Tengeru Community Development Journal
ISSN 1821-9853(Print) ISSN 2665-0584(online)
Vol. 7, No.1, 2020

Sustainability of Rangeland Management for Livestock Development in Lahoda and Pangarua Villages Kondoa District Tanzania

George Julius Babune[1] and Josiah N. Mshuda[2]

[1]The Mwalimu Nyerere Memorial Academy- Karume Campus Zanzibar

Department of Social Studies P.O.BOX 307 **Zanzibar, Tanzania.**

E-mail: georgebabune@gmail.com

[2]Dodoma Environmental Network, Executive Director

P.O.BOX 1414

Dodoma

Abstract: Rangelands are diminishing from factors despite many efforts by actors at a local and global scale. Tanzania is endowed with many livestock. However, its rangelands are faced with sustainability challenges. The paper assessed practices of rangeland in Kondoa district, Tanzania. Examined extent to which built up rangeland infrastructure was managed by community members. Explored real-world leveraging practices in implementation and related challenges. A qualitative approach was employed with a case study design. A 50 sample was obtained purposively in two categories of farmers and herders, and government officials and leaders. Focus group discussion was used with 36 participants divided into two groups of herders and farmers. Key informant interviews involved 14 government officials and leaders and documentary review obtained data. Data analysis involved theme and content analysis. Results indicated that community had a low level of awareness about project. There was a low level of practices in rangeland management. Community had not effectively managed to contribute manpower in establishment of building infrastructure. Found demarcation of rangelands in acreage, yet rangeland encroachment was revealed. Partial practices for managing rangeland were observed like incomplete land use plan and conflict. Concluded as observed limited sustainability of rangeland being influenced by a low level of awareness, partial practices, encroachment, and boundary issues. Recommended for resolution of conflict on rangeland and boundary issue by actors. It is important to address herder-farmer needs for equity concern. Practical implementation of the land use plan in documented evidence as a tool for managing rangeland resources was required.

Keywords: Sustainability, Rangeland Management, Livestock Development

Received January 2020
Accepted March 2020
Available online 03 May 2020

1.0 Introduction

The concept of sustainability originally was defined as maintaining natural systems over the indefinite future, such as living, working, and managing in environmentally sustainable ways, promoting biodiversity, and so on (Mitchell, 2010). Today, sustainable management has been used in sustainable development literature (Brang *et al,* 2002). Mitchell (2010) argues that although no agreed-upon definition of sustainable management exists, sustainable rangeland management involves the kinds of management that consider all aspects of rangelands, including their environmental, economic, and social values and the attempts to integrate them to achieve a sustainable future. According to Mitchell (2010), human values concerning rangelands and the environment have slowly shifted during the past half-century. Until the mid 20th century, people thought of rangelands primarily in terms of domestic livestock production. Nowadays the concept is applied in various fields including economic development, food production, energy, and lifestyles. According to Solomon *et al.* (2006b), the sustainable use of rangelands depends on the understanding of the extent of the rangelands deterioration, and how can these grazing areas be restored. Most of the people working in rangeland areas have underestimated degradation problems (Meadows and Hoffman, 2003). Rangeland degradation is not a spatially uniform process; there are substantial off-site effects. Some landscapes are more prone to degradation than others because they have erodible soils and palatable species, which attract more grazing activity or both (Pickup *et al.,* 1998). For that matter, rangelands are increasingly recognized as having high conservation value and a broad range of social, ecological, environmental and economic benefits that attract many actors (Sulak and Huntsinger 2007, Wetzel *et al.* 2012). According to Bolo et al, (2019), rangelands occupy 25 percent of the total land surface globally. In Africa, rangelands are estimated to cover around 66 percent of the land surface. In Eastern Africa, for example, the land surface coverage of rangeland areas varies from 44 percent in Uganda and 65 percent in Ethiopia to 74 percent in Tanzania and over 80 percent in Kenya. These have environmental, ecological, social and economic benefits, including support to national economies through tourism and employment. However, there had been recorded limited development and management that threaten the sustainability of these range resources at local and global scales. Evidence indicates that globally, 20 percent of rangelands have been degraded, with an additional 12 million ha being degraded worldwide each year (Brunson, 2014).

