



Effects of Internal and Cross-Border Resource-Based Conflicts on Livestock Market Performance in Pastoral Areas of Karamoja, Uganda and Turkana, Kenya

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Abstract: Conflicts over scarce resources continue to be a significant area of concern for research and development. To successfully investigate the problem of resource-based conflicts in pastoral areas, the following strategic objectives were formulated: identify the causes of resource-based conflicts; determine the impact of resource-based conflict causes on livestock market performance; and identify strategies for managing the resource-based conflicts and their effects. Four livestock markets, namely Nakiloro in Moroto district and Kalapata in Kaabong district in the Karamoja sub-region of Uganda; Lokirima in Loima district and Oropoi in Turkana West district of Turkana County, Kenya, were sampled for the study due to the cross-border nature of the research. The study population consisted of livestock traders. The study sample was randomly selected from a sampling frame of 400 traders (50% from Uganda) using a statistical method taking into account a 95% confidence interval and a 5% confidence level (margin of error), resulting in a total of 360 traders as the study sample. Study results showed that 55% of livestock traders in both Kenya and Uganda are between the ages of 18 and 30 years old. The livestock trade is dominated by men, and illiteracy is high, although the trend is positive compared to 15 years ago, when the average literacy rate of pastoral communities in Turkana and Karamoja was 5%. The study also found that 71% and 70% of study participants in Kenya and Uganda, respectively, felt social, political, economic, and environmental resource-based conflict triggers as severe. In addition, 72% of Kenyans and 73% of Ugandans believed that resource-based conflicts inhibit livestock production and market performance in pastoral areas, with an average of 71% of study participants in both countries endorsing peaceful coexistence, access to livestock production resources, installation of security machinery and protocol in conflict-prone areas, and restoration of the functionality of livestock markets as strategies for managing resource-based conflicts and their effects on the pastoral economy. So, the study comes to the conclusion that resource-based conflicts slow down the development of pastoral areas. To help pastoral areas achieve the desired socioeconomic empowerment, recommendations for application and further research are needed.

Keywords: Livestock Marketing, Market Performance, Resource-Based Conflicts, Pastoral Economy, Pastoral Livelihoods

1. Introduction

Globally, livestock contributes approximately 40% of the total value of agricultural output, an invaluable asset for the food and income security of states and populations, and economies dependent on livestock. Kenya and Uganda are agricultural countries with livestock keeping as one of the

primary tenets of their agricultural development agenda. More than 16 million people are directly fed and employed by the livestock industry in Kenya, which contributes 12% to the national gross domestic product (GDP) and 42% to the agricultural GDP. The majority of agro-pastoral

communities in northern Uganda rely on livestock for their livelihood and prosperity as livestock is estimated to contribute 3.2% to Uganda's GDP.

The livestock production and marketing historical context of the pastoral areas shows a number of issues with livestock that require both domestic and international strategic solutions. As a result, the study's purpose is to determine how resource-based internal and external conflicts affect livestock markets' effectiveness and the viability of the measures aimed at improving livestock development output. Therefore, the key research question to be addressed is: How do internal and cross-border resource-based conflicts affect the performance of livestock markets in pastoral areas?

Climate change manifestation and internal and cross-border conflicts are decimating livestock numbers and exacerbating food, income, and nutrition insecurity among livestock-dependent populations. The phenomenon is diminishing livestock-based economic opportunities for the development of pastoral areas. Resource-based conflicts have far-reaching social, economic, political, legal, and environmental repercussions with a significant negative impact on the relationships of internal and cross-border pastoral communities. Governments have also taken different steps to stop such pastoral conflicts through both forced and voluntary disarming of pastoralist groups and regulating cross-border movements.

While recognizing the primary effects of resource-based conflicts, which include loss of livestock, loss of lives, and sustained stress of transboundary livestock diseases; loss of livestock economic value through livestock theft; insecurity in areas with livestock markets; and non-functionality of potential markets are significant obstacles posed by the phenomena thus impeding the performance and growth of livestock markets and socioeconomic transformation and the development of pastoral areas.

Other risks posed by resource-based conflicts in pastoral areas include the endangerment of pastoralism as a production system, the political and economic marginalization of drylands, sustenance of high rates of illiteracy and poverty, inadequate land use, widespread neglect of pastoral areas, and low interest to invest in drylands. Turkana and Karamoja are among the most impoverished pastoral areas in the Horn of Africa.

In the pastoral region of Karamoja, conflicts over livestock resources include intra-clan conflicts, intra-tribe conflicts, cross-border conflicts, and economic conflicts. The proliferation of small firearms, the deterioration of traditional institutions, the absence of a strong state presence, and the deplorable condition of roads and telecommunications networks predispose communities to future conflicts and restricted economic opportunities.

The intractable nature of some forms of conflict and the status quo has continued to impede the expansion of the livestock industry and the development of market opportunities. The abandonment of cattle rustling practices, the establishment of peaceful systems of pastoral communities' coexistence, and mutual and reciprocal access to

livestock production resources and markets are crucial for empowering and sustaining livestock marketing and trade efforts through well-established livestock producers, traders, markets and economic stability of drylands.

Progress in theory and practice of internal and cross-border management of livestock production and marketing programs will change policies about rural development, pastoralism, cross-border access to resources for livestock production and markets, peaceful coexistence of pastoral communities, trade growth, and the increase in alternative livelihoods in pastoral areas.

