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Indigenous Institutions and Rangeland Sustainability in Northern Tanzania

Kisiaya Saruni
Assistant lecturer, Department of Sociology and Anthropology, UDSM
Saruni06305@gmail.com

Abstract
This study attempts to underscore the role of indigenous institutions on rangeland governance and sustainability among pastoral communities in northern Tanzania. Ostrom's institutional approach to governance of common-property rangeland resources is used as a conceptual framework to analyse indigenous institutional arrangement in relation to rangeland sustainability. Qualitative methodology is employed to capture narratives from indigenous people. A sample of 54 interviews and life histories as well as four focus group discussions from four research sites were obtained using a purposive sampling technique. There is strong evidence to substantiate that indigenous institutions play key roles as custodians of rangeland governance and are responsible for instituting norms and rules governing access and withdrawal of common-property resources and solving rangeland disputes. Therefore, Indigenous institutions should be recognized as an integral component of local resource governance. Furthermore, indigenous rangeland cooperatives should be formed to help preserve indigenous traditional institutions, which are crucial for sustainable rangeland governance.

Key words: *Indigenous institutions, rangeland sustainability, pastoralism, common-property resources.*

Introduction

In recent years, we have seen a scholarly movement that acknowledges the role of indigenous institutions[1] on environmental governance, sustainability, as well as on decision making. Scholars attest that, there are more than 370 million indigenous people around the globe (Lanzano, 2013:1; Sirima, 2015:4; Godana et al, 2016:5). While there is a fiery debate regarding issues of inclusion on indigeneity within the field of anthropology (Lanzano, 2013), a seminal paper by IFAD (2012a) indicates four definite clusters of indigenous communities in Tanzania, namely The Maasai, The Hadzabe, The Akie and The Barbeig.

Studies uphold that indigenous traditional land contains about 80% of the global biodiversity. Indigenous people themselves hold profound holistic and locally ingrained knowledge of their environment (Blaser, 2012:1; Bruyere et al, 2016:2). Among them, indigenous pastoral communities aggregate more than 50% of the global indigenous land (IFAD, 2012b; Sirima,

[1] Indigenous institutions refers to the routinized and institutionalized arrangements rooted in the local culture of indigenous people and are responsible for safeguarding resource governance in a given locality.

2015). These communities rely on pastoralism partly as a foundation of their livelihoods and partly as an accessory for human-ecological interaction.

Scholars on pastoralism such as Galaty and Johnson (1990); Fratkin (2001:3); and; Mapinduzi (2003), argue that Africa comprises one-half of the global pastoralists. Fratkin (2001), for instance, attests that about thirteen million Africans are preponderantly pastoral communities. These communities occupy grassland/savannah and semi-arid areas where rainfall is sporadic.

According to the Tanzania Livestock Modernization Initiative (TLMI), Tanzania is ranked third in prime livestock figures after Ethiopia and Sudan in Africa. The country has 25 million cattle, 98% of which are indigenous breeds. Additionally, it has 16.7 million goats, 8 million sheep, 2.4 million pigs, and 36 million chickens. However, traditional breeds dictate the Tanzania livestock sector (URT, 2015). Tanzanian short horn Zebu is the most prevalent cattle strain in the nation. Equally, Tanzania National Livestock Policy (2006:1) indicates that the country is endowed with plentiful natural resources, including land, forage, and a large livestock resource base. Out of the total 94 million hectares of land resource, 60 million hectares are potential for rangelands in Tanzania (ibid. p.2).

Globally, rangelands cover 24% of the world's land area (Godana et al, 2016:1). According to the World Bank (2007 as cited in Godana et al, 2016), 200 million people and 50% of the world livestock population depend on rangelands of which the majority is found in developing countries. Rangeland scholars (Mwangi and Ostrom, 2009; Homewood and Rodgers 1990), demonstrate that rangeland ecosystems hold 40% of Africa's landmass and support nearly 50% of the continent's population.

