www.ijarp.com ISSN 2456-9992 Page: 01-12

International Journal Advanced Research Publications

Research Article

Volume: 02
Issue: 02

AN INVESTIGATION OF RESOURCE-BASED CONFLICTS BETWEEN PASTORALISTS AND FARMERS IN TANZANIA, A REFLECTION OF RUFIJI DISTRICT

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Article Received: 25 December 2025, Article Revised: 14 January 2026, Published on: 03 February 2026

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DOI: https://doi-doi.org/101555/ijrpa.4329

1.0 ABSTRACT

This study aimed to investigate the causes of resource-based conflict between pastoralists and farmers communities in Rufiji district. The study adopted cross-section research design in data collection, management and analysis as well as deductive research approach methodology. The population of the study included farmers and pastoralists undertaking agricultural activities in the study area. The study employed stratified and simple random sampling procedures to select study sample size where a total of 156 farmers and pastoralists were engaged. Questionnaire was used to gather quantitative data from farmers and pastoralists which was administered by the researcher. Data was analyzed by using descriptive statistics analysis through SPSS version 26. The study revealed that, climate change has led to increased resource based conflicts between farmers and pastoralists in Rufiji Districts. The findings also show that, scarce land resources has led to increased conflicts between farmers and pastoralists in Rufiji Districts. The study concluded that, climate change has association with scarcity of land resources that fuel conflicts between farmers and pastoralists. The study recommended the government to find ways of supporting the communities with access to water and land that can enable pastoralists and farmers to meet their needs of resources without confrontation. The elders between the parties in the conflict should maintain effective communication to address the problems based on their experience.

KEYWORDS: *resources-based conflicts, farmers, pastoralists, climate change, land resorces*

2.0 INTRODUCTION

Resources-based conflicts between farmers and pastoralists have been gaining attention of many governments leading to directing more efforts to resolve the conflicts through different strategies (Nassef, Eba, Islam, Djohy and Flintan, 2023). Over the years, land associated resources-based conflicts between pastoralists and farmers have become common phenomena in most developing countries, Africa in particular (Diogo, Dossa and Vanvanhossou, 2021). The conflicts have remained serious challenges for many countries with pastoralists' communities. The resources-based conflicts between farmers and pastoralists have been resulting to undesirable outcomes to the societies such as insecurities. Herders and farmers have been occasionally found in a standoff as they compete for scarce resources resulted from changing climatic conditions and social development (Ahmed and Kuusaana, 2021).

Resources-based Conflicts between farmers and pastoralists in Africa is widely documented and reported in many parts of the continent and the problem has become common phenomena in the countries (Diogo, Dossa and Vanvanhossou, 2021). For instance, in Burkinafaso there have been resources-based conflicts between Mossi farmers and Fulani pastoralist, the conflict has lasted for decades. In Nigeria, there are conflicts between the Hausa and Fulani which have caused severe impacts to both communities. In Kenya, as reported by (Massay, 2017), there has been fierce battle between Pokomo (farmers) and Orma (pastoralists) in Tanzania there have been resources-based conflicts between Maasai (pastoralists) and some farmers communities. Studies show that, most of these lasting conflicts are caused by scarcity of resources, beliefs and values, ethnicity, territorial boundaries and many others (Falanta et al., 2018).

In Tanzania mainly in Rufiji district in Pwani region, is one of the areas with active resources-based conflicts between farmers and pastoralists in Tanzania (URT, 2015). The recurring resources-based conflicts have increased concern on the effectiveness of government efforts in finding lasting solution. Moreover, the situation on the ground during high seasons of pastoralists' migrations led to sprout of fresh conflicts. This implies that there is scarcity of understanding on these land-based resource conflicts. The theory of conflicts provide ground of understanding the drivers from conflicts and this can form the basis in developing strategies for conflict resolution between farmers and pastoralists. This study attempts to bring the issues into light for better understanding of the problem in its depth and breath.