2. Literature Review

2.1. Regional Perspective of Pastoral Resource-Based Conflicts

Inherent in the cultural and traditional practices of pastoral communities and clans are resource-based conflicts [33]. According to the research studies on livestock production and marketing in drylands, internal and cross-border conflict affect livestock development in pastoral areas [6]. The manifestations of climate change that are decimating livestock production resources and increasing the frequency of intra- and inter-community conflicts are worsening relations between neighboring and even related pastoral communities and groups [12, 16].

Findings on institutional and policy integration in pastoral development perspectives emphasize the risk of incompatibilities among pastoralists, especially during periods of resource scarcity [7]. A research study on the economic value of livestock to pastoralists and the role of the market in livestock development correlates with findings that the economic performance of local traders is crucial for the utilization of small ruminant value chains and markets in contexts of good security and peaceful coexistence of communities [9, 26].

Human and environmental costs associated with resource-based conflicts are enormous. Referring to the cross-border integration of communities in Botswana and Egypt's case of understanding the benefits of legal trade among pastoral communities, awareness of the consequences of resource-based conflicts will reduce the loss of human life, animal suffering, farmers' evictions and displacements, loss of means of subsistence, and increasing poverty [20, 28]. Result of the research study on combining formal and informal livestock trading and the development of livestock value chains, the rivalry between ethnic communities and clans within and across borders is reduced [5, 21]. Historically, traditional cattle rustling did not always involve murder, focusing instead on livestock theft. Nevertheless, it is now always fatal [1].

Regarding the impact of pastoral activities and natural resources on regional development, the changing nature of pastoral conflicts is driven by economic factors such as competition for political power and resources, corruption, and land grabbing for personal gain [4]. Studies on

urbanization, livestock systems, and the value of livestock in the Horn of Africa supports proposed actions that can strengthen the livestock agenda and resource utilization plans for livestock production [11, 23]. This development is achievable with good policies and strategies supporting roadmaps for regional livestock development agenda, elevating the importance of livestock and natural resources in pastoral areas, and prioritizing pastoral economies and livelihoods [29, 30, 33].

2.2. Political and Economic Motivators of Resource-Based Conflicts

Due to the deterioration of traditional governance structures, political leaders and other influential individuals are increasingly seizing the opportunity to renegotiate land boundaries and access [11]. The unsustainable expansion of livestock production interventions and investments in the drylands is depriving pastoralists of their potential to develop their lands, resulting in a severe state of underdevelopment [8, 17]. Internal and cross-border ethnic mobilization has played a significant role in political struggles, where the struggle for land is becoming more ethicized, resulting in resource-based conflicts well-planned, well-adapted, dangerous, and effective political weapon [4].

Resource-based conflict is a sanctioned criminal enterprise by the perpetrators. As pastoral resource-based conflicts in East Africa have become increasingly commercialized, a growing number of politicians are utilizing them to create support zones for themselves [23, 25]. No longer are only herders involved in cattle theft. Cattle rustling is quickly turning into a cash cow for corrupt and greedy politicians and corporate employees [1]. Tribal conflicts are on the rise, prompting pastoral communities to acquire firearms to protect themselves in the absence of government action [5, 9].

2.2.1. Commercialization of Resource-Based Conflict Activities

The livestock industry is lucrative, and the imbalance between supply and demand factors has a substantial impact on livestock production, trade and sales of live animals, and product value chains in numerous market segments [3]. Eastern African nations are the primary providers of livestock for consumer, terminal, and export markets [1, 2]. According to the study on livestock marketing constraints and opportunities using Namibia as an example, resource-based conflicts have a significant impact on supply and demand relations in livestock markets [31].

In eastern Africa, particularly in the pastoral regions of Kenya and Uganda, resource-based conflicts are worsening the plight of livestock keepers who are unable to maximize available livestock production resources and markets [8, 12]. In areas such as the Borana region of Kenya and Ethiopia, cross-border access to livestock resources and markets is intensifying, shifting from a "breeding herd" to a "trading herd" to capitalize on the expanding markets for animals and livestock products in urban areas and export markets [1, 21].

Due to the growth of small towns in arid and semi-arid

regions, the dynamics of livestock marketing have also changed. Many towns in Kenya and Uganda now have small butcher shops and dairy farms to meet the rising demand for livestock products [32]. Findings of the study on the effects of cattle-rustling and household characteristics on migration decisions and herd size among pastoralists in Kenya depict the emergence of commercialized cattle-rustling, in which wealthy businesspeople, politicians, traders, or locals pursuing economic objectives tend to finance raids among pastoral communities [22]. They acquire firearms and ammunition so that livestock keepers can conduct raids against their rivals to acquire additional animals and territory [21].

In the studies on insecurity and agro-pastoral production opportunities in Uganda, it is stated on multiple occasions that large herds of animals are linked to cattle rustling and insecurity, prompting the Ugandan government to discourage herders from keeping and housing animals in their villages. In less secure areas, herders house their animals in army barracks so the government can protect them from bandits [18, 33].

2.2.2. Regional Dimensions of Resource-Based Conflicts

Regionally, cattle rustling is transnational, and stolen animals are transported across international borders into neighboring countries [1]. Regional conflicts are associated with cattle raids and trade. Studies also present that, in the Horn of Africa's pastoral regions, cattle raids have been intertwined with militarized conflicts such as civil wars and cross-border disputes [1, 2]. According to studies on the role of livestock in pastoral livelihoods, there are historical precedents for cross-border cattle rustling [10, 17].

The increase in cattle raids between the Ugandan Karamojong and the Kenyan Turkana after the Karamojong overran the armory in Moroto following the fall of Idi Amin's regime in 1979 is a historical example. In studies on the effects of climate change on pastoral regions and indigenous climate forecasting and conflict management, it is noted that the ongoing internal conflict in neighboring countries makes it difficult to eradicate illegal weapons in order to reduce cattle rustling and human suffering [13, 15].