In a more general sense, rangelands are defined as grasslands that are browsed by domestic livestock. The term is sometimes used interchangeably with pasture land. Not every piece of land is a rangeland; a rangeland has to possess certain quality grasses, topographical classification and culturally defined identities for grazing livestock or wildlife. What is so unique about rangelands used by pastoralists is the fact that they are culturally connected to the community livelihoods[2]. They also constitute values and norms that mediate the interaction between human pastoralists and their environments. It is argued that rangelands typically contain low precipitation, narrow soil and low nutrient cycling (Ngaido, 2010). Rangelands derive from the interplay of aspects such as climate, the convenience of nutrients, water, fire, herbivores (livestock or wild animals) and human population (VPO, 2014; Mwangi, 2016). The constitution of all these aspects forms the rangeland ecosystem, which becomes much more

[2] Livelihood is a broad concept entailing adequate stocks and flows of food, health, resources to meet human's basic needs. It also encompasses a secure ownership of or access to, resources and income earning activities including reserves and assets to offset risk, ease shocks and meet contingencies (Chambers, 1991). In this case, indigenous pastoral livelihoods connote any capabilities, available resources, and knowledge practices significant to addressing pastoralists' needs including the food system, health care system, land tenure system, rangeland productivity, and livestock productivity.

complex; accordingly, requires careful management to regulate access and withdrawal of rangeland resources.

Rangeland management connotes initiatives necessary for the governance of rangeland resources (Ostrom, 2009). Rangeland scholars ascertain two dichotomies on rangeland management. One is based on 'modern' management which is popularly termed as "integrated rangeland management", "sustainable rangeland management" or "Participatory Rangeland Management" (Hardin, 1968; Homewood and Rodgers, 1991; Ngaido, 2010; Godana, et al, 2016). The other one is "indigenous traditional rangeland management" (Ostrom, 1993; Ronoh, 2010; Bruyere et al, 2016). The former is generally based on modern land management planning of which the range is commercialized and in many cases privatized and enclosed for profit pursuit. The latter is based on common access, communal management, and traditional mutual governance of the rangeland resources.

However, there is an increasing evidence which suggests that indigenous pastoral rangelands in East Africa, are unsustainable (Fratkin, 2001; Oba, 2012; Mwamfupe, 2016) due to continuous contravention by other users with vested interests that lead to the diminishing of pastoral commons.

In the East African tropics, indigenous pastoralists, occupy open rangelands that are significantly potential for many wild animals (Veccaro, 2013). The presence of wildlife parks alongside indigenous community has, in most cases, rendered resource conflicts between local people and wildlife conservation authorities, tourist operators, international conservation NGOs, and private interest groups (Nelson et al, 2007). These raise the question of rangeland sustainability and the extent to which indigenous institutions are positioned in the dynamism surrounding sustainable governance of local natural resources. Although some scholars such as Mwangi and Ostrom (2009); Ronoh (2010); and Fratkin (2001), have attempted to study pastoralist institutions in East Africa, there is scanty information particularly on the state of such institutions in the current context. These raise the question of rangeland sustainability and the extent to which indigenous institutions are positioned in the dynamism surrounding sustainable governance of local natural resources.

The objective of this study is, therefore, to examine the state of pastoralists' indigenous institutions in relation to rangeland sustainability in the current context and the manner in which indigenous institutions can be used as mechanisms for ensuring sustainable rangeland governance in northern Tanzania.

Indigenous Institutional Approach: A Conceptual Framework

In her volume entitled "Governing the Commons: The Evolution of Institutions for Collective Action," Elinor Ostrom (1990) introduces an institutional approach to the governance of common property resources. She underlines the centrality of commons' self-governance as opposed to external intervention. Crucial to her argument is the significance of traditional institutions on the management of indigenous common-pool resources such as rangeland. As opposed to Hardin (1968) who claimed that commons and/or indigenous pastoralists are irrational and have no ability to manage their own resources and thus a need to intervene is

essential, Ostrom points out that commons have a strong indigenous institutional framework that guides their actions and interaction in the course of access and withdrawal of resources from rangeland. These institutions possess strong social norms, values, taboos, sanctions, rewards, beliefs that partly control and partly facilitate the use of common-property resources in a requisite manner. In this study, an institutional arrangement approach was used to study the role of indigenous traditional institutions on rangeland governance and sustainability. An attempt was made to underscore the state of these institutions in the changing socio-political and ecological context.

