more often than men, and the use of these resources is often linked to gender norms and practices that shape who does what in the household. Labor and time implications of these tasks, specifically the distances travelled to fetch water, are significant.

Women generally fetch water and wash clothes, and their frequent visits to water resources increases their knowledge about the quality of the resource, for example. Since they visit these areas they also can simultaneously monitor changes in the conditions of the resources. In Koitegan, the field officer explained

that women committee members shared views about specific resources and often represented women's interests to conserve and prioritize certain resources in the wider community.

"When we involved women in discussions around management of resources, they presented their views on fetching water, firewood and herbs. They ensure that their interests are considered. Women pass their views and opinions concerning usage of resources through the women who are in the committee".

Across the datasets, women's concerns about water were repeated. In Paka Hills, water use and protection was prioritized.

"We also manage the water usage. We supervise how the livestock will get into the watering point in an orderly manner to ensure all get water. We arrange that people bring their cows and goats to drink water in turns; they queue. We also protect the water point and prevent people from taking a bath in there (in the dam). We have also set aside land which we cleared and planted grass; we use this grass to feed our livestock during dry season. We ensure that people do not cut down trees" (PASSIC_F1_20).

A male committee member explained that:

"Women advocate for preservation of springs within the conservancy because looking for water consumes most of their time. Some women go as far as 15 kilometres in search of water" (PASSIC_M3_24).

In Koitegan a key informant explained the changes she has seen in women's behavior, specifically women's contributions in the identification of important resources that reflects gendered knowledge about specific rangeland resources.

"There are changes, lately women have a voice in the community and participate in conservation efforts. Women have been included in the CFA committee where they can make suggestions concerning usage of the communal resources. Before, women could not speak in front of men. I am familiar with the plan, it has a viewing point in the conservancy, different types of soil that women use to decorate their houses, indigenous trees that are used as herbs, wilds fruits and locations of springs. Various groups were included in the activities. Women identified the locations of the colored soils, location of springs and herbs because they are more knowledgeable in this area compared to men" (KOKIA_F1).

In Irong, however, a committee member expressed discontent with PRM processes. She explained:

"...when I voice my opinion in the meetings I am told that the committee will look into that but that is never the case and my concerns are ignored. My opinions and views are usually downplayed" (IRSSIC_F1_5).

She continued to explain how resource restrictions exacerbate poverty of already marginalized community members and women.

"When they restrict access to the conservancy by livestock the people without their own pasture will suffer and maybe they will have to sell their livestock to survive. Also, when they restrict us women from collecting the materials we use to make mats I am not happy with that since the small crafts enable us to feed the children and pay fees but that becomes hard" (IRSSIC_F1_5).

Uses of specific rangeland resources are negotiated through PRM processes, however, restrictions that are made in efforts to restore rangelands are occasionally contested because of the importance of those same resources in sustaining livelihoods.

Leadership

PRM has supported women's visibility in leadership roles in PRM and rangeland forums, however, challenges to women's leadership persist. Women's leadership in public institutions and in PRM committees has increased the visibility of women in spaces where men often dominated. Women leaders are important and inspiring role models to other women.

"The women included in the PRM committee have really helped the other women in the community because after they receive training they call us to a women's meeting and share the information that has been given to them. There is information they share with us specifically for women's progress and we take this information and apply it so that we can change our way of life for the better...Women are benefiting through gaining knowledge from the women in PRM leadership; when a female leader comes to talk to us at least by the end of the day they would have heard different ideas. We have also seen that by doing this we have direction now. In leadership we have found out that women have the capability to lead, they can lead if given the chance" (IRSSID_F2_4).

In Kaborian a woman described changes in the village and influences upon women in neighboring villages and among men in the community.

"RECONCILE project has brought about gender equality; we are now somehow balanced, say about a quarter of the women in leadership are women. Other women in villages are now seeing that they can also take up leadership positions after seeing women leaders in the PRM committee. Men have also started respecting the fact that women can lead and give ideas" (KASSIC_F2_40).

Nevertheless, women may not lead certain committees in some communities and, furthermore, their household tasks preclude them from having time to engage in such activities.

"Women decline leadership positions in some of the committees such as road and water committee. Women have a lot of chores at home so they decline positions that are demanding. Some work is very tedious for women such as being a leader in the roads committee. Men take the most demanding positions in the committee"(KAKIA_F1).

