International Journal of Environment, Agriculture and Biotechnology
Vol-11, Issue-3; May-Jun, 2026
Peer-Reviewed International Journal
Journal Home Page Available: https://ijeab.com/
Journal DOI: 10.22161/ijeab

Pastoral-Conservation Conflicts in Tanzania are Likely to Continue for Unforeseeable Future: Evidence from Saadani National Park

Michael Muganda

Department of Wildlife Management, Sokoine University of Agriculture, P.O. BOX 3073, CHUO KIKUU, Morogoro, Tanzania
muganda@sua.ac.tz

Received: 01 May 2026; Received in revised form: 26 May 2026; Accepted: 03 Jun 2026; Available online: 13 Jun 2026

Abstract— *Since conservation conflicts occur within a particular cultural, political, and social context, they must be analyzed and addressed within the same context. This paper examines the pastoral- conservation conflicts in the context of Tanzania's national parks using the case study of Saadani National Park (SANAPA), with the view to understanding their nature, root causes, and sustainable solutions to such conflicts. Fieldwork involved multiple methods of data collection: in-depth interviews with conservation management officials, community leaders, pastoralists, and an NGO dealing with pastoral issues; focus group discussions with small-scale farmers (peasants); informal discussions with the wider community; document analysis; and field observations. These were coupled with a four-month period stay in the study area plus the researcher's experience with the wider community. The results indicate that the main conflict between conservation and pastoralism in the study area is the encroachment into SANAPA by livestock in search of pasture and water. The livestock encroachment, however, is seasonal and is done by migrating pastoralists who are not originally from around the park. The conflict happening in this particular case study is more than a resource - use conflict driven by access denial. It is also more than being prompted by changing climate patterns that have caused sustained drought in pastoral areas. The conflict is prompted by a mobile form of livestock keeping and herd sizes embedded in pastoral culture and value systems, and is reinforced by the practices of soliciting bribes embraced by conservation management staff, politicians, administrators, police and magistrates. With these practices, conflicts between pastoralism and other forms of livelihoods (not necessarily conservation) in Tanzania are likely to continue for unforeseeable future.*

Keywords— ***pastoral-conservation conflicts, biodiversity conservation, pastoralism, conservation, agriculture, livestock encroachment, Saadani National Park.***

I. INTRODUCTION

Pastoral societies in Tanzania (the Maasai, Sukuma, and Barabaig) are facing immense pressure from shrinking rangeland, climate change, and government laws and policies. Population growth and development pressure have shrunk grazing land, leading to re-occurrence of conflicts with other forms of livelihoods, including conservation (Nelson, 2012). Accelerating climate change expressed in prolonged periods of drought, drying of water-holes, the disruption of natural water flows, and siltation of pans have created shortage of water and pasture for livestock (HPG, 2009). On the other hand, government laws and policies are restricting free movement of livestock (in search of pasture and water) and denying access to resources in PAs (pasture and water for livestock) (SCBD, 2010; SNV, 2012).

For pastoral societies in Tanzania, livestock numbers or herd sizes communicate a complex social currency that express far more than just wealth. Herd sizes represent status and prestige, security, survival, and kinship. In short, herd sizes command social respect. With this cultural value, pastoral societies always wish to building up large herds of livestock (Nelson, 2012). However, these large herds of

livestock are blamed for environmental degradation and frequent conflicts with other forms of livelihoods (Olenasha, 2006; Mattee & Shem, 2006; PINGO, 2013).

But, the underlying this notion of large herds of livestock is the pastoralists' mobile way of livestock keeping or mobility - seasonal migrations in order to access pasture and water occurring elsewhere (Nelson, 2012). The freedom of movement as practiced by pastoralists enables access to dispersed, ecologically specialized and seasonally varied grazing lands and watering holes (Mattee & Shem, 2006). Mobility is an important mechanism to cope with and recover from extreme conditions of climate shocks – droughts, floods and pest and disease outbreaks (Barrow *et al*, 2007; Olenasha, 2006).

They move according to where and when pasture becomes available for their livestock, thereby providing adequate pasture rotation, they use tracking technique to locate pasture and water (Mattee & Shem, 2006; HPG, 2009; PINGO, 2013). Therefore, restricting mobility is simply restricting the survival of their livestock in the face of spatial and temporal variability of environmental resources. This would eventually increase the vulnerability of pastoralists to natural and man-made shocks such as droughts, floods and livestock diseases (HPG, 2009; Olenasha, 2006; PINGO, 2013).