Methodological Approach

The data used in this paper were generated from a qualitative study that was conducted (between April and May 2017) among the indigenous Pastoralist of the Ngorongoro, found in Ngorongoro district. Ngorongoro Conservation Area (NCA) is a conservation area co-existed by both indigenous pastoralists and wildlife. The area was specifically chosen because it contains multiple actors in rangeland resources and tourism capitals. NCA represents many other pastoral rangelands that are facing serious political ecological dynamics between the indigenous pastoral communities and the conservation authorities as well as investors. The study had four research sites. The first is Alailelai Ward, found in the Ngorongoro conservation northern highlands adjacent to the Empakaai crater rim: bordering on the Olmoti crater rim and extending to Orpukiel plains. The second is Nainokanoka Ward, found around the Ngorongoro highlands forests, bordering the Ngorongoro crater to the North. The third is Oloirobi Ward; it is located around the NCA headquarters. The last one is Endulen Ward, neighboring Alaitole footprints, the Serengeti National park to the East and Oldupai gorge to the West.

The population for this study consisted of traditional elders, community members, rangeland scouts, NCA management, Ward livestock officers, Ngorongoro pastoralist council, community seers, and diviners. The selection of such categories of respondents is worth justifying. *The traditional elders* were necessary because they are custodians of indigenous traditional knowledge and underlying social norms and culture of the Maasai community. *The traditional rangeland scouts* were targeted to obtain lived experiences of matters related to traditional rules as well as norms governing access and utilization of rangeland resources. The *ward livestock officers* were selected to seek information on matters related to sustainable livestock range management, the state of animal health in the respective ward, and changing pattern of livestock health in relation to rangelands' dynamics. The *NCA Management* was recruited to obtain information on matters related to conservation policies and the rights of indigenous people.

The study employed a purposive sampling technique (Mason, 2002). The eligible informants were those who were familiar with the problem under study and from whom the researcher thought he would obtain rich and in-depth information to address the study questions. The researcher targeted key institutions and stakeholders as well as community members who appeared to have experience in the structure and organization of indigenous institutions in relation to rangeland governance. The participants were interviewed based on their lived experiences and knowledge about the practices of indigenous knowledge and about the Maasai

rangelands. The participants for this study were determined by the theoretical sampling. The data generation process stopped when the information was saturated. The researcher conducted 54 in-depth interviews and life histories combined with various categories of respondents from the four research sites. In addition, in each of the selected Wards, one Focus Group Discussion (FGD) was conducted with (6-8) participants; these were elders and traditional leaders. In conducting the Interviews, the researcher used an interview guide (IG). It comprised of open-ended questions focusing on the objectives of the study and the research questions. The guide allowed probing further and deeper to acquire much information and the underlying meanings of the indigenous knowledge practices. The researcher avoided leading and complex questions, and he flexibly modified the format of questions in line with the encountered sociocultural connotations. The participants were interviewed independently and their responses were recorded accordingly. The method ensured a holistic view of the study. Interviewees were accessed in their respective *bomas* or offices, or households' settings.

FGD helped the researcher to capture shared narratives/ opinions/experiences of traditional elders concerning the state of indigenous institutions. The strength of this method was that the participants under the moderation of the researcher arrived at a consensus. These gave the researcher assurance and credible data. The FGDs were executed by organizing the traditional elders/council of elders at the village's traditional meeting points (Iloipi in Maasai) in every ward. The key cultural informants enabled the researcher to get easy access to the traditional. The FGDs were conducted in the afternoon to allow the elders to perform their livestock husbandry chores during mornings and the evenings.

Life Histories is considered suitable for exploring indigenous deliberate arrangements rooted both in a historical catalog and in livelihood changes resulting from socio-ecological transformation (Creswell, 2014). The narratives from life histories were crucial to this study because of the need to understand the nature of indigenous institutional arrangement from a historical perspective as well as the changing nature of livelihood strategies and traditional institutions on rangeland management in the current context.

Observation was used throughout data collection process. Observation helped to discern the livelihood strategies of the indigenous pastoralists and rangeland management systems. Apart from enabling the researcher to observe a number of key issues in the target population, it also enabled establishing a working relationship with the participants.

