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The Contribution of Wildlife Management Areas to Women's Well-Being: A Case of Enduiment Division, Longido District, Tanzania

Sia J. Temu¹ and Justin K. Urassa¹

Abstract

The Tanzanian Government in the late 1980s introduced Community Based Conservation (CBC) approaches that encouraged wildlife management at the community level. The study on which this manuscript is based was conducted in Tinga and Olmolog wards in Longido district, Tanzania to assess the contribution of Enduimet Wildlife Management Area (EWMA) on women's well-being. Specifically, the study aimed to identify the economic activities supported by it in the study area, assessing its contribution to women's well-being and to examine the challenges faced by the women involved with EWMA activities. The study employed a multistage sampling whereby Enduimet was purposefully selected and simple random sampling was used to select the study wards villages and the respondents. The study used a cross-sectional research design to collect data from 120 respondents from Olmolog and Tinga villages. Findings show that the main economic activities supported by EWMA include provision of financial grants, road construction support and provision of torches for scaring crops destructive animals. In addition, EWMA contributes significantly ($P < 0.001$) to women's income and their social well-being through provision of water services, gender training, building of classrooms and provision of scholarship to some families. The main challenges found in this study include destruction of crops by wild animals, injuries and death of people and livestock. The study concludes that EWMA contributes to women's well-being economically and socially. Nonetheless, Village Game Scouts, District Game Officers and Livestock and Agricultural Extension Officers need to design, develop and advice better methods of preventing destructive wild animals from destroying peoples crops and livestock.

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1.0 Background Information

Tanzania is the most wildlife-rich country in Africa in terms of large terrestrial mammals and this has played an important role in her political and economic development (Nelson, 2006; Nelson *et al.*, 2008). During the colonial administration, wildlife management practices generally continued to be reinforced by two fundamental strategies, which are legally ban or restrict wildlife uses and establishing parks and reserves to protect animal populations (Neumann, 1998). In 1974, Tanzania came up with the Wildlife Conservation Act which focused on centralized control over wildlife and the elimination of local use rights. The focus of the wildlife conservation Act was aligned with the development plans such as those focused on the Millennium Development Goals (MDGs) especially those related to eradicating poverty and ensuring environmental sustainability (Pathak *et al.*, 2005). Nonetheless, the Act is also in line with the current Sustainable Development Goals (SDGs) whose vision is to ensure that humans live in harmony with nature (UN, 2015). Therefore, the SDGs now put a great emphasis on the fact that human development is closely connected to climate and environment, and that global development concerns not only developing countries but indeed everyone in the global society. Thus, goals addressing sustainable economic development, sustainable use of natural resources and environmental protection, are now being pursued simultaneously with goals to end hunger, poverty and gender inequality especially SDG 1, 12 and 15 (UN Women, 2018).

However, the focus of Tanzania's Wildlife Conservation Act of 1974 has been reported to create conflicts with communities as the latter have been denied the right of using natural resources and benefiting from the same as was the case before hence, affecting their well-being. It is claimed that before the 1974 Act, the neighbouring communities were benefiting from the natural resources in terms of meat (*kitoweo*), medicine, and fish (Sandi, 1996). As a consequence, poaching and other environmental destruction become rampant as the community tried to regain their old rights of using wildlife and forest resources. This situation led to the failure of the protectionist approach or policy which the government took in managing natural resources thus leading to the law enforcers to have conflicts with the community (Songorwa, *et al.*, 2000).

Based on the above, in the late 1980s the Tanzanian Government introduced Community Based Conservation (CBC) approaches that encouraged wildlife management at the community level by allowing local landholders to manage wildlife on their land for their own benefits (MNRT, 1998). These

approaches were also supported by international organizations and development partners. The approaches mainly aim at ensuring that communities do benefit from the natural resources surrounding them including wildlife hence, supporting their well-being (UNDP-GEF, 2004; Pathak *et al.*, 2005; Shyamsundar *et al.*, 2005; USAID, 2013). In this way the expectation was that there will be equitable benefits between the government and the surrounding communities in relation to natural resources endowment hence, an end to poaching and illegal hunting. Later in 2003, the government introduced the establishment of Wildlife Management Areas (WMAs) with the same aim of enhancing conservation and poverty alleviation through sustainable utilization of natural resources (Mwakaje *et al.*, 2013). However, one of the rationales of these WMAs was to have strong economic benefits to the surrounding communities (Humphries, 2013). Therefore, in this case the premise that if local people participate in wildlife management and economically benefit from the same in a “win-win” situation, then wildlife will be conserved and at the same time the community’s welfare will be improved (Stephanie, 2014).