Received January 2020
Accepted March 2020
Available online 03 May 2020

From North America to Australia, rangelands have been converted to other uses because of factors such as suburban and exurban development, population growth, and agricultural expansion (Cross *et al.* 2011, Cameron *et al.* 2014, and Reid *et al.* 2014). Given the rangelands degradation, there has been experienced a change in means of rangelands management that characterises two shifts. These are traditional and private approaches. The shift from the traditional methods of community-based range management to private has pros and cons. Efforts to work with private landowners as partners in conservation have resulted in a variety of incentive-based mechanisms to promote land use and management that aimed to meet conservation goals (Brunson and Huntsinger 2008, Reid *et al.*, 2014). However, the interventions receive limited responses. This is due to the widespread conversion of rangelands for development and more intensive forms of agriculture. This has raised concerns about the loss of habitat and open space and diminished the provision of ecosystem services (Cameron *et al.*, 2014). Besides, overstocking and expansion of agriculture, rangelands are diminishing. Also, the practice of vegetation clearance and grasslands over space is now deteriorating in much of the Middle East, Central Asia, the Northern part of the Indian subcontinent, Mongolia, and much of northern China and Africa (Worku, 2016).

The extent of degradation in developing countries is difficult to quantify because of lack of monitoring, but certainly, concern exists that the human population is exerting significant pressure on rangeland ecosystems (Mussa *et al.*, 2016). It is also stressed that no general concept of land degradation exists that is uniformly applicable to all situations because it is necessary to define the factor being degraded (Reynolds *et al.*, 2003). However, in general, degraded rangelands are characterised by sustained, reduced biological and economic productivity associated with improper or unsustainable human land uses and the impact of this unsustainable use on hydrology, soil processes, and vegetation composition (Donald and Jay, 2012). Worku (2016) found that in Africa, rangelands have been diminishing in size. An example is given to Ethiopia where rangelands cover about 60 to 65 percent of the total area (about 78 million hectares) and are the major sources of livestock feed. However, they are characterised by arid and semi-arid agro-ecologies and experience a relatively harsh climate with erratic rainfall and high temperature. This questions the synergy of the community-based knowledge versus the ecological professional practices in safeguarding the natural resources and optimising the use of

Received January 2020
Accepted March 2020
Available online 03 May 2020

rangelands for the private and public rangeland resources. Farley *et al.* (2017), argue that private and public land conservation are strongly linked to and would be more effective if the two strategies are integrated. According to Khwarae (2006), sustainable rangeland management systems should result from a combination of community based indigenous knowledge, communities' perceptions and past practical experience, and scientific knowledge to rehabilitate degraded rangelands and conserve biodiversity. UNDP (1997), indicates that a key factor for sustainable rangeland management is the ability to use indigenous institutions to conserve biodiversity and maintain full resource access rights. Khwarae (2006), further indicates that it is important to understand the differences between perceptions of scientists and local communities to find out how these gaps can be bridged to bring about sustainable use of rangelands in context. Countries in Africa originally were traditionally community-based or common property resources in approach to rangeland management. This had proved a challenge to sustainability. Yet the shift to public and private property resources also has not addressed effectively the challenge of sustainability to rangelands.

In the context of Tanzania, the country is endowed with abundant land and a huge livestock resource base. Out of 88.6 million hectares of land; 60 million ha are rangelands with a carrying capacity of up to 20 million livestock units and providing over 90 percent of the feed resource for livestock (the United Republic of Tanzania, 2011). Over 70 percent of livestock in the country is found in the lake, northern and central zones. These animals are kept under four farming systems which are; mixed farming, agro-pastoral, pastoral and commercial. The current update indicated that there were 22.8 million cows, 22.8 million goats and 7.0 million sheep (URT, 2012). It is explained that the country ranks third in Africa in terms of cattle numbers after Ethiopia and Sudan. In 2009, the livestock sector contributed 4.0 percent of the gross domestic product (GDP), of which 40 percent came from beef, 30 percent dairy and the remaining 30 percent from other livestock products. The development and sustained management of rangeland are required to promote the livestock sector to contribute effectively. There is 44 million ha which is classified as suitable for agriculture in Tanzania. Only 10.6 million ha are under cultivation. About 50 million ha of rangelands are suitable for livestock grazing but only 24 million ha are currently being utilised and are supporting 12.1 million ruminant tropical livestock units. The rest (about 40 percent) of land suitable for ruminant