The data collected via in-depth interviews, narratives, and FGDs were audio recorded, transcribed, and analysed using thematic analysis. Data analysis started with familiarization of data through reviewing, reading the transcripts and listening audio recordings. Then the audio recorded materials were transcribed before organizing the transcripts into the data extracts depending on the patterns and association of transcripts. This allowed easy retrieval and categorization of emerging themes. In extracting the data, provisional categories were recognized and refined into themes. The writing started including excerpts from original data such as; quotations, stories, and transcripts generated from IDIs, FGDs, and life histories. Data collected via observation were also thematically analysed. The conceptual framework for the

study as well as the methodology, research objectives, and questions guided the analysis of data. Conceptualisation of the underlying pattern of data was done basing on the study objectives and questions.

The Socio-Political Structure of Indigenous Institutions

Northern Tanzania (Arusha, Kilimanjaro, and Manyara) is globally eminent as a wildlife and tourism corridor due to its richness in biodiversity conservation; it has national parks such as Ngorongoro, Serengeti, Kilimanjaro, Manyara, Tarangire, Arusha etc. Equally, the area is famous due to the presence of a strong cultural organization among the Maasai community and others. In particular, the Ngorongoro Conservation Area was firstly canonized in 1979 as as World Heritage site (WHS) by the "World Heritage Committee at its 3rd session" (IUCN & ICOMOS, 2012). The justification for its inscriptions resonates from natural principles and criteria number seven, eight, nine, and ten of the World heritage sites. The key criterion is due to its importance for biodiversity protection and wildlife density residing in the place (ICOMOS, 2012; Olenasha, 2013). Consequently, in the year 2010 at its 34th meeting (Brasilia, 2010 cited in ICOMOS, 2012), the WHC scrutinized the re-canonization of NCA to integrate the '*cultural criteria'*, and being inscribed under norm number four, due to presence of intangible cultural heritage among the Maasai indigenous *(*UNESCO, ICOMOS & IUCN, 2012). The criterion for cultural heritage was also prompted by the presence of indigenous pastoralists in the NCA who over the centuries practised traditional grazing with peculiarly coexisting with wild ungulates.

Since the first inscription in the year 1979, and consequently from the 1980s and the 1990s the liberalization of wildlife conservation in NCA took root (Nelson et al, 2007). This was prompted by a paradigm shift on Protected Areas (PAs) management philosophy caused by the international categorization of the area (Humphries, 2012). The liberalization of NCA led to commercialization of indigenous rangelands and burning of entrance, some human activities and access to certain rangelands (Olenasha, 2013:2). This raised the concern that the indigenous people threaten the wildlife ecology (Homewood and Rodgers, 1990). Still, there is no evidence to support the claim that indigenous people pose threat to the existence of wildlife in NCA (Veccaro, 2013:3), but rather the claim seems to justify the interests of those favouring wildlife conservation investments and earnings over community interests in the place.

The NCA indigenous are dominantly livestock keepers. The major means of production is rooted in the indigenous practical skills to manage livestock and ensure the productivity of the range through communal ownership of the rangeland resources. The society is organized into patterned relationships based on social norms, customs and traditions. The age-set system informs the political system within the community. Traditional age-set guardians are selected by virtue of their respectability and family genealogy. Every age-set therefore has its own guardian and age-set spokesperson, that among other functions he safeguards the cohort through a series of initiation ceremonies through the stage of eldership.

Clan leaders also form part of the political structure. Seers and diviners, though literally not cultural political bearers, have a colossal role within the society. Their roles as spiritual

guardians and therapists, call for a high respect to them among members of the community which make their decision making role highly recognized.

The production system is centered on mutual support and communism; however, some pattern of individual ownership was noticeable. Division of labor, based on the age-set system, is the unity of production among the NCA indigenous.

Rangelands are clustered in such a way that each village and ward has their joined rangeland zones and respective water boreholes and ponds. The traditions and culture and the corresponding practical knowledge on ecological explorations and management ensure that the indigenous are deeply attached to nature and the environment. Therefore, NCA was suitable for the study since it sought to attempt to explore the role of indigenous knowledge on rangeland management. It sought to discover to discover the manner in which these politics of conservation vis-à-vis indigenous traditional management of rangelands overlap and to explore the situation and role of indigenous institutions in the sustainable governance of rangeland resources.