Collective action

RECONCILE encouraged group creation and in other cases, women came forward with ideas to create women's groups. Women's involvement in collective action has not always been accepted by men. Women's access to trainings and knowledge and, in some cases, material support from RECONCILE, generated women's interest in creating women's groups and taking up new income generating activities. Women in some locations initiated requests to start groups.

"... when we had the meeting recently in Koitegan, you know the women are quicker than men, so they had organized themselves and decided that they wanted to set apart an area to put beehives for themselves as women since they had asked for some land. They did this so that as we harvested and sold our honey, they would also do the same. There's was just a request out of their own thinking and they got what they wanted. It was just a proposal, once they saw the community beehives set up, they also wanted their own specifically for women and Koitegan is big enough for this. In the past we had set apart the hills of Koitegan

as reserved pasture but when the government took over there is no more area of reserved pasture”(KOFGE_M).

Women created collectives, or groups, before women’s participation in groups was widely accepted all the locations. Many women depend on women’s groups for multiple types of support.

“We have resorted to joining and forming groups. In the past the men did not allow their wives to join the groups but after we got some training and sensitization, we decided to join the groups” (IRSSID_F1_14).

“Women within the community have really been empowered and they can easily organize and lead themselves through forming various women groups” (KASSID_F3_35).

Groups took up various activities and enabled women to diversify income earning activities, through keeping chickens and activities that were culturally reserved for men, such as previously mentioned beekeeping.

Self or collective mobilization forms of participation

While PRM did not make explicit goals to change gender norms and practices, the study explored impacts beyond PRM. This section draws primarily on PRM women’s semi-structured interviews. Specifically, we explored household and community level changes in gender relations and changes in women’s participation in decision-making in time, income and livestock assets. Household changes in gender relations were described, however significant challenges exist and are often related to women’s household labor and time allocation.

Time and labor allocation

Women are responsible for many household chores. Women’s time spent out of the homestead, engaging in community and public meetings, even joining groups, has not always been accepted by husbands in married households. Women’s attendance in meetings is restricted, or at the very least, must often be negotiated or discussed with husbands because of concerns about labor.

“I am not able to attend all meetings or participate in all activities because sometimes goats get lost and I have to go looking for them, or the child is sick and I have to take him to the hospital. Household responsibilities prevents me from participating fully in the activities” (PASSIC_F1_20).

In Kaborian, the field officer explained that women often face challenges leaving their home to engage in PRM and other activities. Attending seminars that are far or require travel for multiple days is very difficult for women because of their household responsibilities.

‘Women must seek permission from men to attend meetings and seminars. Majority of men deny women permission to attend seminars and meetings, only a few men who have understood the project activities well allow women to participate’. The field officer continued: ‘Women’s responsibilities made it difficult to attend in the PRM activities. Most men don’t do house chores. Therefore, women cannot leave their house and attend the meetings. Married women spend most of their time at home doing house chores.’

Some husbands, however, were described as open-minded and appreciative of women’s contributions to both household and community development gained through their engagement in PRM. In prior times, there were low levels of men’s acceptance of women leaving the household, but NGOs and community sensitization, inclusive of RECONCILE and in combination with changes in wider contexts, have ushered in some changes in household gender relations.

“When PRM came and trained us I saw a lot of changes...in the past my husband did not want to know what was going on and even when I approached him to tell him what we had learnt... He did not even want me to attend meetings but when I got into the project I am in now he allowed me to attend the meetings since he saw that they were changing our way of thinking and even how we are living at home, there are a lot of changes” (IRSSIC_F4_15).

Since women are responsible for household chores they must find ways to cover their labor. Chores and responsibilities may be taken up by men (Kabarian), or women may hire labor, often using income from their PRM activities (Irong, Koitegan) or shift responsibilities to children (Irong). In Kaborian, that is generally more restrictive, women reported that men have stepped in to support household tasks. In Paka Hills a woman described increased support from her husband in childcare,

“My husband has changed. He is now helping in taking care of the sick children and goes with me to the hospital to take the child to get treatment. He is also helping in doing household responsibility. He helps us fetch water for household use using his motorbike. He is working hard and actively taking up casual jobs and bringing the income home to buy flour and sugar... In the past, women were not allowed to go out and participate in such activities... Husbands are now involving their wives in decision making at household level” (PASSID_F2_18).