Received January 2020
Accepted March 2020
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livestock keeping which is currently not being utilised due to tsetse flies which are widespread in the country. Regarding land use activities, by 2009, a total of 1,423,201.28 hectares of land spread over 266 villages in 33 districts and 15 regions had been allocated for livestock. Two dams, 1,227 charco dams, and 21 deep wells had been constructed for livestock use. The rate of demarcation of land for livestock has been a slow process due to inadequate funding and inadequate survey equipment and personnel at the district level (URT, 2010). The rangeland project in Kondoa district was an attempt to add efforts in livestock planning for Dodoma region. The Sustainable Rangeland Management Project (SRMP) in Lahoda and Pangarua villages of Kondoa district in Dodoma region Tanzania was being supported by Care International Tanzania. The project was entitled *Strengthening the Capacity of Livestock Communities and Local Leaders to Sustainably Utilize and Manage the Rangeland Resources in Kondoa District.* It was intended to address the problem of limited capacity to address issues of village land use plans, unsustainable rangeland management practices and endemic land-use conflicts between pastoralists or agro-pastoralists and smallholder farmers. The project goal was to contribute to improved livelihood of pastoralists or agro-pastoralists and smallholder farmers through promoting and supporting improved land use planning, rangeland management practices and the ability to use the land as a tool for poverty reduction. The major areas of the project involved awareness creation focusing on education and sensitization on land rights, participatory land-use management plan, rangeland management plan and improved livestock management for increased benefit to livestock keepers. The project started in 2011 and in mid-2012 it had implemented the following activities: Firstly, the conduct of sensitisation meetings on land uses plan and rangeland management. Secondly, the formulation of working committees on natural resource management. Thirdly, the identification of village boundaries and rangeland areas. Lastly, the building of the village land registry for land uses documents management. During that period it was observed that the activities be stopped for a while to give chances for reorganisation and change of approach of how to implement the remained parts of the project. Linking to the practical perspective of rangeland management, the project strategies aligned with Mitchell's (2010) criteria and indicators developed to ascertain sustainable rangelands management as developed by the Sustainable Rangeland Round Table in the United States. The criteria consider six clustered issue groupings that form the basis for criteria identification in range management. These categories involved soils, rangeland health, invasive, change of the

Received January 2020
Accepted March 2020
Available online 03 May 2020

range, capacity and social goods and commodities. These issues produce five criteria for sustainable rangeland management. These are the first is conservation and maintenance of soil and water resources on rangelands. The second criterion is the conservation and maintenance of plant and animal resources on rangelands. The third criterion is the maintenance of productive capacity on rangeland ecosystems. The fourth criterion is the maintenance and enhancement of multiple economic and social benefits to current and future generations. The fifth criterion is the legal, institutional, and economic framework for rangeland conservation and sustainable management (Bartlett *et al.*, 2003). These criteria though not explicitly used find an application in the project.

The paper employed the health governance model in an attempt to understand the rangeland management project as put forward by the World Bank in 2004 (Brinkerhoff and Bossert, 2008). The model portrays that there three actors in health governance namely the state actors and policymakers forming one category. The second category of actors in health governance involves political actors. These influence decision making about health. The third actors are the community members who voice to political actors, while the state actors act as technical professionals. These influence decisions through political actors, having technical powers in health. The model has relevance to rangelands whereby, policy and practices are influenced by these actors who act variably in space to inform the current distribution, status, and use of rangelands. The community members' voice over rangelands, for instance, is dependent on their levels of awareness regarding the livestock sub-sector's importance and their rights at hand. This awareness cuts across to all the political, policy and state actors as influential doers in planning, decision making and practice of rangeland management. Since awareness is a central factor in informing practices on the ground about rangeland management and development, it was important to explore the sustainability of rangeland in the area. In examining the influence of the sustainability of the rangeland project, the paper adopted the following specific objectives. The first objective was to examine the Lahoda and Pangarua communities' awareness after the completion of the project activities. The second objective was to examine the extent to which the built-up system of rangeland was managed during the period of stoppage. The third objective was to explore the best real-world leveraging practices developed during the undertaking of the activities in the area. The fourth objective was to document challenges associated with the management of rangeland in the area.