Perspectives on Pastoral-Conservation Conflicts

Pastoral - conservation conflicts are viewed from two perspectives. First, from the adverse impacts biodiversity conservation causes on pastoralism, particularly the direct killing of livestock by wildlife and the denial of access to resources in protected areas (PAs), especially pasture and water for livestock (SCBD, 2010; Marshall *et al*, 2007; Warner, 2000). Second, from the adverse impacts pastoralism causes on biodiversity, often expressed in habitat change, loss and species extinction or decline due to long-term environmental degradation, competition for resources, diseases interaction, and the direct killing of wildlife by pastoralists or wildlife by livestock (Homewood *et al*., 2012; Madden, 2004).

As a solution to such conflicts, conservationists maintain that wildlife - livestock interactions is not allowed due to increasing risk of disease transmission (commonly anthrax and rabies), competition with wild animals for pasture and water, and environmental destruction leading to depletion of the natural vegetation and eventually loss of habitat and wildlife species (Clifford *et al*., 2009; Kilpatrick *et al*., 2009). To minimize wildlife-livestock contact, there are several management actions, including conservation policies, laws, and practices that discourage livestock from entering into protected areas (PAs), hence the denial of access to resources in PAs (pasture and water for livestock) (PINGO, 2013). There are also government laws and policies that restricting free movement of livestock (in search of pasture and water for livestock) (SCBD, 2010; SNV, 2012) or mobility - seasonal migrations in order to access pasture and water occurring elsewhere (Nelson, 2012).

Pastoralists, however, see this restriction from entering PAs or denial of access to resources (pasture and water for livestock) from PAs as a 'killer' and barrier to maintaining pastoral livelihoods. Access to PAs is seen by pastoralists as vital to the survival of their herds, especially during periods of stress such as drought and, hence, having a significant impact on their pastoral livelihoods (SCBD, 2010). On the other hand, restricting mobility is simply restricting the survival of their livestock in the face of spatial and temporal variability of environmental resources. Pastoralists move according to where and when pasture becomes available for their livestock, thereby providing adequate pasture rotation (Mattee & Shem, 2006; HPG, 2009; PINGO, 2013). So, restricting mobility would eventually increase the vulnerability of pastoralists to natural and man-made shocks such as droughts, floods and livestock diseases (HPG, 2009; Olenasha, 2006; PINGO, 2013).

For pastoralists, a sustainable solution to pastoral related conflicts (not necessarily conservation), would be restoring traditional pastoral routes and securing rights of occupancy over traditional pastoral lands. Traditionally, pastoralists occupied and used Tanzania's savannah landscapes for pastoralism, utilizing foraging strategies based on mobility (seasonal migrations) in order to access pasture and water occurring elsewhere (Homewood *et al*., 2012; Nelson, 2012).

The bottom-line is that conservationists want to preserve biodiversity in and around PAs for much of human well-being (Collins, 2013) while pastoralists, on the other hand, want their livestock to access water and pasture in and around such PAs for survival of their herds and sustainability of their livelihoods (SCBD, 2010). In this situation, there are those who blame conservationists for embracing threat-based conservation, which focuses on protecting biodiversity against external threats rather than basing conservation plans on desired outcomes i.e. outcome-based conservation (Sayer, 2009). Also, there are those who argue that pastoralists embrace traditional management practices, especially large herd sizes and mobile form of livestock keeping, thereby leading to recurrence of conflicts between pastoralism and other forms of livelihoods (not necessarily conservation) (Homewood *et al*., 2012). One can, therefore, argue that the tension between conservation and pastoralism appears to have

originated from these competing perspectives of conservationists and pastoralists.

A profound reflection on these perspectives can, therefore, help to understand the conflicts between conservation and pastoralism, particularly in terms of their nature, root causes and resolution. This paper presents a detailed case study of local conflicts between conservation and pastoralism in Tanzania using one particular case study, Saadani National Park. Studies on resource conflicts within a wider context of political economy emphasize that since conflicts occur within a particular cultural, political, and social context, they must be analyzed and addressed within the same context (FAO, 2008; Distefano, 2005; Muruthi, 2005; WWF, 2008; Madden, 2004; Lewis, 1999). In other words, conflicts need to be understood within a particular context - a historical, social or economic setting. In particular, this paper brings together perspectives of key actors in the pastoralism and biodiversity conservation in terms of their role in structuring, reinforcing, and resolving pastoral - conservation conflicts in the study area.

II. STUDY DESIGN AND METHODOLOGICAL APPROACH

This research employed a qualitative, exploratory single-case study design - with multiple-phase of fieldwork and mixed methods of data collection. The approach was appropriate since the aim was to understand a contemporary phenomenon (pastoral-conservation conflicts) within its real-life context, and that the phenomenon of interest had no clear boundaries and context of occurrence (Yin, 2018). And since conservation conflicts occur within a particular cultural, political, and social context, they must be analyzed and addressed within the same context (Madden, 2004), hence this case-study approach.