Earning income and decision-making

Opportunities to earn income, that include PRM activity specific forms of participation mentioned earlier and sitting allowances, bolster men’s support of women leaving their households and were shown to increase women’s participation in decision-making about how to spend.

Women often make decisions with men concerning expenditure, even when men travel out of households. Widows and single women have greater autonomy in making decisions than married women in most cases. Changes in decision-making in married households were reported in 3 locations, that may be due to the low number of women respondents from Paka Hills. An important trend in these locations was the role and influence of women’s income in creating new opportunities in household decision making. Earning income enables women to support themselves, reduce reliance upon husbands, and even lend to husbands in times of need. Women earn income from PRM through sitting allowances and casual labor payments for activities like planting pasture and removing invasive species and their earnings increase men’s support of their time spent out of household. Multiple women in Kaborian explained how earning income influences spending decisions husbands’ behavior.

“My husband allows me to go for PRM activities and meetings and is left at home managing the children and ensuring all household activities are carried out well. He appreciates that at the end of the day I come home with some income or new skills that we can implement at our home” (KASSIC_F2_40). Another woman in Kaborian explained: “Men are more open on decision making on expenditure, because the wife comes home with some income. Women leaders in PRM earn an allowance that complements his income” (KASSIC_F3_33).

When women earn income they often acquire independence in making decisions about what to buy, such as livestock and other agricultural assets. They contribute to the purchase of household needs. In Irong, one woman reported multiple changes in the household that are due, in part to her opportunities to earn income, but also built upon her participation in capacity building activities.

“I have gotten the chance to plan my own things first before I can discuss and convince my husband. For example, in making decisions about selling cattle or goats or if I want to look for farmland to hire and grow crops. Also, he now informs me when he wants to sell any livestock. In the past it was hard and he could not let me suggest selling even one goat...I

did not have a voice and I had very small say in such matters, and I had to be very humble but now I have a little more power in these conversations. These days he sees me selling my own cow and he can see the development I am bringing to the household. Now he also understands my involvement in groups and merry-go-rounds and I tell him the money I have put in the merry-go-round and when it is my turn to receive the funds he can see the good things the ladies bring to me in the meeting and he accepts that such an activity is good. This is what I have seen has changed... When we are making decisions, we do them together and I am the one who plans until he agrees to my planning" (IRSSIC_F1_5).

Discussion

The aim of this paper was to better understand women's engagement in participatory rangeland management (PRM) processes and implications for broader social change. We drew upon qualitative data collected through key informant interviews, focus group discussions and semi-structured interviews. We adapted and used a participation framework to analyze women's participation in rangeland activities and institutions and beyond, specifically the household, to better understand implications for social change or women's transformative agency. We first described the context of the communities in which PRM was carried out, namely gender practices surrounding livestock and women's engagement in leadership in their communities. We then focused upon understanding women's engagement in PRM. How do women participate in decision-making processes in PRM, e.g., stakeholder meetings, development of the management plan and committee meetings? We then ask what changes, if any, has women's engagement in PRM brought about in gender relations in households and communities? We draw upon the results from these questions to respond to our final question. How does participation in PRM support, or not, social change, that refers to changes in women's agency in rangeland institutions and the wider community?

The Discussion is composed of 3 sections, the first summarizing key findings about the context, followed by elaboration of key findings using the participation framework. We finalize with limitations and suggestions for future research.

Context

The 4 study sites share similar features such as the effects of extreme climate change. Important differences exist in Kaborian and Paka Hills, where insecurity is a frequent threat. Our data show that women's and men's roles in livestock practices and changes in uptake of leadership positions have occurred over the last decade. Changing gender roles in response to hardship such as climate change and resource availability and migration are indeed, pushing women into more decision-making domains in the household. Exposure to information through new technologies, NGO sensitization efforts, and awareness of Kenyan gender laws, namely '2/3 gender rule', are generating more demand from women and men in communities to support women's opportunities in leadership and collectives, for example.

The contextual analysis indicated that women's agency is increasing at different rates and in different domains across the contexts and may explain, to some extent, challenges to increasing women's agency in rangeland institutions. Broadly speaking, cultural contexts in Kaborian and Paka Hills reflect more restrictive customs surrounding gender roles, however analyses of changes in households reflects diverse

trends in intra-household labor sharing and decision-making, that suggests that changes are occurring unevenly across community and household contexts.