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Accepted March 2020
Available online 03 May 2020

2.0 Methodology

The study was done in Dodoma region, Kondoa District at Lahoda and Pangarua village. It adopted a qualitative approach. This was required because of the need to understand the breadth of sustainability and rangeland management practices. The case study design was employed to understand the case in detail. The sample size for the study was 50 comprised of farmers, herders, local government leaders, environmental network members, and government officials. This sample size was estimated by employing purposive sampling procedures. Purposive sampling was useful due to its ability to identify only the beneficiaries and dealers of the project that involved the community of livestock keepers, farmers, and government officials. These were the ones that they know about the policy and legal issues about livestock. They also understand practice-related issues of the livestock keepers and rangelands in their area. The target population was the village community members. Data collection methods involved documentary review. This was used due to its ability to facilitate the obtaining and reading of literature relevant to the development like project documents, academic papers, and government policy and legal documents about the project's impacts related. Two focus group discussions with 17 participants each were done to identify and obtain the socio-economic and environmental impacts of the development from beneficiaries' perspective of farmers and herders. It was administered to capture the impacts of triangulation with other methods. The key informant interview with 16 participants was also important in this study. This was administered to government officials at village and district levels, village leaders and leaders of livestock keepers' committees and groups. This was so done because of the need to acquire the perspective of planners and implementers of policy related to rangelands development. Specifically, the stakeholders involved in the study included: the Kondoa District Council via the District Land Officer, The *Mtandao wa Mazingira Kondoa* (MTAMAKO) district environmental network, herders and smallholder farmers, Lahoda village government and the relevant natural resources committees of Lohoda and Pangrua villages.

Data analysis was achieved through theme and content analysis. Measuring awareness of local community members was important in understanding the rangeland management strategies. According to Kikula (1997), the term perception is linked to 'awareness, concern and attitude' of local people or communities with regards to rangeland management experiences. The analysis

Received January 2020
Accepted March 2020
Available online 03 May 2020

process, therefore, employed two indicators or measures of awareness. The first measure was the extent to which herders and farmers new the project of sustainable rangeland management from a theoretical perspective. This involved the ability to chat about the project's components. The second measure was the extent to which herders and farmers were involved in various activities of the project. These included meetings attendance, financial, labour and material contributions in the activities of the project. Regarding these two measures of awareness, a research participant who satisfied both measures of awareness scored a high level of awareness about the project. On the other side, a research participant who satisfied only one of these measures scored a low level of awareness of the project. Data analysis on the participation variable in rangeland management was done by two indicators namely, the observable practices in rangeland planning, and implementation. The observed practices developed at the start, during and towards the end of the project was also a measure of leveraging practices from the perspective of study participants. The evidence of spoken issues on rangeland planning and management stood as measures for challenges associated with the management of rangeland from the perspective of study participants. In the context of a community-based approach to the management of rangeland, the study adopted the measures of sustainability. These involved a look at the extent of the effectiveness of practices to rangeland management. Effective practices involved the level of contribution, level of establishment of infrastructure and level of behavioural change among rangeland actors.

3.0 Results and Discussions

3.1 Stakeholders' Awareness on the Rangeland Project

In examining the stakeholders' awareness, it was found that the project aimed at improving rangelands to benefit herders and improve land management in the study area. Box 1 presents awareness by stakeholders. It was found that the project had contributed to the creation of awareness.

These results indicated that the majority of smallholder farmers and herders had a low level of awareness about the project. The results find evidence from the low understanding and practices of the project that involved rangeland planning, development, and management. For instance, given this level of awareness of the community, they had not contributed well in the establishment of the registry and on finalising land use planning process.