Indigenous Institutions and Sustainable Rangeland Governance

The Irmorwak (elders) Institution

Elder's institution is the custodian of the Indigenous Knowledge (IK) and the Maasai culture holistically. As guardians of the community, the participants attested that elders play a significant role in rangeland governance and sustainability. This traditional authority is the statutory apparatus responsible for counseling, decision making, and guided their community through the distribution of rangeland resources. One elder, during focus group discussion, stated as follows:

> *"We are the resource guardians in this place, we advise our community on the requisite ways to utilize forage resources in a sustainable manner. We make some decisions and directions towards the distribution of forage for livestock. This is to make sure that members of our community enjoy the available resources in a communal way without mismanagement." (FGD/Elders/Nainokanoka Ward/April, 2017).*

On the other hand, elders play a vital role in imparting indigenous knowledge to the younger generation through teachings, rituals, experiences, folklores and social networking as well as through building comradeship among rangeland scouts. This was attested by one interviewee who had the following to share:

> *"Usually elders possess a stock of indigenous ecological knowledge that they have learned over history through practical experience. In this place if you need to know something about rangeland biodiversity including medicinal plants, animal species and grass species, you just consult the elders and arrange a meeting…..making stories especially during the noon in the shadow under the tree or late evening when the cattle are back home and pastoral chores are done,*

> *you sit with him in the middle of the kraal and drink some hot milk and little local brew (Ngotorokii). I tell you, you will get all the stories and knowledge about rangeland ecology. At some point, you go with him at around the range and he would make descriptions about plant species and other ecological organisms" (IDI/community member/Endulen ward/April, 2017).*

Furthermore, it was noted that the elders are responsible for settling rangeland conflicts and disputes. Disputes ranging from misappropriation of rangeland resources as well as poor management of rangelands are handled by the elders. This is done by instituting sanctions and punishments to those who violate the norms and rules governing forage resources. They summon the deviants and scrutinize them in the council of elders. Murrans are ordered to take actions for the decision made over the deviants of rangeland norms. This might range from corporal punishments, fines (usually one provide a cow as a payment for violation of rangeland norms), and cursing the deviants. Cursing were more prominent and is highly feared by many people and of course, makes elders more respectable and feared in the community whenever they make any pronouncement regarding rangeland norms. Elders, therefore, maintain a symbolic role for societal harmony and tranquillity. One participant was of the following opinion:

> *"Over a couple of months ago we had a stiff conflict between our village and people from Olbabal Ward over our rangeland (the Olchaniomelock village, Alailelai Ward). These people use to come with their stocks during some dry seasons and occupy most of our rangeland. The problem is that they come with a huge number of cattle in such a way that they overgraze our forage and led to the scarcity of grasslands. We decided to evict them back their place, we told them they have to go back but they did not obey us. We then we organized a team of range scouts to torture them severely but thanks to our elders who intervened by summoning inter-ward meetings between Olbalbal people and ours to resolve the conflicts. At the end of the day we reached consensus and they obeyed our rules and norms regarding rangeland resources" (IDI/Rangeland scout/Alailelai Ward/April, 2017).*

It is an undeniable fact that eldership in the Maasai community is a vital institution for the management of common property resources. However, evidence from the findings show that its role has rather been challenged by various forces ranging from disintegration of customs and traditions and respects, diffusion, changing pattern in the system of production and livelihood strategies based on individual pursuits other than communal options, encroachment of rangeland resources by other authorities and investors which make the role of elders as key custodians of rangeland diminishing and the plight of Murrans (running to towns for Watchmen activities and businesses) other than maintaining order and social norms and safeguarding community resources.

The Iloibonok (Seers and Diviners) Institution

The Ngorongoro indigenous people have both spiritual and traditional experts namely *Iloibonok* (singular *Laiboni*) who according to the narratives, have utilized their indigenous knowledge to construe nature and counsel the community. Interviews show that *Iloibonok* originates from the Orok-kishu[3] section of the Maasai community. They are notably exclusive for spirituality and societal divinity. Iloibonoks are installed for spirituality the moment they were born. One of the eligibility for a person to qualify as an Oloiboni is belonging to the family and genealogy of the spiritual forebears and Orok-mong'i (Black bulls) section as well as his family to reserve high level of clan and community respectability.