Fieldwork was carried out during several visits to SANAPA in 2021 and 2022. The multiple-phase of fieldwork approach led to more comprehensive knowledge and eventually better understanding of the big picture of the phenomenon being studied (Stake, 2000). Data were collected through a mixed-method approach, involving in-depth semi-structured interviews, focus group discussions, informal discussions, field observation, and document analysis.

Data were collected on the nature, causes, and solutions to conservation conflicts. Political factors were also taken into account. In-depth interviews were conducted with three senior officials working with the Wildlife Division, SANAPA staff (two senior officials and 13 park rangers), community leaders (two Ward Councilors and 12 village leaders), and one officer working with an NGO dealing with pastoral issues. These people were engaged as key informants, and were purposively selected based on their locally grounded knowledge and experience.

In addition, three focus group discussions (composed of 7-9 people) were carried out with small-scale farmers (peasants). Initially, the plan was to include both peasants and pastoralists in the focus group discussions. But this was difficult to achieve because pastoralists in the study area live a mobile life, so it was difficult to bring them together. Furthermore, it was realized that there was some resistance from these groups to sit together due to the tension or enemity that exists between them.

To get views of the wider community, 17 pastoralists were also interviewed. Snowball sampling was used to choose interviewees among pastoralists. The first individuals, however, were purposively selected and asked for further referrals in order to identify other people who were considered as relevant for the study. The criterion used was whether a person had knowledge about conflicts related with pastoralism in general.

Also, 14 members of the local community (8 peasants and 6 pastoralists) were involved through informal discussions to get reliable information or data with less individual pressure (Kreuger, 1988). Given the time the researcher spent in the study area (2-month stay), coupled with his experience with the wider community, it was possible to know the people, establish contact, build thrust/rapport and ultimately was able to talk to them freely and in an informal way. The sample size for informal discussions was reached when new participants were no longer adding insights to the research questions. However, the sample size was not meant to represent the large population in the study, but to obtain rich information that would help to understand and explain specific phenomena important for the research (Given, 2008).

Both interviews and discussions were conducted in Swahili by the researcher but, later transcribed and translated to English. Field observations, to witness the role of such conflicts in the study area, were made possible with a two-month period stay in the study area – spread across multiple phases of fieldwork, plus the researcher's experience with the wider community.

More data on pastoral-conservation conflicts were collected during document analysis. A number of relevant documents and other studies were collected and reviewed. The review was important to set this paper in the context of key analytical issues identified from field data about conservation and pastoralism by integrating stories from the field about the conflicts from key actors – pastoralists, peasants, NGOs, conservation management officials, and decision-makers at the community level - village leaders and local politicians.

Data analysis and presentation

The unit of data analysis was SANAPA, and the primary phenomenon of interest to this study was the nature, causes, and sustainable solutions to pastoral-conservation conflicts. Data analysis was conducted in four steps. First step, involved the analysis of data collected from the initial fieldwork phase, which was mostly exploratory visits to the study area. This helped to get to know the area, the people, and to identify key themes that structure the understanding of the conflicts between pastoralism and conservation and actors involved.

In the second step, data collected from the actual fieldwork using interview guides were analyzed in line with the key research question while looking for consistencies and differences across responses. Several themes and analytical issues emerged, such as how conservation, pastoralism, and agriculture influence the political commitment of the government, and their impacts on pastoral related conflicts in the country. It is important to note that during this analysis, agriculture emerged as one of the analytical issues that provided more insights into pastoral - conservation conflicts in the study area. As such, agriculture was also considered in the analysis, though it was not the focus of this study.

In the third step, a number of relevant documents and other studies were collected and reviewed (document analysis). The review was important to set this discussion in the context of key analytical issues identified from field data about conservation, pastoralism, and agriculture, including their dominant perspectives in the literature on pastoral - conservation conflicts. The review integrated the stories from the field about the conflicts from key actors, particularly pastoralists, peasants, NGOs, conservation management officials, and decision-makers at the community level - village leaders and local politicians.

In the fourth step, the unstructured textual data (verbatim answers and comments) from interview, focus group discussions, and informal discussions were analyzed using text analysis to unveil and present what people actually said in their own words when responding to a particular question. The text analysis identified consistencies and differences across responses for each question, and drew-up common themes, which were then organized into coherent categories that summarized the information meaningfully in relation to the questions. The analysis also revealed the nature and root causes of pastoral - conservation conflicts in the study area, including various actors involved. The main factors shaping such conflicts were drawn up, and eventually the future of such conflicts in the country is predicted.