2.3. Triggers of Resource-Based Conflicts and Impact on Livestock Marketing

2.3.1. Political and Environmental Factors

Political marginalization; severe and recurrent droughts; unequal access to water and pasture; increased competition for available land among ranchers, farmers, pastoralists, and wildlife; alterations to land tenure systems; and deterioration of traditional governance structures are factors that contribute to poverty in pastoral regions [7, 14, 26]. In addition, pervasive insecurity, covetousness and envy, the proliferation of small arms, and monopolies in the livestock industry are factors that restrict the ability of pastoral communities to use locally available resources to cultivate and trade healthy and productive livestock resources [24, 27, 31].

2.3.2. Ethical and Risk-Related Factors

Corruption and exploitation of local producers; livestock trade risks, such as the uncertainty of livestock commerce in local and regional markets; and violent incidents in potential livestock production areas and trade corridors are severe implications of livestock trade in insecure areas [19]. Restrictions of pastoralist movements to potential areas limit access to pastures, water and markets exacerbating the food and income security of households [25, 30]. In addition, resource-based conflicts result in human suffering, the loss of lives and decency, the stagnation of development efforts in rural regions, and the devaluation of livestock resources [20, 22, 24].

Poor national and regional reputation and unbalanced demand and supply of livestock and products continue to reduce livestock producers' and local merchants' sales and profits [3, 26]. Equally, the lack of local merchants and market competitiveness perpetuates poverty and underdevelopment in pastoral regions [3, 8, 26].

2.4. Resource-Based Conflicts and Underdevelopment of Pastoral Areas

In pastoral regions, variations in livestock production practices and investments result in the production of livestock and products of varying quality and quantity [26, 31]. Therefore, the supply of livestock raised on drylands is limited, as it is in high demand on the market and in short supply [3, 22]. Permeable borders and livestock business cartels continue to exploit local producers and exacerbate insecurity in many pastoral regions. The distribution of government machinery in Kenya's pastoral regions is inadequate [23].

Livestock raids from neighboring communities are prevalent, depleting Turkana's livestock resources. In Uganda, where government institutions are widely dispersed, reports of military personnel mistreating livestock farmers and local merchants are on the rise. As a result, the Karamojong people refrain from producing large quantities of livestock. Some pastors' families have quit their pastoral lifestyles to seek employment in Uganda's numerous towns [17, 18].

It is considered that poor cash economies in pastoral areas, poor roads and telecommunication networks, and limited access to lucrative tertiary markets as limiting economic returns accruable from livestock production initiatives and markets [17, 18]. Pastoral communities' traditional methods of livestock production are largely sociocultural. Despite numerous livestock development programs for the drylands of eastern Africa, commercialization of livestock is proceeding slowly [26, 29]. Also, the dangers associated with livestock and the environment are attributed to limited knowledge, skills, and negative attitudes toward change by many pastoral communities [6, 27].

The failure to adopt paradigm shifts aimed at enhancing pastoralists' capacity to benefit from their pastoral economies and development opportunities remains a persistent root cause of poverty, hunger, malnutrition, and economic instability [11, 16]. Resource-based conflicts manifested in various forms, such as cattle rustling, are a vice aimed at exploiting populations, the majority of which are poor [9, 7].

3. Methodology

3.1. Sampling and Data Collection

This study employed both exploratory and descriptive survey designs and a mixed-methods research approach to collect extensive qualitative and quantitative data on the study phenomena. Participants in the study were livestock traders operating in Karamoja, Uganda, particularly in the Nakiloro and Kalapata livestock markets in the districts of Moroto and Kaabong. Lokirima in the Loima district and Oropoi in the Turkana West district were the livestock markets studied in Turkana, Kenya. In both countries, it was estimated that 100 active livestock traders per market comprised a sampling frame for each market.

The sample size for each market was 80 traders obtained statistically using a 95% confidence level and a 5% margin of error on the sample frame. The final study samples were drawn from the sampling frame using a straightforward random sampling method. A total of 360 active traders from the two countries took part in the study, which was 90% of the study population. A semi-structured questionnaire was used to collect data from the study participants. Interviews with key people in government and civil society were purposively selected were conducted with stakeholder workshops used to validate the study's findings and action areas.

3.2. Data Analysis and Presentation Techniques

The quantitative data was computed, analyzed, and presented in form of frequencies, percentages, and average means where average $\bar{x} < 2.5$ was rated low and those greater than > 2.5 but < 2.7 rated medium in intensity. Average $\bar{x} > 2.7$ were rated high. For qualitative data analysis, the application of patterns, codes and themes facilitated the categorization of qualitative data into meaningful titles and subtitles. Qualitative data and results were used to triangulate quantitative study results and information contained in the literature regarding the study phenomena.

4. Results and Discussion

4.1. Demographic Characteristics of Study Participants

Using frequency data, it was determined that the proportion of individuals aged 18 to 24 in Turkana was 23% and in Karamojong, it was 18%. 32% of the population in Turkana and 37% in Karamoja were between the ages of 25 and 30, while 35% and 39% of the population in Turkana and Karamoja were between the ages of 31 and 49. However, 10% of the population in Turkana and 6% in Karamoja were over the age of 50. In Turkana and Karamoja, 87% and 90% of study participants were males respectively. In Turkana, 68% of study participants were married and 70% in Karamoja.