It was observed that *Iloibonok* institution may take on different forms. As a highly respected unit of the society, there are those who have been installed as the age-set guardians on matters relating to age-set initiation ceremonies and graduation. Oloiboni oversees the cohort through a series of the traditional rite of passages as a spiritual guardian and more importantly prepare them to comprehend ecological dynamics and mark important rangeland ritual sites. Other cosmologists just perform community consultation and solve individual cases whenever they are required to do so. One of the notable symbolic significance of the Oloiboni is to connect the community with the environment. A participant during interview had the following opinion relating to the roles of Oloiboni:

> *"Iloibonok are the heart of our community. Without them, none of us would exist on earth. God brought them and connected them to the environment for our very existence. They do read, understand and interpret the dynamics of the environment including meditation while detecting starts, plants at night and they warn the village about climate and rainfall patterns and other impending issues that may distress community life" (IDI/Female/Endulen ward).*

Although their role commands great traditional political authority, they are not often presented as political bearers but rather spiritual diviners and prophets. They prophesize and recommend the way livestock should be grazed and sometimes relevant rangelands rituals to be undertaken within a specific period of time. One of the participants had the following to share:

> *"Iloibonok initiates rangeland rituals (namely Ilokorri in Maa); they mark ritual sites at the rangeland zones that help the community to harmonize with ecological variability. Normally we consult them whenever we need to conduct a certain ritual over the rangeland. They give us relevant spiritual guidance, what we should do and what are the necessary ingredients for the ritual performance. For instance, when we want to perform a sacrifice service in the Alalili site,*

[3] There are two major sections within the Kisongo Maasai, the Orok-mong'i (The black bulls) section and the Odo-mong'i (Red-bulls) section. The black bulls section is remarkably known for producing seers and diviners and then the whole community including the red-bulls section assent and honor them as the crucial indigenous institution for community governance and divinity.

> *Oloiboni does provide us with the appropriate roots of trees and leaves with which we would utilize." (IDI/Rangeland Scout/Nainokanoka Ward/April, 2017).*

Some Loibonok families have special practical skills of reading animals. For instance, a sheep with no blemish (has not given birth) is marked and slaughtered and the cosmologist is asked to come and read the intestine before any other part of the sheep has been detached from the butchery site for roasting. The various parts of the sheep's intestine are regarded as huge everlasting rivers, small enduring streams, and sporadic streams. The indigenous cosmologist is able to foresee the climatic variability and rangeland dynamics through the interpretation of the intestine's colors and arrangement.

Iloibonok institution dictates social norms and rules governing the access and withdraws of rangeland resources due to the fact that, Iloibonok are highly respected and their commands inform the local practice of rangeland management. This is in line with their spiritual powers and knowledge in the construction of nature and rangeland ecology.

Although Iloibonok institution has been regarded by the Maasai indigenous as an important institution for rangeland management, the findings show that its role in the community is decreasing and probably taking a different form due to the dynamics in the sociopolitical and ecological context. It was pinpointed during In-depth Interview that many youths no longer trust the Iloibonok; they can hardly consult them in their undertakings as relevant spiritual guardians. This was attested by many participants during interview, for instance, one elder had said:

> *"My son the world is over; the young generation no longer respects the traditions and belief system of our community. Look, most of them have been affiliated with these intruding religions and circumvent Iloibonok as their spiritual guardians. Even rules and norms governing rangelands have sometimes become compromised, no clear directions from Iloibonok are being implemented by these range scouts, I don't know really where we are heading to" (FGD with Elders at Alailelai ward).*

This suggests that the future of traditional institutions such as Iloibonok as key spiritual leaders of the community is unsustainable given the external pressures and dropping community conscience. Therefore their role as key rangeland diviners is probably diminishing. This is also supported by a recent article by Godana et al (2016) on the factors affecting traditional rangeland productivity in Ethiopia which shows that pastoralist ritual systems are on the decrease due to conservation interference as well as uncertainties caused by climate change.

The Irmurran Institution

Irmurran (singularly Morani) is one of the vital institutions in the Maasai rites of passage. Irmurran were widely cited as key for protection of society, grazing the livestock including traveling with them long distance in search of pasture and water and as initiates of traditional graduation ceremonies. Findings illustrates that after every 17 years, a new cohort/age-set is formed within the Maasai community. The formation/initiation of age-set is pertinent to the

pressures and the strength of opposition from the emerging freshest age-set. They stress their predecessors to retire and allow them to take over community responsibility. Irmurran institution is like a government in power. They have authority over certain community matters but with a careful instruction from elders and their spiritual guardians.