Two styles have been used to structure and present textual data across meaningful themes relevant to this study: paraphrasing while remaining faithful to the original meaning; and the use of illustrative quotes applied in a particular context. In the following sections, the paper now discusses the findings from this analysis.

III. RESULTS AND DISCUSSION

Overall, the findings indicate that the main pastoral-conservation conflict in the study area is the grazing of livestock inside SANAPA (Picture 1). Other pastoral - conservation related conflicts such as the direct killing of livestock by wildlife, the direct killing of wildlife by pastoralists or wildlife by livestock were not mentioned at all throughout the time of data collection for this study. This implies that they are not happening in the study area or are not serious to either side.

Photo 1: Cattle grazing in one of the protected areas (not SANAPA) in Tanzania

Source: Tanzania Daily News, Dar es Salaam, 29 January 2013

Pastoralists bring their livestock into the park to graze - an act described by park officials as livestock encroachment into the park or simply livestock incursion into the park. However, this encroachment into SANAPA by livestock is seasonal and is done by migrating pastoralists who are not originally from around the park. Such pastoralists are absent for parts of the year, especially during wet season.

The results indicate further that the encroachment is widespread along the northern parts of the park where most pastoralists are found, the Barabaig pastoralists. According to park rangers, livestock encroachment is a big problem in SANAPA, especially during dry seasons when there is shortage or scarcity of pasture and water. Encroachment by livestock is among the highest illegal activities recorded by the park. One park ranger, for example, put it during the interview,

"….we have a big problem with cattle keepers (pastoralists) especially during dry seasons. Sometimes we see herds of cattle, in big numbers (100, 150 even 300 and over), grazing in the park …..Surely, it is very challenging to control such big numbers…."

While commenting on patrol operations carried out by SANAPA to wipe out livestock encroachment from the park, one senior park official said,

"Hundreds of herdsmen stream towards SANAPA with thousands of their livestock especially during drought season, but we didn't have this problem before, it has emerged only recently! so we are protecting the park….these people [pastoralists] are a big problem to the park, they bring large groups of livestock to graze inside the park, so we conduct patrols to clear them out."

Local communities in the study area, who are mostly peasants, had similar views on pastoralism. They also see pastoralism more of a nuisance than a source of benefits. They complain that every year they lose substantial quantities of crops due to damage caused by livestock, and experience degradation of soil in their farmlands (livestock make the soil compact and hard to dig with hand hoe). They pointed out that pastoralists are unwanted in the study area because of their free range mode of grazing and the big numbers of livestock that they cannot control. During fieldwork, there were frequent concerns of free-range grazing and large numbers of uncontrolled livestock in the study area.

On the other hand, there is a general feeling among pastoralists that they are discriminated, they are alienated from the system, they are sidelined when it comes to development processes, and their pastoralism is valueless compared to other forms of livelihoods. They are in minority hence it is difficult for them to influence policies, and so they lack political influence. Expressing their feeling, one pastoralist for example commented,

"You know it's very strange and very unfair!! There are plenty of grasses out there [in SANAPA] and yet they don't want our livestock to eat them while you know for sure that it's times of severe drought, does it mean they want our animals to die of hunger? This is really unfair to us [pastoralists]. ……..and that's why they have imposed fines for livestock found in the parks but they don't care about people who are affected by stray of animals who are under their jurisdiction to control"

Pastoralists consider themselves powerless against the dominance of conservationists and agriculturalists. However, they have learnt to accept their position, but have developed some strategies to ensure they survive against this dominance of conservation and agriculture while accessing pasture and water for their livestock, particularly during times of drought when there is shortage of these. Money is the 'weapon' underlying their strategies to accomplish their mission – of ensuring their livestock get pasture and water - as these are the most important for their livelihoods. Through tracking, pastoralists have discovered that SANAPA has areas that have pasture and hold water towards the end of the dry season when all the surrounding areas are dry. Field observations revealed that the park has all-weather sources of water, from seasonal to permanent rivers - including the Wami River and its tributaries whose banks are overgrown with bush and therefore have much less dry season pastures. Therefore, the park is the pastoralists' choice during dry seasons. To access SANAPA, they strategically enter the surrounding villages first through a 'welcome' from local politicians and village leaders. While politicians seek cheap popularity towards their political ambition, village leaders solicit bribes from pastoralists who are desperately searching for pasture and water for their livestock. One park official for example, narrated during interview,

"This is all caused by our leaders, particularly village chairperson and village executive officer. They receive bribe from pastoralists so they could be allowed to enter, stay and graze in the village area. Once they [pastoralists] are here, they invite their fellows from elsewhere, so the chain goes endlessly. When there is no more pasture for their herds in the village, they move into SANAPA thereby creating conflict with the park management".

