

# **Land Use and Socio-Economic Implications of Pastoralists In-Migration in Rufiji District, Tanzania**

**By**

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**PhD. Sokoine University of Agriculture (SUA), 2016**

## **Abstract**

The study on which this thesis was based intended to fill the gap on inadequate research regarding the effects of pastoralists' in-migration on land use and socio-economic effects in Rufiji District by: (i) examining pastoralists' influences of land use changes, (ii) examining consequences of pastoralists in-migration on socio-economic activities among local people, (iii) scrutinizing land use conflict escalations, and (iv) examining effects on livelihoods.

The study was guided by the following theories

- Malthus' population theory

The Malthus' Population Theory explains issues on population increase in a given area. Thomas Malthus in 1798 published a book called: *An Essay on the Principle of Population*. In his arguments, Malthus explained that during that time population was growing at a rate that exceeded available supply and the ability of the natural resources to support the growing population. The theory postulates the dangers of population growth and over population on the natural resources. He argued that human populations would increase at a faster rate (geometric) than that of food supply which would increase at an arithmetic rate. A point would come when human population growth would reach the limit at which food resources could support it. As the theory postulating the environmental effects of population increase, it was therefore significant to be considered in this study on pastoralists migration for migration is considered one of the aspects of the population changes in terms of population structure and composition.

- Social conflicts model

Social theorists in the nineteenth and early twentieth centuries were concerned with conflict in society. Conflict theorists do not believe that societies smoothly evolve to higher levels. Instead, they believe that conflicting groups struggle to ensure progress. Conflict theorists assert that conflict is a necessary condition for change. It must be the cause of change. Thus, conflict is associated with all types of social change in one way or another. The current study was based on three social conflicts model ideas by Dahrendorf (1959), Simmel (1969) and Aubert (1963). According to Dahrendorf (1959), conflicts are a struggle between social groups and also area result of clashes of group interests. On the side of Simmel (1969), conflict is merely an intense form of social interactions and is a normal part of the social order. On the other hand, Aubert (1963) classified the types of interpersonal conflict that arise in dynamic relationship between two individual groups, the sources of the conflicts and the ways of resolving the conflicts. The social conflict model was necessary for they all dialogue on the existence of conflicts in societies; they mention about causes, mediation techniques as well as classifying the conflicting actors.

- The Boserup migration theory

Esther Boserup (1965) regards migration as one of the determinants of population growth of any society. She argues that intensification is an induced response to population growth. She maintained that production was intensified and additional technology adopted mainly when forced by population. She argues further that increased population pressure provides the primary stimulus for innovation and intensification. Changing agricultural methods to raise production concentration at the cost of more work at lower efficiency is what Boserup describes as agricultural intensification. In this model population is determined by

technological change. There is discrepancy in the Boserup's theory that it bases only on the innovations in agriculture. It does not consider some other factors that may change as a result of population growth. The study takes the idea from Boserup as such that migration in the study area has caused population growth directly and indirectly. In this case the increased population in the area is assumed to have caused effects on the local people's livelihoods.

This study was conducted in Rufiji District which is among six districts in the Coast Region. The Rufiji River runs through the district and forms the biggest river plain in the country. The district was chosen because it had been receiving a number of pastoralists since 2000s and was among the areas identified by the government where the Mbarali and Kilombero evicted pastoralists were directed to go. The study adopted cross-sectional design because it allows the investigation of the relationship existing between the pastoralists' socio-economic activities and the emerged land use and socio-economic effects in the study area. The design was proposed due to its flexibility characteristics in the collection of both qualitative and quantitative information with accuracy, quick and precise results.

- The study used multistage sampling techniques to select the divisions, wards and village. This method allows more than one sampling method to be used. The respondents for the study were 396 which included village members from each household who were aged 30 years and above in 2014 and who had been living in the village since or before 2000. This was done purposefully due to the fact that demographically all of these by the year 2000 were ageing 13 years and above and hence they had experienced the situation under investigation.
- Data were collected through a survey where documentary review, key informant interviews and focus group discussions were used to collect data. Qualitative data were transcribed into text and analysed basing on the content and meaning of the text. Binary logistic regression analysis was applied to: establish influence of various factors on land use changes and local people's participation in new economic activities.
- The study involved the collection of both qualitative and quantitative data. It was necessary to use a combination of data in order to obtain sufficient and insightful information for this study. Therefore, both qualitative and quantitative techniques were applied in the process of collecting the primary data. The primary data collected included the trends of the land use conditions, land use distributions, and respondents' socio-demographic data (age, sex, religion, occupation, level of education, and household size). Other primary data included peoples' involvement in new economic activities, the livelihood outcomes attained, socio-economic challenges encountered after the pastoralists' arrival and the newly introduced socio-economic activities. Sources of primary data included the key informants, household heads and community members.