It was established that the moment of Irmmurani-hood is in line with a series of rites of passage and graduations from junior Murranihood to the culmination into senior Murrani-hood and consequently, junior elders after Orng'eshet[4] ceremony. It is a life moment for these youth to receive indigenous learning and training regarding indigenous environmental knowledge and the manner in which they would protect the society against calamities related to climate change and dangerous wildlife ungulates.

As an impregnable institution, participants attested that Irmmuran upholds a stern role in the management of rangeland biodiversity within the Maasai community. Their role is crosscutting, as it was noticeable that a warrior/ Murrani would performing many tasks assigned to him by those superior without any hesitation and perhaps be answerable to whatever tragedy that might threaten the community. One of the Murrani during data collection had the following to experience:

> *"My big role is to raise cattle, search them appropriate forage, protect and secure the community livelihoods. This is the functions of the real strong soldier; I do patrols over the rangelands to make sure that Meadows for our livestock are secure" (IDI/Rangeland Scout/ Oloirobi ward/April, 2017).*

Interviews strongly indicated that the *Irmurran* system is a central platform through which the youth are provided with wide-range of IK emanating from the cultural arrangement and practical experience from nature. This is aimed at preparing members of the society who would present and defend community identity and character (Ronoh, 2010; Lanzano et al, 2016). To acquire this role Murranis are trained a number of lessons but stress is placed on ecological knowledge and indigenous management of rangeland. One elder during FGD summarized these as follows:

> *"…….Our culture has got a good way of imparting indigenous ecological knowledge to our youth, we train them to be patriotic and possess deep love to the community and its properties. During initiation training and age-set demonstrations, we teach them practically to observe and understand the realities of the environment, how life is attached to the rangeland and how livestock warrant the existence of our community. You can remember the last week's ceremonies regarding Orng'esher; we conducted good training to our*

[4]Orng'esher is one of the popular events in the Maasai traditional rites of passage. Among other things, the occasion blots the culmination of the existing warriors/Murrans and the consequent valediction towards junior eldership. This process is intricate of several symbolic ritual practices and however appeals serious attention within the Maasai community and explicitly to the graduating cohort.

> *youth. That is why you see the stability of our community because we possess an intergenerational conscience about our community lands and life."(FGD/Elders/Nainokanoka Ward)*

Ronoh (2010) concur with the above account by arguing that the Maasai teachings "inculcate in male Maasai youths a distinct love for their society, a disposition that is marked by unswerving loyalty and readiness to defend it at all costs." These lessons provide Irmurran with a deep knowledge of the components of ecosystems. They receive IK on plants variety and animal health, diseases, and their treatment, quality of forage and browses and the essentiality of salt licks and saline springs for animals breeding and health (*Ibid*).

Irmurran also executes a symbolic role on rangeland rituals as key actors and organizers of the practices including collecting key ritual grasses and roots of ritual trees, consulting the spiritual guardians and safeguarding the event as well as slaughtering ritual goats and preserving ritual sites. These roles are said to be crucial in maintaining the harmonious relationship between rangelands and the community's culture. It also imposes rules and norms that govern the access and withdrawal of rangeland resources.

Nevertheless, empirical evidence indicates that the role of Irmurran institution on rangeland governance among the indigenous Maasai of the Ngorongoro Conservation Area is somewhat somehow declining. Both focus group discussion and in-depth interviews show that due to livelihood adversities and pressures from NCAA (restriction and encroachment of rangelands) many Murrani/youth are running into towns and cities in search of some paying works, for instance, working as watchmen in towns, selling beads and traditional herbal medicines. This has led to a reduction of rules governing rangelands and increasing conflicts over rangeland resources.

The Ing'oroyok (women) Institution

Women possess indigenous knowledge for monitoring the eminence of livestock dungs and drops. Interviews show that women use cow dungs to make traditional huts, however, in every morning they get into a cattle kraal to collect dungs. Depending on the quality of dungs collected they recommend the direction of rangeland that would be better for livestock health and quality of milk. As one of the participant during interview shared the following views:

> *"I usually collect cow dungs to make my house warm and beautiful. During the rainy season, cow dungs are of high quality because of the livestock access good and healthy grasses. In the dry season, one can hardly find good or quality cow dungs unless cattle are being grazed somewhere with good and quality grasses. So I normally give feedback to my husband about what came out from cow dungs. The tougher and brownish cow dungs specify that the livestock has inadequate admittance to water and green grasslands. Therefore, cows want to be relocated to rangelands with good forage." (IDI/female/Alailelai Ward/April, 2017).*