Received January 2020
Accepted March 2020
Available online 03 May 2020

Box 1: Stakeholders' Awareness on the Rangeland Project

The herders had been contributing much in the project in areas of meeting attendance, resources and the involvement in planning about land management, bylaws, and registry development. However, little had been done to establish a land registry in resource contribution and building of infrastructure. Land use bylaws were not yet documented. (Focus Group Discussion with herders and farmers)

This is linked to knowledge about the project and practical participation in the processes of the project. According to Land Surveyor in Kondoa district, the project aimed at supporting villages having land-use plans. The low level of awareness has its contribution in accelerating encroachment of the rangelands by farmers. According to the surveyor, the ecosystems of the villages were not matching between villages hence the need for an inclusive shared village land use plan. This meant that the shared land use plan had to take into consideration the socio-economic and ecological diversity of the villages. When asked on the current development of the SMRP project in Lahoda and Pangarua villages, the Land Surveyor commented as

> *"After the stoppage of project activities by the Care International (Tanzania), in May 2012 nothing is going on in the villages except that I heard there is the encroachment of the designated rangeland in Lahoda village by farmers. Perhaps this is good that you are going to Lahoda and you will help us to know the status of it. So we are waiting for their new approach on how to go about it while proceeding ahead with other projects on land use plans funded and facilitated by the Government of Tanzania in other villages" (Land Officer).*

The results indicate the low level of awareness on the project by stakeholders. It signifies evidence of the questionable sustainability of the project's interventions. This is because awareness is key to influencing change in attitudes, behaviour, and practices. These changes are central to influencing the full or effective participation of herders and smallholder crop farmers. These results are consistent with Kikula (1997), concerning the aspect of awareness of local people regarding rangeland management problems. The dimension of community awareness is important because they are principal actors possessing indigenous knowledge framed from experiences of the locality. So any attempt to introduce a new approach of range management

Received January 2020
Accepted March 2020
Available online 03 May 2020

should leverage the existing knowledge by community members. The level of awareness coincides with the health governance model by the World Bank (2004) that stresses that community members play the role of voices to their needs. This indicates the need for effective roles by government and political actors in enabling the realization of a high level of awareness about the rangeland project in the area.

3.2 Participation in Rangeland Development

Box 2 presents the participation of community members in rangeland development. The study found that there was a useful contribution that the Sustainable Management of Rangeland Project (SRMP) intervention brought about. These included: the demarcation of rangelands of about 17000 acres. It was learned that the project facilitated the beginning of the establishment of the land registry in Lahoda village. This was seen to be one of the best practices towards sustainable rangelands if it would be finally completed.

Box 2: Participation in Rangeland Development

> The villages had enabled the planning and development of formal rangeland through the land-use plan. This involved the demarcation of boundaries between crop cultivators and animal herders. There were recognized spaces for herders, so did for smallholders in the villages. Community members were sensitised on animal keeping, and need for resource, physical or manpower participation in the process of developing rangeland. However, despite high meetings attendance, and decision making involvement by actors, little was experienced on resources contribution. There was also argued poor resource management for the planned registry in the villages (Focus Group Discussion with herders and farmers)

When told to explain a single element of the success of the SRMP in Lahoda one Village Officer commented that:

"Having village areas designated for as rangeland about 17000 acres which are used by herders in Lahoda village is a significant success in Lahoda" (Village Officer).

This indicates that the low level of participation is the failure to the formulated rangeland and resource committees that had the responsibility of facilitating the participation of all actors in all aspects of planning and implementation of land use and rangeland plan. Again the results indicate practices that are not related to the rangelands management criteria provided by the

Received January 2020
Accepted March 2020
Available online 03 May 2020

Sustainable Rangeland Round Table in the United States that address the sustainability elements in rangelands such as conservation and maintenance of soils and water resources on rangelands Mitchell (2010). This is because the project did not invest in forest and water resources development effectively. Secondly, in addressing the criterion of conservation and maintenance of plant and animal resources on rangelands, the project did little in enabling herders to gain the capacity to manage their livestock in a business-oriented model, unlike the traditional approach that is employed. This could involve the consideration of the carrying capacity of range resources concerning the productivity of livestock. These would have promoted the acquisition of multiple benefits from rangelands. Thirdly, with regards to the maintenance of productive capacity on rangeland ecosystems, the project provided awareness creation on the matter. Unlikely given the huge number of livestock kept in the villages, the productive capacity of the rangeland ecosystem was not adequately addressed through this project. For instance, the project did not invest in land, forest, water and livestock enhancement strategies. These results to some extent concur with Farley *et al.* (2017) results indicating the exceptional participation of ranchers in San Diego country, United States of America, by the majority in the Williamson Act. In such a way, the project had not adequately contributed to effective rangeland management. This was in line with the health governance model by the World Bank of 2004 which identifies various health actors for effective governance and management of health services that community members depend on voicing to political actors (Brinkerhoff and Bossert, 2008).