Although SANAPA is formally inaccessible because of conservation law, still they enter the park risking a fine of 10,000 Tsh (US$ 10) per head of livestock. However, during informal conversation with some pastoralists, it was revealed that they avoid this payment by bribing park staff especially park rangers, by supervising the herds from a distance, by letting their children look after them or simply by leaving the herds alone because they know they will come back in the evening after feeding. Also, they take advantage of corruption and abuse of power embraced by legal institutions that handle wildlife cases, particularly police and courts. Since they own livestock, pastoralists have financial muscles that can be used to bribe officials (see Benjaminsen *et al*, 2009; Brockington, 2006, for more examples from Tanzania), have connections with politicians, and are eventually vocal. Describing the pastoralists during interview, one senior official from WD said,

"Pastoralists are more powerful than agriculturalists - they have financial muscle, they give bribes to government officials, have connections with politicians whom they use to fulfill their interests

and are vocal for that matter!" …. And sometimes they approach the big boss such as the In-charge of the PA (not necessarily SANAPA) with bribe so they could be allowed to graze in the PA. Now, if they realize the boss is tough, is not cooperating with them, is not bribed easily, they would often cook a scandal for him/her and use some politicians (often MPs) who are normally vocal and easily bribed to push the government to fire him/her out of the post".

In addition, they take advantage of inadequate park resources (manpower particularly park rangers, vehicles for patrol, and limited financial resources to cater for regular patrol costs) to break the law leading to frequent incidence of livestock encroachment in SANAPA. A visit to one ranger post (Gendagenda) for example, revealed that there were only two rangers, and no vehicle. Commenting on this situation one park ranger for example, narrated during interview,

"As you can see, we are only two of us! Practically, it is very difficult to deliver output here because under any circumstances one has to remain at the post at all time - for security reasons. This means the other also cannot go alone [patrol], so we just seat here all day. …You can also imagine how difficult it is to walk [to conduct patrol] in the bush on foot, no vehicle, no what – how far can you go and for how long! We are really working under difficult conditions. For instance, we have a big problem with cattle keepers (pastoralists) especially during dry season. Sometimes we see herds of cattle, in big numbers (100, 1500 even 300 and over) grazing in the park, we are only 2 or 3 at the post. In some cases, they [pastoralists] will let their children to look after these herds or sometimes they just leave them alone because they know they will come back in the evening after feeding or you cannot do anything with them because we are few in number. Or if you confine them, it's okay for them because all they need is their cattle to feed. So in essence we will look after them. They know we cannot stay with them for long time, given the fact that we are few and no storage facilities to keep them for long time. In the evening, they will come to negotiate so they can collect their cattle back. They know, if we take them to the court, they will pay much lower fines than we charge them using our by-laws. So in most cases we end up negotiating with them on how much they should pay".

Although these survival strategies are manifested in money as bribes, they have enabled pastoralists to maintain their livelihoods, especially their nomadic life style and large herds of livestock. The practices of bribing officials have helped them to access areas vital to the survival of their herds during times of drought. In some cases, bribes have enabled pastoralists to get back their confiscated livestock even without compensation to farmers in case of crop damage by livestock or without paying huge fines to conservation authorities in case of livestock found in PAs. While studying farmer – herder conflicts in Kilosa – Tanzania, Benjaminsen *et al* (2009) also noted similar practices – how the Maasai pastoralists bribed local politicians and administrators to access pasture and water from the contested wetland. Corruption is a large problem and a major public concern in Tanzania, widely manifested across public institutions, especially public officials and politicians (WEF, 2013).

As mentioned, Barabaig pastoralists arrive in the study area due to their nomadic life style of which they keep on migrating in search of pasture and water. When they spot somewhere a life for their herds they get into the village legally or illegally by bribing village leaders through corruption, according to park officials. Some politicians also incite herders to encroach on SANAPA land with impunity. When they see the area is short of pasture, they look for alternatives elsewhere. This could be evading a nearby protected area as long as there is pasture or moving to another village.

Interviews with Barabaig pastoralists revealed that similar to Maasai, livestock keeping is not merely an economic activity to Barabaig, it is not just about making a living out of livestock – in the sense that if there are other more profitable activities, one would go for them and forego pastoralism. To them, livestock keeping is an integral part of their life, a way of life heavily intertwined into their culture and value systems. In fact, at the core of Barabaig life is pastoralism. To them, personal worthiness is expressed in terms of numbers of cattle and other livestock. A person without livestock is poor, without any standing in their society. From this perspective, one can imagine how difficult it is to convince the Barabaig to reduce the number of herds so they could avoid overgrazing, degradation of soil and vegetation, higher incidence of diseases, poor nutrition, increased mortality and loss of herds.