Furthermore, today numerous pilot WMAs projects have been initiated with the expectation that their economic contributions, in terms of business and finance should benefit the rural livelihoods while wildlife conservation interests are taken care of (Kaswamila, 2012; Southwick Associates, 2014). According to Williams (2017) Tanzania, has progressive land and natural resource management policies and laws, which provide a comprehensive framework for enabling local communities to varyingly administer, manage and sustainably utilize their land and natural resources. These laws can be conceptually divided into two: (i) Foundational laws which provide the legal framework for village governance and land administration and (ii) Sectoral laws which regulate the management of forest, grazing and wildlife resources and which variably endow communities with user rights over these resources (Williams, 2017). Therefore, WMA are established based on the regulations that give rights to communities to participate and benefit economically from the natural resources including wildlife. However, these benefits have to be measured to see whether they are obtained according to the agreement and if not what should be done to rectify the situation.

There are several approaches that are being used to measure expected benefits that communities get from community based conservation programmes such as the WMA. For example, Songorwa *et al.* (2000) argue that community based wildlife conservation are also not effective as compared to protectionist approaches but they did not propose an alternative solution. However, there are other proponents of community based wildlife

management areas who argue that these approaches are beneficial to the community as well as resulting into sustainable use of natural resources (UNDP, 2015).

Furthermore, measuring WMAs contributions to local economic development does not just mean taking key macro-economic growth indicators, such as output and employment, but also multiplier impacts such as both formal and informal sector employment creation, improved infrastructure and public services, wealth creation, food security, child health and other benefits such as women empowerment (Ashley *et al.*, 2002; Homewood *et al.*, 2015; Pailler *et al.*, 2015). Hence, the current study goes beyond community benefits by assessing those expected by women through participation in the WMA. The study focuses on women because despite their role in household production, they are the ones who are marginalized and benefit less from development programmes such as the WMAs.

1.2 Conceptual Framework

The study's conceptual framework (Figure 1) shows that women's well-being can be influenced by the presence and proper functioning of EWMA in terms of social, financial, physical and community perspective. WMAs contribute to women's social well-being by influencing strong relationships within the family; financially by reducing economic insecurity; physically by ensuring good health and in community by ensuring strong engagement and involvement in community matters (Rath, 2010). All the benefits could be direct for example, funding from EWMA or indirect from revenue obtained from different economic activities such as agriculture, handcrafts, and livestock keeping and through employment opportunities (village game scouts) paid salaries or through community supported projects in the area by WMAs example provision of water services and scholarship. Therefore, it is expected that the success of the WMA's in contributing to women's well-being depends on the presence of an investor, accessibility, location of the WMA, visibility and abundance of wild animals. Furthermore, the performance of WMA is also influenced by (Wildlife Policy, 2007) which advocated for participatory community conservation programme. Moreover, in determining the contribution of EWMA to women well-being, the study used income as its proxy. It is expected that the income of WMA beneficiaries can increase through participation or engagement with WMA activities. In addition, households' income may also be improved through women's reduction of cost of social services such as health, education, water, through WMA support in those areas. For example, increase in water points can lead to a decrease in water costs. Or, the family's income may also be

saved through education and health support programs under WMAs and be used for other life improvement expenses.