Participation in rangeland institutions

We used and adapted a participation framework to describe the different ways that women participate in decision making processes about rangelands. Participation has important implications for enhancing women's transformative agency, that Kabeer (1995) refers to as agency that challenges prevailing inequalities in resources and agency rather than leaving them unchallenged. Overall, we found that women meaningfully participated in different aspects of PRM processes. PRM has increased women's voice and agency in governance of rangeland resources and potential to benefit from rangeland resources. Similar findings were reported in Waweru, et al., (2021).

Each type of participation is first considered separately to structure key findings, however, in reality women participated in PRM in different ways that, taken together, reinforced women's agency in rangeland management and, to a lesser extent, household contexts. Furthermore, PRM steps and processes are not linear, rather they are iterative. For example, capacity building activities are a frequent and ongoing set of activities, not necessarily only in the early stages of PRM.

The first 3 levels of participation, considered 'less active', were in fact, extremely important to supporting women's active participation in subsequent PRM processes. We will discuss each of these in turn. Nominal levels of participation were assessed by looking at executive committee composition in the respective conservancy, association or rangeland. In all cases, women's participation, at least 30%, in rangeland management institutions were novel, because these forums were reserved for men prior to PRM. Women's entry challenged beliefs that women should not, or are incapable of, making decisions about resources.

Passive participation considered women's participation in two different, complementary, types of meetings, gender sensitization and capacity building. Frequent references to gender sensitization were made by women and men and it was cited as being critical to supporting men's acceptance of women's engagement in PRM. Capacity building provided access to important skills that underpin livelihood improvements. Knowledge sharing and enhancing technical skills were essential to support women's entry into domains that were previously reserved for men, such as beekeeping. Women and men participated in PRM activities, that were also important for community cohesion and building support for rangeland management. These were also an important means through which women earned and controlled income.

The 3 'active', more empowering forms of participation, consultative, active and interactive,

are considered together and referred to women's contributions in management planning, leadership in rangeland forums, and collective action initiatives. In many cases women actively contributed to resource management and planning by identifying resources they value and advocating for protection of those resources. Support for existing groups and the creation of new collective groups were instrumental in enabling women to take up new income generating activities, such as previously mentioned beekeeping.

Beyond PRM: Women's participation in household decision-making

Beyond PRM, we asked what changes, if any, has PRM brought about in gender relations in households and communities? Women interview respondents indicated that were some changes, however persistent challenges exist and continue to prevent women from leaving the house and participating in PRM and other activities in the community.

Some changes in gender relations were evident in at least 2 domains, time and labor, and decision-making. Changes in men's behavior, such as increased support of women's time spent outside of the household, is an important and influential factor that influences women's mobility and potential to benefit from PRM

activities. Women expanded their agency through knowledge acquisition, income earning opportunities, and participating in collective action initiatives. Women's earning opportunities bolstered men's support of women attending and participating in meetings.

Women's time investments in PRM activities remain a challenge in the communities because of expectations of women to manage household duties. However, in a few instances women reported changes in their husband's behavior, specifically husbands taking up household chores and helping around the house. Furthermore, women reported changes in decision-making about income, especially when they earn the income. Women may also allocate funds to hire labor for household chores, which deserves further attention to better understand how income impacts household budgeting.

Participation, women's agency and social change

Our broader aim was to understand how participation in PRM supports, or not, social change, that refers to changes in women's agency in rangeland institutions and the wider community. We summarize three main observations and their implications for development below.

Contextual analyses revealed some changes in women's agency in livestock decision making and leadership in pastoral systems in Baringo County. PRM built upon these efforts to expand social change to rangeland resource management institutions. Some changes, in part, are motivated and enforced through laws such as gender quotas, that, while well intended to ensure women's representation, are not a guarantee of women's meaningful participation in rangeland institutions. Given the more restrictive normative contexts in Paka Hills or Kaborian, in fact, we assume that a quota as a standalone intervention would do little to ensure that women advocate for conservation of resources they use, as we found in our dataset. Gender sensitization in PRM was essential to gain more support from communities to support women's entry into resource management decision-making spaces and their voices in these spaces, that emphasizes the importance socio-technical bundling, or "bundles of mutually reinforcing technologies, policies, knowledge, social institutions and cultural norms" (Barrett et. al., 2021: 974). Without due attention given to social norms and relations in a community, it would be relatively easy for a technically oriented solution to replicate and reinforce power relations, while simultaneously meeting gender quotas that suggest otherwise, for example.