In Turkana and Karamoja, the percentage of illiterates (those who cannot read or write), those with basic education, and those with training were 75%, 20%, 5%, and 80%, 17%, 3%, respectively. Notably, based on the demographics of the study participants, 55% of livestock traders in Turkana and

Karamoja are between the ages of 18 and 30. This is because they are robust, mobile, and able to transport animals to various markets. 10% of Turkana's merchants are over the age of 50, in contrast to Karamoja, where they are sometimes segregated, resulting in the majority of them working on farms rather than in livestock activities.

Males continue to dominate the livestock trade in Turkana, Kenya, and Karamoja, Uganda. Women's participation in Turkana and Karamoja, at 13% and 10%, respectively, has significantly increased since year 2005, when it was just 5%. This is a result of the growing gender equality and women's participation in community development campaigns. The majority of participants had marital status. This is due to the fact that marriage is valued in both cultures. Some participants, particularly women, were married at approximately 15 years of age, with livestock serving as the dowry. In both communities, illiteracy remains an enormous problem. However, a significant number of pastoralists have begun sending their children to school. This status will improve, but more time and effort will be required to bring about the change.

4.2. Triggers of Resource-Based Conflicts in Karamoja and Turkana

Using inferential statistics, the average means of resource-based conflicts in pastoral areas were compared based on contributing factors (parameters). In Karamoja, political marginalization, cattle rustling, poverty, territorial borders, and a lack of security are the primary causes, according to the variables with \bar{x} greater than 2.70, ranked in order of importance. Similarly, in Turkana, insufficient security, cattle rustling, revenge practices, poverty, protracted droughts, and political marginalization are the primary causes of resource-based conflicts. In Karamoja, clannishness makes territorial boundaries a major source of internal conflict, in contrast to Turkana, where internal conflicts are uncommon. Following raids, Kenyan and Ugandan communities exhibited a significant amount of vengeance and counter vengeance in Turkana.

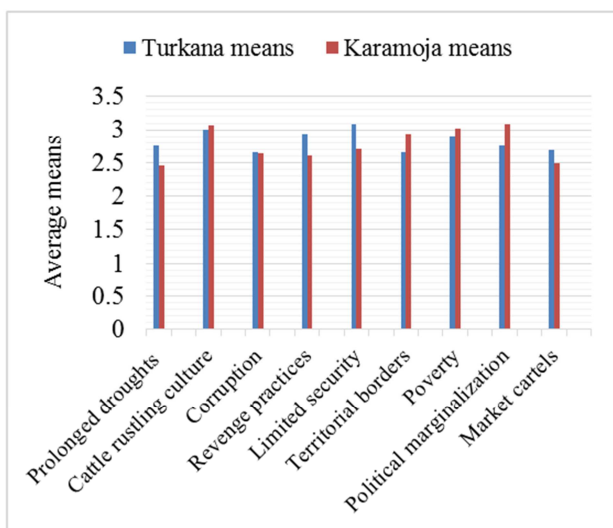


Figure 1. Triggers of resource-based conflicts.

Corruption, revenge practices, market cartels, and prolonged drought were the lowest-ranked variables (\bar{x} lower than 2.70 mean in Karamoja). Similarly, in Turkana, market cartels, corruption, and territorial borders were ranked as the least important factors. Nonetheless, these triggers continue to be significant because their impact on the pastoral economy cannot be minimized. The number of communities fighting over land and boundaries is on the rise, and market cartels exploiting livestock producers and polarizing market activities through the use of corruption is another cause for concern.

The cumulative average means for Turkana and Karamoja are $\bar{x}=2.83$ and $\bar{x}=2.78$, respectively, indicating that 71% of livestock traders in Turkana, Kenya, and 70% of livestock traders in Karamoja, Uganda, respectively, feel the negative effects of resource-based conflicts on their economic activities and the environment.

The diagram below depicts the average means for resource-based conflict triggers in livestock production contexts in Turkana and Karamoja.

4.3. Resource-Based Conflict Triggers and Livestock Market Performance

The highly prioritized effects of resource-based conflicts on the performance of livestock markets in both the Turkana and Karamoja regions include reduced productivity of livestock and markets, fear in livestock markets, loss of livestock due to raids, inability to access potential areas with sufficient livestock production factors, revenue loss due to delayed sales, and the inability of numerous markets to function to full capacity. In addition, low profitability, low competitiveness of local traders in the local and external markets, lack of equity among livestock producers, traders, and consumers, an increase in livestock producers, traders, and market exploitation by businesses and corrupt cartels are also essential consequences of resource-based conflict triggers.

Fear of markets, non-functionality of markets, low competitiveness, and a lack of equity are the most severe consequences in Turkana, in that order. Similar to the most severe effects in Karamoja, Uganda, these include fear in the markets, a lack of equity, the low competitiveness of local traders and their markets, and the increasing exploitation of traders. All variables with \bar{x} greater than 2.72, indicate that 68% of study participants, on average, view the impact of every effect on livestock market performance as severe.

For both Turkana and Karamoja, market fear was deemed the most severe effect by 83% and 77% of the study participants, respectively, leading to the inability of markets to function, which was deemed the second most severe effect by 77% and 80% of the study participants, respectively. Cumulative average means also indicate that in the regions of Turkana and Karamoja, 72% and 73% of study participants, respectively, highlight the severity of resource-based conflicts in the livestock market economy. People believe these effects and their causes are detrimental to livestock production,

marketing, and the socio-economic development of pastoral areas. The diagram below depicts the average means for the effects of resource-based conflict triggers on the performance of markets in Turkana and Karamoja.