The results on influence of in-migrant pastoralists on land use change indicated that;

- Pastoralists' arrival in the study area involved cheating as some were not registered and others registered less numbers of livestock than the amounts they actually owned, which resulted in villages ending up without having proper records of the number of people and livestock received. The village leaders were blamed to have been involved in cheating. It was further reported that other pastoralists came in without registration as they came under the umbrella of the few registered colleagues.
- The majority (84.5%) of the respondents acknowledged the existence of land use changes in the study area. This indicated that the coming of pastoralists hassled the

changes in land use. This was in the form of expansion of newly existing land uses or introduction of new land use activities. The evidence provided for the land use changes include: establishment of new settlement areas, establishment of new farming lands, drying of wetlands, destruction of vegetation cover, burning of forests and soil erosion.

- Land uses before the arrival of the pastoralists in many villages were limited. This was due to the nature of the socio-economic activities which were carried out by the local people. The village level, especially in the surveyed villages, major and dominant land use types were: agriculture which included crop cultivation (both food and cash crops), human settlement, forest land and burial sites.
- The arrival of pastoralists introduced livestock grazing. This activity was initially carried out by a limited number of local residents before the pastoralists' arrival in the district; however, after pastoralists' arrival, it became among the dominant land uses being ranked third (24%) after human settlements (27%) and crop production (33%).
- The livestock grazing has become a famous land use in the study area, and it has diversified land use types from four main land use types to five. There were expanded grazing land and human settlements, especially into protected land, forestland and farm land which were a result of human and livestock population increase.
- Using binary logistic regression, pastoralists related factors responsible for influencing land use changes in the study area were number of livestock, number of years pastoralists had lived in a village and the local people's involvement in livestock keeping was found to have significant influence on land use changes

On in-migrant pastoralists' effects on socio-economic activities, it was found that;

- Prior to the arrival of the pastoralists in the study area, the residents were involved in various income generating activities. The majority (84%) were engaged in crop production while (8%) were engaged in fishing and coconut vending, and 5% were self-employed in various occupations like in vehicle driving, masonry and tailoring, and very few (3%) were engaged in livestock keeping.
- Food crops were produced for home consumption, and the surplus was sold; cash crops included coconuts and cashew nuts. Thus, until the advent of pastoralists, few residents were involved in livestock keeping. This implies that, basically, before the interactions with pastoralists, the local people in the study area were limited to such economic activities.
- It was reported that about seven new economic activities and sources of income had been introduced in the study area. These included food crops production and selling (including sweet potatoes, millet, sorghum and legumes like beans) which are produced for food and commercial purposes. After the arrival of pastoralists, the local people have been able to open retail shops, meat shops (butchers), engage more in charcoal burning and selling, selling cattle and milk (dairy products), and to harvesting and selling timber. It was established that the local people were not used to produce the above-mentioned crops, but they started producing them after they were inspired by the pastoralists who introduced these crops in the study area.
- In fact, the local people were exposed to new sources of income and were forced to get involved in new economic activities as a strategy for income sources diversification. Two-thirds of the respondents (67%) had experienced and were aware of newly introduced economic activities, while those who did not have knowledge and others who were not sure of the new economic activities constituted

33%.

- Binary logistic regression was applied to assess the effects of factors on the chances that local people would engage in new economic activities. Four factors made a unique statistically significant contribution to the model. These are household heads' level of education ( $p < 0.05$ ), age of the household head ( $p < 0.01$ ), religion ( $p < 0.001$ ) as well as sex of the household head ( $p < 0.05$ ).

Regarding land use conflicts escalation as an aftermath of pastoralists' in-migration, the results revealed that;

- Pastoralists were not settling in the allocated areas because the government had not provided them with important infrastructures such as cattle dips (locally termed as "malambo"). As a result, they moved to farm lands searching water for their livestock. This resulted in occurrence of conflicts between the local people and pastoralists. This implies that the local communities and pastoralists were not living in peace. The study established that sometimes conflicts between the locals and the pastoralists arose when there were no agreements regarding compensation for loss caused by cattle devastation of farms. Sometimes pastoralists refused to pay for the loss, hence leading to misunderstandings between the two parties.
- The existence of conflicts between village leaders and pastoralists occurred when some pastoralists do not abide to laws and by-laws especially when they are accused of and obliged to pay compensation for the destroyed crops, either in cash or in kind.
- Land use conflicts occur among villagers (intra-village conflicts) and between villages (inter-village conflicts). These kinds of conflicts have existed even before the arrival of pastoralists. Another kind of conflict is intra-sector involving pastoralists and agro-pastoralists. This conflict is caused by pastoralists feeding their livestock on the farms belonging to agro-pastoralists.
- The famous and most applicable techniques used to reduce conflict was frequent meetings with pastoralists' leaders who also include village leaders and the conflicting parties.
- The use of by-laws, evaluation of loss, reporting to the police and cases being opened at the primary courts, conflict mediation between conflicting parties, involvement of pastoralists and village elders in conflict resolution and evacuating pastoralists out of the village were also important approaches towards conflict management.