3.0 MATERIALS AND METHODS

The study area of this research was at Rufiji District in Coast Region, Tanzania. Rufiji District is one of the districts in Tanzania that experiences problems of conflicts between farmers and cattle herders for significant number of years (Paalo, 2020). The study adopted cross-section research design in data collection, management and analysis. The design helped to obtain data systematically at a single time period and generate information that was used to explain the problem under study. It mainly focused on quantitative strategies which intended to prove the relevancy of the theory used.This study employed stratified-random and simple random sampling procedures to select study sample. In this study, the sample size was 156 respondents representing the entire population. The composition of the study sample was farmers and pastoralists. Since the population of the study was unknown due to unavailable data, the sample size was determined using the following formula by Cochran (1963).

$$N = \frac{Z^2 pq}{e^2}$$

Z = Z-score (1.96), e = level of precision (5%), p= population encountered conflicts, q =1-p. Previous studies show that, 12.5 percent of farmers in Morogoro region have been encountered conflicts with pastoralists thus p=0.125 and q=0.875, this gives,

$$N = \frac{(1.96)^2 (0.125)(0.875)}{(0.05)^2} = 168.07$$

Therefore, the study sample was 168 respondents. However, due to response rate, the actual sample size engaged in this study was156.

This study used questionnaires to obtain data from respondents including farmers and pastoralists in Rufiji district. . Data analysis was conducted using descriptive statistics through Statistical Package of Social Sciences (SPSS) version 26.

4.0 RESULTS AND FINDINGS

The study intended to find out causes of resources based-conflicts between farmers and pastoralists in Rufiji Districts in Coast Region Tanzania. The study involved two dimensions including climate change and land resources in regards to causes of resource-based conflicts between farmers and pastoralists. The study engaged respondents from households in

pastoralists' residence and farmers' residence where each household was represented by a single individual among family members. Moreover, the study engaged respondents who had directly or indirectly experienced resources based-conflicts at one time in recent years within 10 years.

4.1Extent of Farmer-Herder conflicts

The study determined the extent of farmer-herder conflicts in study area.Table 5.0 shows the results.

Table 5: Extent of Farmer-Herder conflicts.

Item Descriptions	Very High Extent	High Extent	Average Extent	Low Extent
The impact of the conflicts on communities well being	54%	27%	13%	6%
Repeated incidents of farmer-herder conflicts	31%	34%	25%	10%
Resolution effectiveness in the farmer-herder conflicts	17%	13%	42%	28%
The level of the government efforts in resolving the conflicts	25%	28%	30%	27%

Source: Field Data (2026)

The results in Table 5.0 indicate that majority of respondents rated the impact of farmer-herder conflicts on communities well being as at very high extent (54.0%). Also repeated incidents of farmer-herder conflicts were rated high extent by majority of respondents (34.0%). The effectiveness of existing resolution in the farmer-herder conflicts was rated average by majority of respondents (42.0%). Furthermore, respondents' satisfaction with level of the government efforts in resolving the conflicts was rated average by majority of respondents (30.0%). The results imply that, the problem of resource-based conflicts between pastoralists and farmers still exists and the strategies to resolve the problem have not achieved the goals.

4.2 Probable Causes for Re-Occurrence of Farmer-Herder Resource-Based Conflicts

The study determined the most probable causes for persistence of farmer-herder conflicts in the study area. Table 6.0 shows the results.

Table 4.6: Causes of Farmer-Herder Conflicts.

Item	Frequency	Percent
Ignorance and willingness of local leaders	41	26
Ineffective government resolution strategies	50	32
Lack of collaboration in resolving the conflicts	43	28
Continuous intrusion to others land and territory	22	14
Total	**156**	**100.0**

Source: Field Data (2026))

Table 4.6 above shows respondents reactions to the most probable causes for re-occurrence of farmer-herder resource-based conflicts. Majority of respondents noted that the ineffective government resolution strategies on the conflicts 50(32.0%) was the main cause of re-occurrence of the conflicts. Moreover, the results show that, the least reason to re-occurrence was increased hatred among farmers and pastoralists. The results implies that, the government has a big role to play to prevent the re re-occurrence of the resource-based conflicts between Pastoralists and Farmers.

4.3 Climate Change Resource-Based Conflicts between Farmers and Pastoralists

The study provides the results of respondent's response to the influence of climate change on resource-based conflicts between farmers and pastoralists. Climate change causes various issues of resources utilized by farmers and pastoralists in their farming and grazing. Table 3.0 shows the results.