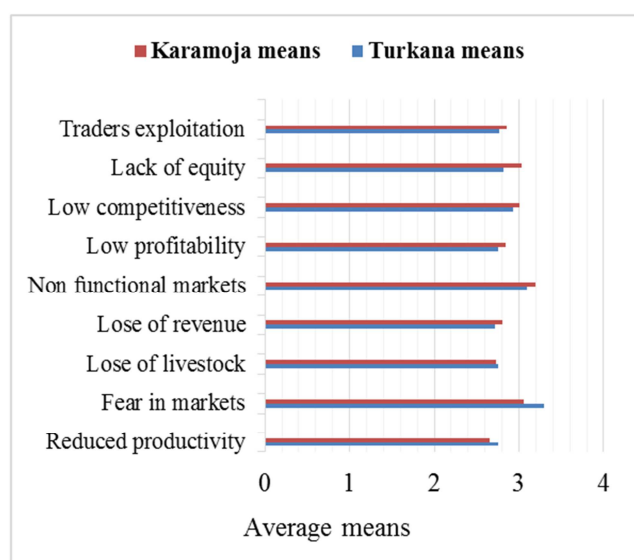


Figure 2. Resource-based conflict effects on markets.

4.4. Strategies for Managing Livestock Market Performance

Key strategies identified for managing the performance of livestock markets in areas prone to resource-based conflicts include access to livestock production resources; restoration of peace and stability; government machinery recovery of stolen animals following raids; accountability of revenue that markets accrue from marketing activities; and ensuring that all market categories are functional and vibrant. Other essential strategies for application include supporting efforts for profitability and competitiveness of markets and traders, building equity in markets, and ensuring a conducive environment for fair trading in all livestock market segments.

The strategies with high means for Turkana were peace and stability ($\bar{x}=3.09$), the functionality of markets ($\bar{x}=3.04$), access to production resources ($\bar{x}=3.01$), recovery of stolen animals ($\bar{x}=2.96$), and fair trading in markets ($\bar{x}=2.87$). In Karamoja, the same variables were prioritized with means: peace and stability ($\bar{x}=3.07$), the functionality of markets ($\bar{x}=3.02$), access to production resources ($\bar{x}=2.85$), recovery of stolen animals ($\bar{x}=2.83$), and fair trading in markets ($\bar{x}=2.85$).

Peaceful coexistence among pastoral communities in Turkana and Karamoja is essential to facilitate access to livestock production resources, access to markets, and sustainability of functionality, profitability, and competitiveness of markets. Considering the \bar{x} of strategies for managing market performance against the effects of resource-based conflicts, the average \bar{x} of 2.85 and \bar{x} of 2.82 denote that overall, 71% and 70.5% of study participants in Turkana and Karamoja, respectively, support the identified strategies. The average means of strategies to manage market performance are shown in the figure below.

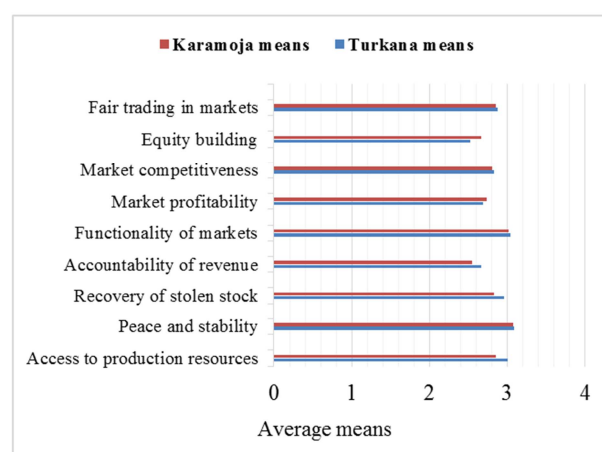


Figure 3. Strategies for managing market performance.

5. Conclusion

Resource-based conflict and effects to pastoral areas, populations and economic activities remain of great concern. Social, cultural, economic, political, environmental, legal, and ethical factors account for the vast majority of resource-based conflicts and their effects in pastoral areas. The underlying causes of each trigger has a far-reaching effects on the economy and welfare of pastoralists and impedes development efforts significantly.

The identified strategies to transform each resource-based conflict trigger and effects into opportunities for livestock sector development and peaceful outcomes for pastoral communities are real and realizable. Management of the performance of livestock markets is an antidote to extreme influences that can derail their performance. To facilitate the delivery of actions to address resource-based conflicts that are largely caused by human actions, it is vital to consider the human factor critical in defining the nexus between social, economic, and environmental pillars of pastoral contexts.

A structured approach between the governments of Uganda and Kenya, as well as the development of strong relationships among pastoralist communities in the region, will increase access to productive resources by minimizing the factors that render livestock markets and trade activities obsolete. Multi-stakeholder approaches are essential in realizing positive outcomes from government and civil society programs to develop pastoral regions. The knowledge accrued from this study will help beef up the strategic frameworks in place to continue pursuing avenues to improve the socioeconomic and political stability of pastoral areas important for curbing the persistence of resource-based conflicts.