On a similar perspective, pastoralists maintain that doing away with mobility and herd sizes means doing away with pastoralism, since by nature pastoralists depend on livestock, are mobile in communal grazing areas they traditionally own, and use traditional land management patterns recognized by their customary rules (Barrow *et al*, 2007; Homewood *et al*, 2012; Mattee & Shem, 2006; PINGO, 2013). In fact, the two features (mobility and herd sizes) are central to pastoralists' traditional ways of livestock keeping and are embedded in their culture and value systems. They are considered resilience mechanisms

of pastoralism. To the pastoralists, a large herd expresses personal wealth and an insurance to survive through periods of stress such as drought and disease epidemics (Boku, 2008). During interviews, one Ward Chancellor, who is a Maasai pastoralist, said,

"…it's true that we [pastoralists] have large herds, but you know what? Herd is everything to us [the Maasai and Barbaig]. When our sons start their own life, we give them livestock as start-up capital. When they want to marry, we offer livestock as bride pride. I remember for my case I offered 28 cattle for my first wife and then 18 for the second. On top of that our staple food is milk and meat. So you can imagine how livestock mean everything to our life! This implies any plan to reduce the number of livestock among pastoral societies needs to be taken with great care, and need to be a long term programme to be able to change their mindset. Otherwise, you will end up being disappointed with their response. You know, it's like a peasant who depends on agriculture for a living. And then, all over the sudden you tell him to reduce the size of the land he always cultivates under a promise that he will get more and quality harvests. Do you think he will really understand you in the first place? Obviously, you need a long term plan to be able to change their mindset slowly".

These arguments by conservationists and pastoralists in relation to each other reflect the complexity surrounding pastoral related conflicts in Tanzania. This could imply that still there is a long way towards sustainable solutions to this kind of conflicts in the country. The arguments also suggest the absence of a common understand about the conflict, implying that tensions between pastoralism and other forms of livelihoods (not necessarily conservation) are likely to continue in the country for unforeseeable future.

Implications to protected areas management in Tanzania

There are three general implications important to conservation efforts in the country one could draw from these results. First, encroachment into protected areas (PAs) by livestock is likely to increase pressure on the management of PAs in the country, especially during times of drought when there is shortage of these resources across many traditional pastoral areas. As SCBD (2010) and PINGO (2013) noted, PAs are the pastoralists' choice during dry seasons to ensure their livestock get pasture and water and, therefore, survive the hard times of dry seasons. This suggests the need for strategies to guide management actions that could minimize pressure from the encroachment into PAs by livestock. Second, pastoralists have developed strategies to help them access pasture and water occurring elsewhere, especially during periods of stress such as drought. The strategies are manifested in money as bribes to PAs management staff. This implies that encroachment into PAs by livestock would be controlled only depending on how strictly and determined is the management of PAs to fight against corruption practices since access to PAs is seen by pastoralists as vital to the survival of their herds during dry seasons (SCBD, 2010), and money is used to accomplish their mission. Third, the adverse impacts of pastoralism on biodiversity as identified by Homewood *et al* (2012) such as habitat change, loss of biodiversity and species extinction or decline due to long-term environmental degradation, competition for resources, diseases interaction, and the direct killing of wildlife by pastoralists or wildlife by livestock are likely to continue for unforeseeable future or even intensify over time. Therefore, protection of PAs needs to be enhanced to eliminate such kind of threats to biodiversity so as to ensure the survival of wildlife and sustain healthy ecosystems.

IV. CONCLUSION

This paper has examined the pastoral – conservation conflict in Tanzania's national parks using the case study of SANAPA. Through this study, it has been realized that there is pastoral-conservation conflict between the management of SANAPA and migrating pastoralists. However, the tension between pastoralism and conservation happening in this particular case is more than a resource – use conflict driven by access denial. It is prompted by a mobile form of livestock keeping and herd sizes embedded in pastoral culture and value systems, and is reinforced by issues of governance and corruption.

The tension is more than being prompted by changing climate patterns that have caused sustained drought in pastoral areas. And it is more than pastoralists finding it increasingly difficult to cope with dwindling pasture and water in their areas while they cannot wait and watch their animals die. The conflict is induced by traditional management practices embraced by pastoral societies, particularly free-range grazing and large numbers of uncontrolled livestock, and is reinforced by the practices of soliciting bribes embraced by conservation management staff, politicians, administrators, police and magistrates.