Participation in multiple PRM activities reinforced women's agency in pastoral rangeland institutions in different and diverse contexts. Participation can be both a means and an end to a continuing dynamic (Cornwall, 2008). Gender sensitization, capacity building activities and income earning opportunities were important in changing men's behavior that, in turn, influenced women's agency. "Participation through receiving information, a feature of passive participation... opens up the possibility of collective action... rather than being simply a 'lesser' form of participation (Cornwall, 2008; 272)." In PRM such 'passive' forms of participation were critical to enhance knowledge and skills to start new activities in collectives, for example. Women's entry into beekeeping was prefaced by a complementary set of activities that included gender sensitization, capacity building, and material support provided for collectives. In addition, through activity specific types of participation that increase women (and men's) access to income, women often gained more support from their spouses to leave the house. In some cases, men assumed responsibility of household chores. Projects that aim to holistically address challenges in pastoral systems, that include opportunities to increase income, capacity and collectives can, overall, support increased resilience in the face of climate change.

Women's agency in rangeland governance institutions can lead to tangible and measurable reductions in time and labor sourcing rangeland resources. Women's meaningful participation in RMIs ensures that gender specific knowledge, where it exists, informs stakeholder processes and prioritization in management plans, that has meaningful impacts on rangeland livelihoods and resource conditions. In our

study, water scarcity is common. Women are, by and large, responsible for fetching water across many contexts in East Africa. Protection of springs, regulation of access, and protected user rights may conserve resources used by women and potentially reduce women's travel time in search of water resources that is often exacerbated during drought. Rangeland restoration efforts that aim to improve rangeland conditions and livelihoods must consider the value of gender-specific knowledge to overall rangeland health.

Limitations and further areas for research

Recognizing the limitations of frameworks and the need to embed frameworks in temporal, often rapid and unanticipated change, is essential to understand social processes in pastoral systems. Pastoral contexts are dynamic and marked by uncertainty such as the effects of climate change, new forms of pastoral mobility and livelihoods, and increasing patterns of commoditisation and social differentiation (Scoones, 2020). Intra and intercommunity level relationships are important spaces for empowerment, and disempowerment, especially when considering conflict and migration, displacement, and negotiation of contested rangeland resources. In addition, women's levels of participation in PRM activities are likely to vary across time and space. Relationships among different social groups in meetings and activities, for example, will vary because of power dynamics within communities. So, while a woman may be active in one meeting, in another meeting, due to social relations and dynamics, the same woman may be a more passive participant.

Decisions about access and use of resources are spaces of contestation and efforts to include groups that may be marginalized from decision-making forums will be important. A limitation of our study is that we primarily focused on understanding the experiences and perspectives of PRM members, whereas the perspectives and experiences of those not included in the PRM processes was not a focus of this paper. Further analysis of our data sources will be performed to better understand social inclusion and exclusion dimensions of PRM. Additional and further research into understanding the ways in which education, in-migrant status and socioeconomic status influence who participates in PRM is recommended. Furthermore, given that climate change is a key driver of changes in this context and other rangelands contexts, we also recommend an intersectional analysis to better understand how different individuals and groups may relate, manage and cope differently in response to climate change (Kaijser & Kronsell, 2014; Van Aelst & Holvoet, 2016).

Conclusion

We sought to better understand women's engagement in participatory rangeland management (PRM) processes and implications for broader social change. Overall, we found that women often actively engage in PRM and that PRM largely builds upon and strengthens women's agency in communities. However, there are important exceptions and challenges to women's agency in these contexts. We articulate 3 key findings and recommendations for development interventions to better support transformative shifts in women's agency and broader social change. First, contexts influence the potential for social change and socio-technical bundling is essential in gender normative restrictive contexts. Second, multiple, complementary forms of participation reinforce agency and potential for social change. Lastly, women's inclusion in rangeland management institutions has potential for strategic and measurable impacts upon women's time and labor allocation. Further intersectional analyses into understanding adaptation to climate change and opportunities for socially inclusive efforts to enhance resilience are briefly elaborated.

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