6. Recommendations

6.1. Recommendations for Application

On the basis of the research analysis and results, the following recommendations are strategic for addressing the problem of resource-based conflicts and their impact on livestock market performance:

- a. Sustainable access to production factors, primarily land, water, forage, and competent management are crucial to the success of livestock production in pastoral areas. In particular, in Turkana, the scarcity of water and forage resources is causing pastoralist communities to migrate to areas with high pasture and water potential. The majority of these regions are unsafe. The governments of Kenya and Uganda, as well as pastoral communities, must develop resource-sharing agreements and internal and cross-border market utilization plans to enable livestock producers to cultivate healthy, productive livestock resources that can be traded on markets.
- b. In Turkana and Karamoja, both absolute and relative forms of poverty cause a great deal of suffering among the local populations. The majority's impoverished socioeconomic backgrounds, which prevent them from acquiring an education, impede their ability to develop alternative means of subsistence. As a result, the majority of them engage in thefts of livestock and other crimes aimed at markets. Therefore, it is prudent for the governments of Kenya and Uganda to develop and implement a strategy for the eradication of poverty and the economic recovery of pastoral areas in order to reduce the rise in poverty and diversify the economies of pastoralists through a landscape- and market-based approaches.
- c. Political marginalization was widely viewed as a long-term contributor to insecurity in Kenyan and Ugandan pastoral areas. Recent discoveries indicate that these pastoral regions contain numerous valuable natural resources. Governments must develop strategies for the sustainable exploitation of natural resources, the proceeds of which can increase the gross domestic product and per capita of drylands, thereby minimizing conflict over scarce resources. Restructuring the economies of drylands will increase the availability of financial resources, thereby facilitating the expansion and development of numerous industries. The livestock industry, through the vitality of markets, will stimulate the livestock producers' economy.
- d. Access to livestock production factors and markets is becoming increasingly constrained by geographic borders. Governments must prioritize transboundary utilization of livestock resources through policies that enhance cross-border mobility. This plan will restrict the extent to which communities use their borders and resources for their own benefit at the expense of their less fortunate neighbors. A transboundary plan will foster the economy of broader pastoral regions, create thriving markets, and limit boundary-related conflicts.
- e. In pastoral areas, prolonged drought is a season-long cause of conflict. The need to feed livestock has armed the communities and households of pastoralists so they can access more insecure areas with sufficient pasture and water. As the manifestations of climate change become more diverse, governments must implement climate-smart livestock production technologies. This includes using technology to cultivate drought-resistant fodder varieties and artificial methods to formulate animal feeds. These investments will reduce pastoralist mobility, protect livestock and pastoralists from the effects of drought, and keep local and international livestock markets adequately supplied.
- f. In pastoral regions, market cartels continue to grow in prevalence. Although they create opportunities for pastoralists to sell their animals, they exploit them by offering incredibly low prices, preventing pastoralists from understanding the true value of their livestock resources. Low prices discourage livestock farmers from selling their animals. As a result, local markets remain inefficient and pastoralists' economic returns are insufficient to diversify their economy and encourage them to continue the livestock trade.
- g. Insufficient security in pastoral areas continues to endanger the coexistence of pastoralists and the viability of their primary means of subsistence. Even though the Ugandan government has deployed security agents throughout the entire Karamoja region, the brutality exhibited by these agents increases the suffering of herders. Kenya must ensure that security machinery is available in numerous regions of Turkana. With the expected good conduct of security agents, resource-based conflicts can be successfully managed in the region, allowing pastoralists to raise their animals and access markets in a favorable environment.
- h. Corruption perpetuated by governments, civil society focal points, and livestock market management committees continues to diminish the efficiency of livestock markets. Corruption and other forms of conflict of interest exhibited by stakeholders continue to diminish the available opportunities to cultivate a thriving and sustainable livestock market economy. Governments should implement more stringent policies and sanctions against corruption in livestock production systems and trade.
- i. The culture of cattle rustling poses an ongoing threat to livestock production and commerce in Kenya and Uganda's arid regions. Empowering programs that can alter the mentalities of cattle rustlers is essential for minimizing the spread of resource-based conflict. Through peaceful coexistence, livestock keepers can gain access to livestock production factors, while internal and cross-border livestock traders can engage in livestock trade with minimal obstacles.
- j. Huge equity and equality gaps exist in rural areas. Pastoralists in Uganda's Karamoja and Kenya's Turkana feel neglected by their respective governments. As compared with populations in peri-urban and urban areas, pastoralists are not receiving the same level of public services as other citizens. Women and youth are affected the same way. While equity and equality are constitutional provisions to citizens by governments, civil services including land allocation and registration, financial services, security, agricultural policies, and peace-building must be adequately provided by

governments and civil society organizations to the pastoral communities. An expansion of these services will provide pastoral communities in the study area with a sense of equity and equality.

- k. Peace dividends in the border regions of Turkana and Karamoja are essential because they unite communities and teach them mutuality and reciprocity in accessing and sharing livestock production and land resources. Shared human and livestock watering points, trading centers, livestock markets, cultural activities, schools, and medical facilities, among others, will strengthen ties between communities within and across borders. Access to livestock markets will be enhanced, peace and harmony will prevail, and resource-based conflicts will be drastically reduced.
- l. Reviving the non-functional markets through modernization of infrastructure, implementation of market activity plans, empowerment of market management committees, and improvement of access to financial institutions will stabilize the operations of all livestock market categories, making them profitable, competitive, and season-long. Through access to markets, livestock-rearing communities will enhance their well-being, diversify their economies, develop their localities, and compete for current and future socioeconomic development opportunities.

6.2. Recommendations for Future Research

Research and development planning must continue to investigate resource-based conflicts, cross-border dynamics, the development of pastoral communities through the sustainable utilization of livestock production factors, and the perfection of livestock management decisions and practices through policy and regional integration efforts. Given the necessity of supporting pastoral production systems, building resilience for the long-term food, income, and nutrition security of pastoral communities, and exploiting cross-border trade and livelihood opportunities, the following are areas for future research:

- a. Karamoja and Turkana's rangeland ecosystems and pastoral livelihoods are threatened by climate change and protracted drought. Focusing on this aspect would contribute to the development of a rationale for land use and resource sharing agreements within and across international borders.
- b. Regional integration of pastoral communities in the Horn of Africa, defining the economic potential of pastoral areas and the significance of this potential for the development of their people and pastoral livelihoods.
- c. The contribution of technology to effective communication, industry development, and market expansion. This development will capitalize on enabling factors to enhance the development of pastoral regions by employing a variety of technological and innovative approaches.
- d. Possibilities for accelerating literacy and education among the Horn of Africa's pastoral communities. The current rate of illiteracy is so high that it exacerbates poverty and business underperformance due to poor

communication and the low negotiating and bargaining power of pastoralists in markets.