Table 3. Climate Change Resource-Based Conflicts.

	Mean	Std. Dev
Drought has regularly caused scarcity of river water in the area	4.2326	1.17498
Drought has negatively caused arable land/pasture for farming and grazing	3.8851	1.27065
Grazing land is highly affected by scarcity of rainfall leading to dryup of pastures	4.0233	1.14765
Climatic change has pushed for migration of herders in serach for water and pastures	4.1977	1.14604
Climatic change has affected the framing/grazing land by leading low plants and pastures growth.	4.1279	1.07152

Source: Field data (2026)

The results in Table above show that agreement of respondents that, drought regularly caused scarcity of water in the area had a mean of 4.2326 and that drought deteriorates arable land/pasture for farming and grazing had a mean of 3.8851. Also the agreement that grazing

land highly affected by scarcity of rainfall had a mean of 4.0233 and that climatic change has pushed for migration of herders had a mean of 4.1977. Furthermore, the agreement that climatic change had affected the framing/grazing land to highest degree had a mean of 4.1279. The results indicated that all factors had mean in the range 3.885 to 14.2326 an indication that respondents agreed and strong agreed on the items building up the variable of climate change. In addition, the common factors resulted from climate change in relation to resource-based conflicts was that which provided that drought regularly caused scarcity of water in the area. The study found that respondents agreed that, all five climate change led outcomes lead to resource based conflicts between herders and farmers in Rufiji Disrict. Farmers and pastoralists activities are dependent on climatic conditions which determine the availability of resources such as water, arable land and pastures. When the climate chages and cause scarcity of resources, they end up competing for available scarce resources hence conflicts. Climate is crucial and is the determinant of peaceful coexistence of both farmers and herders.

4.4 Land Resource and Resource-Based Conflicts between Farmers and Pastoralists

The study provides the results of respondent's response to the influence of land resource on resource-based conflicts between farmers and pastoralists. Land resource causes various issues of resources utilized by farmers and pastoralists in their farming and grazing. Table 4.0 shows the results.

Table 4. Land and Resource-Based Conflicts.

	Mean	Std. Dev
Land resources led pastoralists to expand their farmlands to farming fields	3.6395	1.42179
Farming/grazing land and water are always scarce	3.4419	1.45201
Scarcity of for farming/grazing land has heightened the farmer-herder crisis	3.5349	1.33459
insufficint arable land led farmers to expand their farmlands to grazing fields	3.4884	1.36979
Scarcity of water has created competition and conflict	4.0349	1.19260

Source: Field data (2026)

The results in Table above show that agreement of respondents that, land resources led farmers to expand their farmlands to grazing fields had a mean of 3.6395and that farming/grazing land and water are always scarce had a mean of 3.4419. Also the agreement that scarcity of for farming/grazing land has heightened the farmer-herder crisis had a mean

of 3.5349lack of land resources led farmers to expand their farmlands to grazing fields had a mean of 3.4884. Furthermore, the agreement that scarcity of water has created competition and conflict4had a mean of 4.0349. The results indicated that all factors had mean in the range 3.4419 to 4.0349 an indication that respondents agreed and strong agreed on the items building up the variable of climate change. In addition, the most factors resulted from climate change in relation to resource-based conflicts was that scarcity of water has created competition and conflict. The study found that respondents agreed that, all five land resource constructs lead to resource based conflicts between herders and farmers in Rufiji Disrict. Scarcity of water which resulted from climate droughts was the main driver of the conflicts in the area. Both farmers and herders need water for their crops and livestock respectively. Land resources are the key for agricultural activites for both farmers and pastroralists which cause conflicts when they are scarce.

5.0 DISCUSSIONS OF THE FINDINGS

This section provides discussions of the findings resulted from the field data by respondents. The discussion is based on specific research objectives and corresponding research questions. The discussions also compared findings with previous studies conducted on similar topics. The section focuses on the results and findings generated from descriptive statistics analysis.