As noted above, women's knowledge on the quality of livestock yields provides a benchmark for the way rangeland is managed. Women play a symbolic role of key observers of the

dynamics of the rangeland via livestock products and the way livestock behave as they arrive at the kraal/home. Another vital skill which the indigenous women possess is that when milking livestock, they also detect the amount and color of milk and connect with the nature of grassland. They also check the taste of milk and convey the supremacy and presence of certain rangeland species within a particular rangeland zone. This indigenous knowledge was attested by participants during the in-depth interview and one participant said:

> *"Milking healthy cows is my pleasure because I get enough milk as possible. Cows are happy and calves are healthy and I also get healthy milk. As I milk it is good that I observe the color of milk and over time I also measure the quantity of milk I produce from my stock. Once the grasses and water are readily handy, the milk is superbly plentiful and whitish. But if grasses and water are limited, the milk production from cattle falls and the shade of milk turn into beige. I tell the Murrans to consider taking cattle to some other places with plenty grasses and water" (IDI/Female/Nainokanoka Ward/April, 2017).*

Most often, the anthropological literature has colored the Maasai community as both gerontocratic and patriarchal in its organization (Coast, 2001; Potkanski, 1994; Rigby, 1985). In this case, Maasai women have been portrayed as social minors as Talle (1987:51) cited in Coast (2001) would argue. According to Coast (2001), Maasai women do not pass through a strict age-set system like men, yet they also go through explicit stages in life. Other anthropologists see Maasai women as key in playing a ritualistic role in male age-set ceremonies (Ronoh, 2008). The blending of age-set practices with entire Maasai patrilineal extractions have made some scholars believe that such practices are detrimental to women as they force them into subjugation to men for entire life.

Contrarily, some scholars pronounce these interpretations as "reductive" and holding many faults (Kipuri, 1989:67 as cited in Coast, 2001) inhibited by an economically deterministic standpoint. Kipuri locates the social organization of Maasai indigenous as "mutual dependence" and "mutual obligation" that men and women are mutually interrelated and complemented other than estranged as some scholars would postulate.

Ecofeminism has notably reflected the role of women in the social construction of nature. Women are looked as being close to nature and significantly potential victims for environmental problems. Maasai women perform a symbolic significance in the management of rangeland.

Apart from women playing the symbolic role of spotting the quality of livestock products and connecting them with rangelands dynamics, they also play a key role in rangeland rituals as key practitioners in every rangeland rituals, women form part of the ritual team symbolically. Participants held that a Maasai woman is connected with spirituality and contains blessed and productive influences in handling delicate issues. It was noted during the data collection that women roles on rangeland management are vital and still outstanding. However, the issue of power relation in terms of decision making over rangeland resources and management still

obscure their role in terms of deciding what should be done to enhance rangeland sustainability. Women only recommend some rangelands norms at the level of household and therefore their husbands and Murrans are the ones to decide on what should be done with regard to rangeland governance and livestock rangeland zonation.

Conclusion

The attempt has been made in this paper to underline the centrality of indigenous institutions for rangeland sustainability in Northern Tanzania. Evidence suggests that indigenous traditional institutions pursue a noble function in governing the utilization and control of common-pool rangeland resources in a sustainable manner. These institutions regulate and institute norms and rules to govern access to and withdrawal of rangeland resources. They are also custodians of Indigenous Knowledge that is crucial for management of rangeland resources. Findings indicate that the sustainability of traditional institutions for rangeland management is relatively unclear. This is supported by the fact that each of the institutions is facing acute challenges. For instance, Iloibonok (seers and diviners) which is an important institution for rangeland sacredness and spirituality is losing trust among youth due to increasing influence of Christianity and other forms of religion that labels traditional belief system as superstitious. Warriors/Murrans are moving to towns for Watchmen activities which make it difficult for them to sustain indigenous knowledge. Elders still hold a strong role as an institution but they are fading due to aging. The study recommends the recognition of indigenous knowledge as an integral component of local resource governance. Furthermore, indigenous rangeland cooperatives should be formed to help in the preservation of Indigenous Traditional Institutions.

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