3.3 Real-World Practices Leveraged by the Project

Box 3 presents the real-world practices leveraged by the project. It was found that there was low participation by the district authorities in the project since 2012. The study found that regarding sensitization issues, the Lahoda and Pangarua communities were sensitized and the project was accepted. The development as regards project results included: the building of the land registry which had not been complete. The Lahoda village community contributed about two million (2,000,000/=) Tanzanian shillings and manpower contributions on enabling the building activities of the land registry. No external funds had been availed. Another one was the collection of data on current land use.

Received January 2020
Accepted March 2020
Available online 03 May 2020

Box 3: Real-World Practices Leveraged by the Project

The project enabled the creation and development of awareness on land use plan and rangeland management. There were committees formulated for natural resources management at the village level. These were for the planning for rangelands and related resources including animal feed, water, land resource for livestock keeping. The committees were trained to enable the exercise of duties. The project facilitated the identification and establishment of boundaries in rangeland areas. These boundaries, however, were not yet permanently marked. The project enabled the participation of the community on the establishment of a records management registry for information management. The registry was not complete due to limited resources (Focus Group Discussion with herders and farmers,)

These results indicate that the project had not fully contributed to enabling the community of herders to gain the capacity to practice skills in rangelands. This is an indication that herders were not knowledgeable about the project in practice. This was evidenced through their ability to only grasp the understanding of rangeland and land use planning without thorough practices. As a result, there were partial contributions in the rangeland and land use plan. The results imply that despite the effectiveness of awareness by stakeholders, the extent of participation by the principal actors namely herders and smallholder farmers was limited. Being central actors, herders and farmers indicated such a low level of practice. For that matter, the project had not enabled the full establishment of the land registry office that was planned through the community contribution of resources. Given Mitchell's (2010) fourth criterion of rangeland management, namely the project level of maintenance and enhancement of multiple economic and social benefits of the current and future generations, the project invested more on social benefits of herders than it did for economic aspects. This limited the capacity to maintain the sustainability of the same to both current and future generations on rangeland resources. Referring to Mitchell's (2010) fifth criterion of rangeland management, the project focus on a legal, institutional, and economic framework for rangeland conservation and sustainable management partially, facilitated the realisation of the village land use plan that accommodated multiple uses by herders and smallholders. Again, little was done to put in place effective institutions and economic

Received January 2020
Accepted March 2020
Available online 03 May 2020

frameworks locally for realisation of the intended sustainability. For instance, the project established various plans with related committees such as rangeland and livestock keepers committees to cater for range and water resource issues. The project did not facilitate the establishment of sources of income to enhance the management of rangelands in the area. This is an indication that rangeland actors in the area did not possess the same level of power in decision making and practice of which community members rank last in the practices contrary to the health governance model's identified equal level of power in decision making among health actors (Brinkerfoff and Bossert, 2008). This limits the attainment of sustainable rangeland management.