- e. Depict essential peace dividends that can expedite the integration of neighboring pastoral communities by incentivizing joint access to common resources, developing a protocol for the management of potential resource-based conflicts, and continuing to transform conflict and peace in pastoral regions.
- f. Commercialization of livestock by means of transformative strategies able to inculcate market-oriented livestock farming into pastoral livestock production systems. Such studies will result in a transition from a pastoral livestock economy to a commercial one, thereby increasing access to financial resources and accelerating development outcomes.
- g. Assessment of the functionality of livestock markets in pastoral areas, including strengthening of market links with livestock production zones, the transition of livestock resources across market segments, and how economic returns from livestock marketing activities can build the pastoral economy and promote peaceful coexistence among communities.

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References

- [1] Abay, K. A., Nathaniel D. & Jensen, N. D. (2019). Access to markets, weather risk, and livestock production decisions: Evidence from Ethiopia. *The Journal of International Association of Agricultural Economists*. 2020; 51: 577–593. DOI: 10.1111/agec.12573.
- [2] Addis, A. B. (2017). Major constraints of livestock marketing in lowland part of Ethiopia. *International Journal of Engineering Development and Research*. Volume 5, Issue 1. 489-499. ISSN: 2321-9939.
- [3] Anno, E. F., & Pjero, B. E. (2021). Impact of Traders Competitive Rivalry on Supply and Demand Relations in Livestock Markets in the Drylands of Kenya. *International Journal of Business and Economics Research*. Vol. 10, No. 3, 2021, pp. 99-109. doi: 10.11648/j.ijber.20211003.13.
- [4] Basamba, T. A., Tukezibwa, D., Tumushabe, A., & Ssekabira, K. (2016). Impacts of Pastoral Activities on Nature Conservation in Western Uganda. *International Journal of Ecological Science and Environmental Engineering*. 2016; 3 (2): 42-51.
- [5] Bedelian, C., & Ogutu, J. O. (2016). Trade-offs for climate resilient pastoral livelihoods in wildlife conservancies in the Maasai Mara, Kenya. PRISE Working Paper. Overseas Development Institute, London.