Regarding the impact of in-migrant pastoralists on livelihood outcomes of the local people. The results indicated that;

- About 69.5% of the respondents reported that there was advent of livelihood outcome effects which were caused by the arrival of pastoralists whereas 30.5% reported that there were no impacts. The effects which were mentioned include: recurrent conflicts, emergence of new businesses, destruction of farmers' farms and crops, cultural interactions and local people's land invasion. Furthermore, 55.4% of the respondents reported that the impacts were positive while 44.6% said that the effects were negative. The most common livelihood outcome reported by the respondents was the recurrent of resource (land use) conflicts (10.8%), followed by introduction of new crops (9.5%) and introduction of new livestock (9.3%) as livelihood outcomes on the other hand.
- The new livestock included donkeys and bulls for farm tilling and carrying goods.

The lowest noted experienced livelihood outcome was growing social interactions (8.5%). Other livelihood outcomes included: construction of modern houses (iron sheet roofed and cement blocks), establishment of village sustainable land use plans, introduction of new sources of income, population increase, and change in agricultural systems and techniques, increased access to social services and improved food security.

- The mean score on the livelihood outcome after the arrival of pastoralists among the local people was 6.2, which were at the high level as the moderate mean score was 6.0.
- Further, 49.5% of the respondents had high level of outcomes; 28.5% had moderate outcomes and 22% were found to have a low level of livelihood outcome as a result of the influence of pastoralists in the study area. These findings were confirmed by 55.4% of the respondents who stated that the coming of pastoralists had resulted in positive impacts on the livelihood outcomes of the local communities in the area.

From the empirical findings, this study concluded that;

- ✓ The coming of pastoralists and agro-pastoralists in the study area has caused land use changes as they have caused both human and livestock population to increase hence more demand. The changes have branded the areas with vegetation clearance, widespread of forest fires, and destruction of water sources. Land uses have changed compared to the time before the arrival of pastoralists. In the past, land uses were dominated by, but not limited to, agriculture and human settlements. After the pastoralists' arrival, land uses were dominated by agriculture, human settlement and livestock keeping.
- ✓ The coming of the pastoralists to the study areas have brought significant socio-economic changes to the local people. The changes include expansion of sources of income and socio-economic activities. Adoption of livestock keeping activities which was traditionally practiced by few of them people became a core activity. There were elements of cultural and social interactions between the locals and the pastoralists. These interactions happened in the forms of intermarriages, dietary habit changes, and exchange of worshipping and traditional norms and values.
- ✓ Land use conflicts were common before the arrival of pastoralists. However, there was an increasing number and type of actors involved in the conflicts. There were still prevailing conflicts caused and steered by the arrival of pastoralists. The main causes of land use conflicts were: pastoralists' invasion and livestock grazing on crop farms, pastoralists not observing boundaries of the grazing land demarcated for them, village leaders favouring pastoralists in decisions and ignoring natives' rights, government authorities' ignoring village agreements, and pastoralists refusing to pay compensation for the farmers' destroyed crops.
- ✓ Indeed, the livelihoods in the study area have been affected by arrival of the pastoralists, and the effects are both positive (advantageous) and negative (disadvantageous). The knowledge generated from this study provided insights that can be used during formulation of appropriate interventions to improve the livelihoods of the local people in the study area and other areas in the country (Tanzania) with similar conditions. Apart from the challenges caused by pastoralists, there were potential opportunities that may arise from interactions between pastoralists and crop farming communities.

Generally, the study recommended that policy makers need to create an enabling

institutional environment at state and local government levels that is sensitive to the specific needs and constraints of pastoralists and also provide them with space and authority for decision making. Development planners should have a clear understanding of the national policy context, of supportive and unsupportive policies, and of the general attitude of government towards pastoralism. A special focus on pastoralist-related issues and constraints is also required in the development Plans. Further, there is a need for the pastoralists recounting so that the district can recognize their actual population size. This will enable the government at the district and village levels to have reliable land use and development planning at both levels.