3.4 Challenges Associated with Project Development

The development of the SMRP project had on another hand experienced some drawbacks. These involved the existence of 300 acres of land which was demarcated as rangeland had been encroached by smallholder farmers. The encroachment was done by some of the village community members. The results can be associated with limited integration of community knowledge and experiences over the management of rangelands in the area. This indicates that the use of professional knowledge alone does not guarantee an effective promotion of management practices. It is the synergy created out of the combined traditional and professional ecological knowhow that can provide the evidence for effective rangeland management. These results tally with Farley *et al.* (2017), that another 7, 284 ha of rangeland was converted to other land uses during that period, including shifts to crop agriculture, forest cover, and barren land in San Diego country. This represents the pressure over the diminishing sustainability of rangelands over space. It is a challenge to rangeland development as well as sustainable livestock development. It was found that the project upon its completion had not been able to complete the activities of digitization of village on maps and documenting bylaws and land use plan as well as registering the village land-use plan to the district. This was associated with scarce financial resources. The study experienced the existence of conflict between farmers and herders. The focus group discussions on the development of the project revealed that there was an ongoing conflict between farmers and herders that had occurred in 2012. There was prevailing peoples' perception that the designated rangeland area had been sold. Given this perception, farmers had begun to encroach rangelands on that basis. However, it was learned that the village government was taking charge of the invaders of the rangeland by taking one farmer who encroached about

Received January 2020
Accepted March 2020
Available online 03 May 2020

300 acres to the ward tribunal. Other youths of Lahoda village had invaded the areas for the same purpose of getting the farming land. The remaining area not encroached was 17000 acres.

The study noted some other challenges experienced by the Lohoda and Pangarua village community. These included: the first challenge of the existence of non-transparency of the villagers' financial contribution to the building process of the land registry. It was found that the revenues and expenditure were not yet presented to the village assembly. This was a challenge to developing the village land registry that depended on the community contribution of resources. The Ward leadership however, advised on the need to present to the public meeting. The second challenge was that Lahoda village boundaries in the side of Ndoroboni and Kisande villages had indicated non-conformity to Lahoda and her neighboring villages. This was due to the existence of two beacon land-marks that were put under two different periods and positions on the earth's surface, one being put in 1997 and the other in 2007. These challenges are indicators impinging the sustainability of rangeland in Lahoda and Pangarua villages. Addressing these challenges is fruitful towards sustaining the rangeland and promoting livelihoods of farmers and herders. The existence of these conflicts is an indicator of multiple needs over rangelands resources by the growing population. These results are linked to other results that from North America to Australia, rangelands have been converted to other uses because of factors such as suburban and exurban development, population growth, and agricultural expansion (Cross *et al.*, 2011; Cameron *et al.*, 2014; Reid *et al.*, 2014).

4.0 Conclusion

The Sustainability of Rangeland Management Project in Lahoda and Pangarua villages had received community awareness. The village natural resources committees had been empowered with the management and administration. However, the study experienced a low level of awareness and participation of herders and smallholder farmers in the rangelands development. Herders and farmers mainly participated through sensitization meetings with limited contributions in the building of the land registry. The study experienced minimal leveraging practices in the management of rangeland in the area. This was indicated through limited land-use plan facilitation, incomplete land registry, the existence of rangeland encroachment by smallholder farmers and incomplete village level bylaws on rangeland and land use plan. For

Received January 2020
Accepted March 2020
Available online 03 May 2020

those matters, there was evidence of limited sustainability in the development and management of rangeland.

5.0 Recommendations

The study recommended the need to re-orient the Lahoda and Pangarua community of the previous activities planned. This should be done by the rangeland actors involving Kondoa district and village authorities. Land use planning outputs and management tools were also crucially recommended for realizing land use plan and Bylaws documentation, and resource maps production by actors involved in the project. There was a need to mitigate the challenges that were impinging the realization of great project's positive impacts by the same project actors. The emerged misunderstanding on rangeland and boundaries required mitigation before the processes of land use plan was documented by rangeland actors. This mitigation should be a community centred in approach. The study recommended effective synergizing of the community based on the modern professional approaches for rangeland management by rangeland actors. This would help herders and smallholder crop farmers to understand range management from their own experiences of planning and use of natural resources in their surroundings.

6.0 Acknowledgement

The paper acknowledges the project funder, namely Care International (Tanzania) for enabling the conduct of the SRMP project in Lahoda and Pangarua villages Kondoa District Tanzania. Again, the Dodoma Environmental Network (DONET) is equally acknowledged for holding the project. Others are *Mtandao wa Mazingira Kondoa* (*MTAMAKO*), Kondoa District Council and Pangarua and Lahoda local authorities and community members for their acceptance to host the project and the study as project beneficiaries.

Received January 2020
Accepted March 2020
Available online 03 May 2020

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