5.1 Climate change and Resource-Based Conflicts Pastoralists

The findings indicate that climate change affects both farmers and pastoralists farming and livestock keeping respectively due to dought and dried sources of water. Drought due to climate has affected farmers' crops growth while at the same time affects herders access to pastures and drinking water for their crops. The increased impacts of climate change have brought pastoralists closer to farmers in a dangerous situation. In Rufiji District, most parts are affected during dry seasons except Ruaha River Basin which is always wet throughout the year and the farming acivities are active throughout the year. The study found that, pastoralists have tendencies of migrating in searching for pastures and drinking water for their livestock which force them to Ruaha River Basin where farmers are executing farming activities during dry seasons. The study show that deficiency of water and pastures for grazing due to climate change has been compelling pastoralists to move in into farmers territory to compete for available resources. The findings corroborated with the study by Nassef et al. (2023) who found that, the continuous conflicts of between farmers and pastoralists was largely the outcomes of struggle for land and water resources as well impacts of climate change. Climate change affects communities as their production activities are

highly affected, it creates the state of competitions of resources among farmers, and herders as each party compete to control the available resources.

The competition leads to escalation of insecurity as the competition for resources turns into armed conflicts between the parties. The impacts of climate change is diverse in nature and is well felt by both farmers and pastoralists. However, according to the study findings, pastoralists have been the sources of the conflicts as they adopted nomadic lifestyle that gives them no boundary of their influence. They move with massive livestock, intrude into farmers and ignites conflicts that led to more destruction. The findings are supported by Dube et al. (2023) who noted that, migration of herders has created disputes with farmers due to over crop damage by cattle, water pollution and increased livestock theft. Variability of climatic change has created pressure to the available resources at the Ruaha river basin leading the parties forced to share scarce resources.

They move freely searching for feeding for their herds. At this point, pastoralists are in desperate needs of resources for feeding their livestock due to scarcity led by climate change. The outcomes of extensive search is to force them intrude to farmers crops and lead to destructions to a level of no tolerance. Pastoralists, who perceived to be highly affected by the climate change impacts on natural resources, have been the real sources of conflicts. They enter the farms let their livestock graze on farmers crops leading to more destruction. In similar study, Nwangwu et al. (2020) noted that Ghana has been facing conflicts between farmers and pastoralists due to intrusion of animals into farmers' agricultural lands or farmers grabbing land reserved for pastoralism. In response farmers responded with violence of which both parties participate. While pastoralists extensively engaged in crop destruction and burning farmers residents, farmers respond by killing herders' animals particularly cows, goats and sheep as well us burning off pastoralists' homesteads. Climate change is the primary driver of farmers-pastoralists conflicts in Rufiji District leading to social conflicts.

5.2 Land Resources and Conflicts between Farmers and Pastoralists

The findings indicate that land resources affect both farmers and pastoralists farming and livestock keeping respectively. Land resources such as arable land and water are essential for their survival and well-being of both farmers and pastoralists. Saruni et al. (2018) show that, the major forms of conflicts between farmers and pastoralists were driven by; village boundaries, livestock routes and land issues While farmers need arable land and water for crops production, pastoralists need arable land and for pastures and animals drinking water

respectively. The essence of conflicts between farmers and pastoralists is explained from the context of land resources particularly farming land and sources of water. The findings corroborated with study by Nassef et al. (2023) who found that, the continuous conflicts of between farmers and pastoralists was largely the outcomes of struggle for land and water resources as well impacts of climate change

Livestock pastures and drinking water for animals kept by the pastoralists are all the function of land resources. For decades, land has been a serious issue between farmers and pastoralists, causing unbearable social conflicts. Due to nature of pastoralists activities, they believe that they are not bound by boundaries established particularly the limit of their movements. The intrusion of pastoralists into farmers land has become a common phenomenon and causes of conflicts between farmers and pastoralists. Scarcity of land resources increase competition and hence create a state of struggle and misunderstandings between the parties. Bayala et al. (2023) noted that conflicts are mainly generated by competition for accessing to and utilization of land and water for livestock and farming. The conflict on land resources are also influenced by changes in climatic conditions. During bad climatic conditions such as drought, the competition of land resources intensify, as the resources are growing scarcer pushing the pastoralists into social conflicts and destruction of lives and properties. Conflicts associated with land resources have drawn attention of the government and various measures are in place.

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