The notion that protected areas have been established on traditional pastoral lands, the dominance of conservation and agriculture over pastoralism, and the perception that pastoralists are unwanted and pastoralism is more of a nuisance than a source of benefits have played an important role in structuring this conflict. These together have forced the pastoralists to indulge into corruption practices, using money as the weapon to maintain their livelihoods, especially their nomadic life style and large herds of

livestock. However, corruption raises questions about good governance and whether the government is really determined to end pastoral-related conflicts in the country, and leads to loss of trust in conservation management officials and authorities (local government, the police, and the judiciary), and their willingness to prevent such conflicts in the future. Such weakness within and between government institutions has resulted in actors trying to offer bribes as a solution to the problem.

The case study has revealed several arguments from conservationists, agriculturalists, and pastoralists in favour of their sectors. Generally, the solutions for pastoral related conflicts proposed by the conservationists and agriculturalists (destocking and sedentarization) are not acceptable by the pastoralists. On the other hand, the solutions proposed by the pastoralists (recognition of traditional ownership of grazing areas of the pastoral societies and traditional ways of livestock keeping) appear unpractical and unsustainable - cannot be a long term conclusive remedy. The fact is, with pastoralists' focus on large herd size and herd mobility, whatever land is set aside for them, will not be enough after some time. As livestock population keeps growing over time, the carrying capacity of the land (in terms of pasture and water) diminishes due to overgrazing resulting from overstocking. As a consequence, pastoralists will again roam around with their animals in search for pasture and water elsewhere, leading to re-occurrence of conflicts with other forms of livelihoods.

With these debates, therefore, the conflicts between pastoralism and other forms of livelihoods (not necessarily conservation) are likely to continue in Tanzania for unforeseeable future. Also, there is a danger that the conflicts may escalate even more, risking the detriment of either.

This study, however, focused only on one protected area (Saadani National Park-SANAPA) to examine pastoral-conservation conflicts across protected areas (PAs) in Tanzania. Realistically, there might be pastoral-conservation conflicts in SANAPA, but still no such conflicts in other PAs – given their varying levels of conservation status, biological resources in and around, and differing restrictions or level of protection. So pastoral-conservation conflicts for SANAPA cannot generally be concluded as pastoral-conservation conflicts for other PAs in Tanzania or elsewhere since conservation conflicts occur within a particular cultural, political, and social context. In addition, pastoral-conservation conflicts for a single-case study like SANAPA - does not statistically represent all PAs of Tanzania. As such, the findings from this single-case study cannot implicate or reflect all PAs in the country. These limitations, however, should not invalidate the findings of this study, but rather be taken as a basis for improvement in future studies. The study still serves as an indication of what is likely to be the reality on the ground for other PAs as well, despite such identified limitations, which aim to indicate the context through which the results may be understood.

Data Availability Statement

All data used in this study are available on request from the corresponding author. These data are not publicly available due to privacy restrictions.

Funding Statement

The author/researcher received no external funding for this study.

Conflict of Interest Disclosure

The author declares no conflict of interest on anything/issue disclosed or discussed in this study.

Ethics Approval Statement

All data for this study were collected and managed in compliance with research regulations and guidelines of Sokoine University of Agriculture while ensuring participant confidentiality, data security, and ethical standards. Informed consent was obtained from all participants prior to their involvement in the study.

Permission to reproduce material from other sources

This work include material reproduced from public documents, which, as a general rule, do not require permission to reproduce. However, all sources have been acknowledged.

REFERENCES

[1] Barrow, E., J. Davies, S. Berhe, V. Matiru, N. Mohamed, W. Olenasha, M. Rugadya. (2007). Pastoralist's species and ecosystem knowledge as the basis for land management. IUCN Eastern Africa Regional Office. Policy Brief No. 3 (of 5). Nairobi, 4p. On WWW at http://cmsdata.iucn.org/downloads/ pastoralist_species_and_ecosystem. Accessed 08 July 2021.

[2] Benjaminsen, T. A, F. P. Maganga and J. M. Abdallah (2009). The Kilosa killings: political ecology of a farmer-herder conflict in Tanzania. *Development and Change*, 40 (3) 423-445.

[3] Boku, T. (2008). Pastoralism under stress: resources, institutions and poverty among the Borona Oromo in Southern Ethiopia. Norwegian University of Life Sciences, PhD thesis.

[4] Clifford, D. L., Schumaker, B. A., Stephenson, T. R., Bleich, V. C., Cahn, M. L., Gonzales, B. J., ... & Mazet, J. A. (2009). Assessing disease risk at the wildlife–livestock interface: A

study of Sierra Nevada bighorn sheep. *Biological Conservation*, *142*(11), 2559-2568.

[5] Distefano, S. (2005). Human-wildlife conflict worldwide: collection of case studies, analysis of management strategies and good practices. FAO, Rome.