- [6] Benjaminsen, T. A., & Ba, B. (2021). Fulani-Dogon killings in Mali: Farmer-Herder conflicts as insurgency and counterinsurgency. *African Security*. <https://www.tandfonline.com/doi/full/10.1080/19392206.2021.1925035>
- [7] Bonfoh, B., Fokou, G., Crump, L., Zinsstag, J., & Schelling, E. (2016). Institutional development and policy frameworks for pastoralism: from local to regional perspectives. In *The future of pastoralism* (J. Zinsstag, E. Schelling & B. Bonfoh, eds). *Rev. Sci. Tech. Off. Int. Epiz.*, 35 (2), 499–509. doi: 10.20506/rst.35.2.2537.
- [8] Enahoro, D., Mason-D'Croz, D. Mul, M., Rich, K. M., Thornton, P. K. & Staal, S. S. (2019). Supporting sustainable expansion of livestock production in South Asia and Sub-Saharan Africa: scenario analysis of investment options. *Global Food Security* 20: 114–21. doi: 10.1016/j.gfs.2019.01.001.
- [9] Egeru, A., Wasonga, O., Mburu, J., Yazan, E., Majaliwa, G. J., MacOpiyo, L. (2015). Drivers of forage availability: An integration of remote sensing and traditional ecological knowledge in Karamoja sub-region, Uganda. *Pastoralism: Research, Policy and Practice* 5, 19 doi 10.1186/s13570-015-0037-6.
- [10] Elhadi, Y. A., Nyariki, D. M., Wasonga, O. V. (2015). Role of camel milk in pastoral livelihoods in Kenya: contribution to household diet and income. *Pastoralism: Research, Policy and Practice* 5, 8 doi: 10.1186/s13570-015-0028-7.
- [11] Hatab, A. A., Cavinato, M. E. R., & Lagerkvist, C. J. (2019). Urbanization, livestock systems and food security in developing countries: A systematic review of the literature. *Food Security* (2019) 11: 279–299 <https://doi.org/10.1007/s12571-019-00906-1>.
- [12] Herrero, M., Addison, J., Bedelian, C., Carabine, E., Havlik, P., Henderson, B., Steeg, J. Van De, Thornton, P. K. (2016). Climate change and pastoralism: impacts, consequences and adaptation. *Rev. Sci. Tech. Off. Int. Epiz.* 35. <https://web.oie.int/boutique/extrait/07herrero417433.pdf>.
- [13] Kagunya, A., Simiyu, W., & Wanjohi, J. G. (2016). The use of indigenous climate forecasting methods by the pastoralists of northern Kenya. *Pastoralism* 6 (1): 1. <https://doi.org/10.1186/s13570-016-0054-0>.
- [14] Karneback, V. N., Wairore, J. N., Jirstrom, M., Nyberg, G. (2015). Assessing gender roles in a changing landscape: diversified agro-pastoralism in drylands of West Pokot, Kenya. *Pastoralism: Research, Policy and Practice* 5, 21 doi: 10.1186/s13570-015-0039-4.
- [15] Kima, S. A., Okhimamhe, A. A., Kiema, A., Zampaligre, N., Sule, I. (2015). Adapting to the impacts of climate change in the sub-humid zone of Burkina Faso, West Africa: Perceptions of agro-pastoralists. *Pastoralism: Research, Policy and Practice* 5, 16 doi: 10.1186/s13570-015- 0034-9.
- [16] Kimaro, E. G., Mor, S. M., Toribio, J. L. M. L. (2018). Climate change perception and impacts on cattle production in pastoral communities of northern Tanzania. *Pastoralism: Research, Policy and Practice*. (2018) 8: 19. 1-16. <https://doi.org/10.1186/s13570-018-0125-5>
- [17] Little, P. D., Tiki, W., & Debsu, D. N. (2015). Formal or informal, legal or illegal: The ambiguous nature of cross-border livestock trade in the Horn of Africa. *Journal of Borderlands Studies* 30 (3): 405–421.
- [18] Mayanja, M. N., Rubaire-Akiiki, C., Greiner, T., & Morton, J. F. (2015). Characterising food insecurity in pastoral and agropastoral communities in Uganda using a consumption coping strategy index. *Pastoralism: Research, Policy and Practice* 5, 11 doi: 10.1186/s13570-015- 0031-z.
- [19] Motta, P., Porphyre, T., Handel, I., Hamman, S. M., Ngu, N. V., Tanya V, et al. (2017). Implications of the cattle trade network in Cameroon for regional disease prevention and control. *Sci Rep.* (2017) 7: 43932. doi: 10.1038/srep43932.
- [20] Napp, S., Chevalier, V., Busquets, N., Calistri, P., Casal, J., Attia, M, et al. (2018). Understanding the legal trade of cattle and camels and the derived risk of Rift Valley Fever introduction into and transmission within Egypt. *PLoS Neglect Trop Dis.* (2018) 12: e0006143. doi: 10.1371/journal.pntd.0006143.
- [21] Ng'asike, P. O. (2019). Fusing formal and informal trading: Emerging practices in the livestock value chains between Kenya and Somalia.” DIIS Working Paper. Vol. 12. Copenhagen: Danish Institute for International Studies.
- [22] Njiru, N., Nadhem, M., Wanyoike, F., Kutu, A., Songolo, A., Dahir, I., & and Jillo, G. (2017). Assessment of livestock marketing associations in arid and semi-arid lands in northern Kenya. International Livestock Research Institute (ILRI) and USAID - Feed the Future Programme.
- [23] Nyariki, D. M., & Amwata, D. A. (2019). The value of pastoralism in Kenya: Application of total economic value Approach. *Pastoralism: Research, Policy, and Practice*. (2019) 9: 9. <https://doi.org/10.1186/s13570-019-0144-x>
- [24] Omollo, E., Wasonga, V. Elhadi, Y., & Mnene, W. (2018). Determinants of pastoral and agro-pastoral households' participation in fodder production in Makueni and Kajiado Counties, Kenya. *Pastoralism: Research, Policy and Practice* 8 (1): 1–10.
- [25] Pica-Ciamarra, U., Tasciotti, L., Otte, J., & Zezza, A. (2015). Livestock in the household economy: cross-country evidence from microeconomic data. *Development Policy Review*, 33, 61–81.
- [26] Roba, G. M., Lelea, M. A., Hensel, O., & Kaufmann, B. (2019). Elusive Profits: Understanding the economic performance of local traders in the pastoral small ruminant value chain in northern Kenya Nomadic Peoples; *Isle of Harris* Vol. 23 (1): 78-105. DOI: 10.3197/np.2019.230105.
- [27] Sala, S. M., Otieno, D. J., Nzuma, J., & Mureithi, S. M. (2020). Determinants of pastoralists' participation in commercial fodder markets for livelihood resilience in drylands of northern Kenya: Case of Isiolo. *Pastoralism: Research, Policy, and Practice*. 10: 18. <https://doi.org/10.1186/s13570-020-00166-1>
- [28] Seleka, T. B., & Kebakile, P. G. (2017). Export competitiveness of Botswana's beef industry. *The International Trade Journal*, 31 (1): 76-101.
- [29] Staal, S. J., Wanyoike, F. N. & Ballantyne, P.G. (2019). Why livestock matter- Examples and evidence showing positive outcomes and impact of specific livestock-related interventions and investments in Africa and Asia. Nairobi: ILRI. <https://hdl.handle.net/10568/107015>
- [30] Tilahun, A., Teklu, B., Hoang, D. (2017). Challenges and contributions of crop production in agro-pastoral systems of Borana Plateau, Ethiopia. *Pastoralism: Research Policy and Practice* 7: 2.

- [31] Togarepi, C., Thomas, B., & Kankono, M. (2016). Cattle marketing constraints and opportunities in north-central communal areas of Namibia, Ohangwena Region. *Livestock Research for Rural Development* 28 (7) 2016. 1-9. www.lrrd.org/lrrd28/7/toga28132.html
- [32] Uddin, M. E., & Kebreab, E. (2020). Review: Impact of Food and Climate Change on Pastoral Industries. *Front. Sustain. Food Syst.* 4: 543403. doi: 10.3389/fsufs.2020.543403.
- [33] Yiram, H., Ahmed, M, and Mohammed, S. (2017). Livestock marketing: Local belief and clan conflicts in Focus. *African Journal of Marketing Management*. Vol. 9 (1), pp. 1-7, January 2017. DOI: 10.5897/AJMM2015.0452. Article Number: 7CBC2A363060. ISSN 2141-2421.