[6] Food and Agriculture Organization of the United Nations (FAO), (2008). Human-wildlife conflict in Africa: an overview of causes, consequences and management strategies, working paper for the International Foundation for the Conservation of Wildlife. On WWW at http://www.wildlife-conservation.org/var/plain/storage/original/application/c399b47.pdf. Accessed 27 March 2022.

[7] Given, L. M. (2008). The SAGE Encyclopedia of Qualitative Research Methods. Vol. 1 & 2. United Kingdom: Sage Publications Inc.

[8] Homewood, K., P. C. Trench and D. Brockington (2012). Pastoralism and conservation – who benefit? On WWW at http://www.ucl.ac.uk/anthropology/studying/undergraduate_degree.pdf. Accessed 07 April 2022.

[9] Humanitarian Policy Group (HPG) (2009). Pastoralism, policies and practices in the Horn and East Africa: A review of current trends. Odi, London, UK. On WWW at http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/.pdf. Accessed 07 April 2022.

[10] Kilpatrick, A. M., Gillin, C. M., & Daszak, P. (2009). Wildlife–livestock conflict: the risk of pathogen transmission from bison to cattle outside Yellowstone National Park. *Journal of Applied Ecology*, *46*(2), 476-485.

[11] Kreuger, R.A. (1988). Focus groups: A practical guide for applied research. London: Sage.

[12] Lewis, C. (1996). Managing conflicts in protected areas. IUCN – The World Conservation Centre, IUCN, Gland, Switzerland, and Cambridge, UK.

[13] Madden, F. (2004). Creating coexistence between humans and wildlife: global perspectives on local efforts to address human-wildlife conflict. *Human Dimensions of Wildlife*, Vol.9, 247-257.

[14] Marshall, A.R., Z. Aloyce, S. Mariki, T. Jones, N. Burgess, F. Kilahama, J. Massao, E. Nashanda, C. Sawe, F. Rovero and J. Watkin (2007). Tanzania's second nature reserve: improving the conservations status of the Udzungwa Mountains? *Oryx*, Vol.41, 429-430.

[15] Mattee, A. Z. and Shem, M. (2006). Ambivalence and Contradiction: a review of the policy environment in Tanzania in relation to pastoralism. IIED Issue Paper No. 140, Drylands Programme. London: International Institute for Environment and Development.

[16] Muruthi, P. (2005). Human wildlife conflict: lessons learned from AWF's African Heartlands, AWF working paper. On WWW at http://www.awf.org/content/document/detail/3227. Accessed 26 March 2022.

[17] Nelson, F. (2012). Natural conservationists? Evaluating the impact of pastoral land use practices on Tanzania's wildlife economy. *Research, Policy and Practice*, 2 (1) 1-19.

[18] Olenasha, W. (2006). The place of pastoralism in modern Tanzania. The Proceedings of a Seminar for Members of Parliament. The Rangelands and Livelihoods Working Group. On WWW at http://www.ereto-npp.org/download_documents/RLWG_2006_the_place.pdf. Accessed 16 April 2022.

[19] Pastoralists Indigenous Non-Governmental Organization's Forum (PINGO) (2013). Impacts of climate change on land use patterns and livelihoods of pastoralists and hunter gatherers: a case study of Mbulu, Hanang, Kiteto and Simanjiro Districts in Tanzania.

[20] Sayer, J. (2009). Can conservation and development really be integrated? *Madagascar Conservation & Development*, 4 (1) 9-12.

[21] Secretariat of the Convention on Biological Diversity (SCBD) (2010). Pastoralism, Nature Conservation and Development: A Good Practice Guide. Montreal, 40 + iii pages.

[22] SNV (2012). Improved livelihoods for pastoralists. SNV Practice Brief, Issue 2, January 2012.

[23] Stake, R. E. (2000). Case studies. In handbook of qualitative research, 2nd Ed, Sage, Thousand Oaks, CA.

[24] Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.

[25] Warner, S. (2000). Conflict management in community-based natural resource projects: experiences from Fiji and Papua New Guinea. Working Paper 135, Overseas Development Institute (ODI).

[26] World Economic Forum (WEF) (2013). The Global Competitiveness Report 2012-2013. Geneva, Switzerland. On WWW at http://www3.weforum.org/docs/WEF_GlobalCompetitiveness.pdf. Accessed 18 August 2022.

[27] World Wildlife Fund (WWF), (2008). Common ground: solutions for reducing the human, economic and conservation costs of human wildlife conflict. On WWW at http://www.worldwildlife.org/species/WWFBinaryitem9108.pdf. Accessed 26 March 2022.