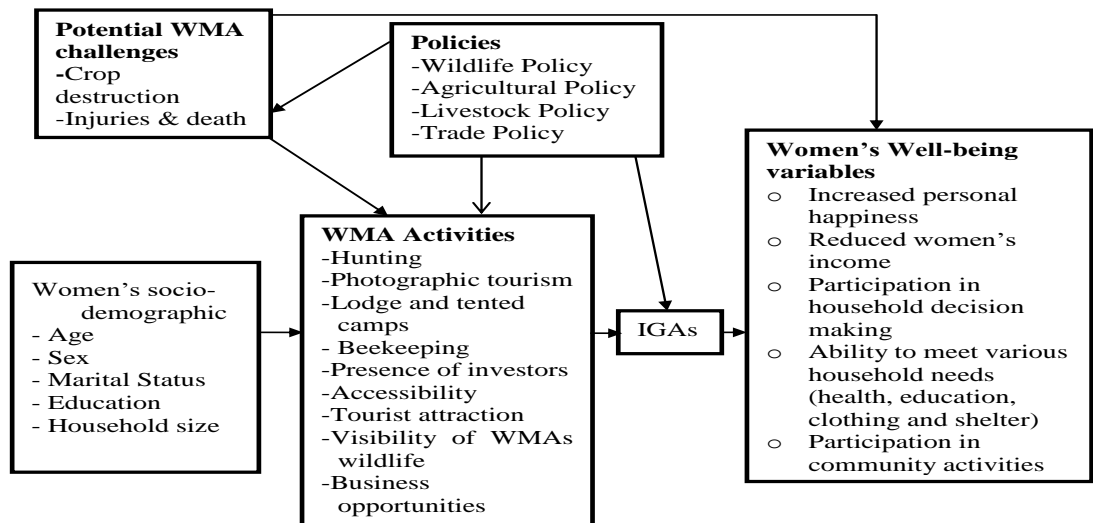


Figure 1: The conceptual framework for the study on WMAs and Women's well-being

2.0 Methodology

2.1 Description of the study area

EWMA is found in Enduimet Division in Longido District on the Land basin of the Western foothills of Mount Kilimanjaro. According to WWF (2014) the Land for the WMA was allocated by nine villages and has an area of 1,282 Km². EWMA is predominantly occupied by the Maasai pastoralists and a few agro pastoralists on the more heavily cultivated lands. There are also other ethnicities such as the Chagga, Pare, Meru and Waarusha (Trench et al., 2009; Mariki, 2016). Extensive farming is practiced in Enduimet Ward on the lower slopes of Mt. Kilimanjaro and exclusively pastoralist land use is found in the arid lowlands around Sinya and Tinga and Olmolog villages of Enduimet Division. Selection of the area was based on ethnic diversity and presence of business investors (Sulle *et al.*, 2011), and the area is a wildlife corridor for the movement of wildlife between several National Parks of Kilimanjaro and Arusha in Tanzania and Amboseli in Kenya (Kikoti, 2009). Moreover, EWMA was one of the four pilot WMAs hence, the need for an evaluation as to how it contributes to women's well-being.

2.2 Research design

This study used a cross-sectional research design which allows data to be collected at a single point in time without repetition (Pandis, 2014). The reason for the choice of the design was that, it is appropriate for a descriptive study and for determination of relationships between and among variables (Saunders and Thorn, 2009).

2.3 Population and sample size

The study population included all women in EWMA. However, a sample of 120 was used for the study whereby 59 were sampled in Olmolog and 61 from Tinga village in Enduimet Longido district.

2.4 Sampling procedure

Multistage sampling procedure was employed in the selection of participants and area as follows:

First stage, Enduimet was chosen purposefully from the first four pilot areas registered as WMA. The second stage involved a random selection of two wards which were covered by EWMA of Olmolog and Tinga. The third stage involved a random selection of two villages one from each of the beneficiary wards. These villages were Olmolog and Tinga. The fourth stage involved random selection of the households from the study villages. Lastly, women were selected randomly from the identified households in order to reduce sampling bias.

2.5 Data collection

Data for the study were collected using a structured questionnaire a checklist for key informant interviews (KIIs) and focus group discussions (FGDs). The structured questionnaire was administered through face by face interview and telephone survey. FGDs were conducted with women who are farmers cultivating small plots of land. The following characteristics were considered when selecting participants for the FGD and respondents for questionnaire: marital status, sex, age (elders, youth, and adults): a total of 32 FGD participants were involved in the study. The selection criteria were considered so as to get diverse information from experienced respondents about contribution of EWMA on women's well-being. In selecting some of the key informants age and sex were also considered. Older individuals were preferred for their historical experiences and changes in the EWMA.

2.6 Data analysis

Quantitative data from the questionnaires was analyzed using SPSS whereby descriptive statistics (frequencies and percentages were determined. In addition, a paired T-test was used to compare women's income before and after their involvement with EWMA. On the other hand, qualitative data

obtained from the key informants and focus group discussions were transcribed, summarized and analysed through content analysis.

3.0 Findings and discussion

3.1 Respondents socio-economic characteristics

3.1.1 Respondents' age

Study findings as presented in Table 1 show that for those respondents aged between 21-35 37.8% of these were well-off and the rest were not. As for those aged 36-55 years 43.3% were well-off and the rest were not. As for the final age category of 56-65 years, 75% were well-off and the rest were not. This indicates that most of the women covered by the study were still in their middle age and are likely to be receptive and active to conservation activities. In addition, they can afford to carry out various productive activities as they engaged in economic activities done in the EWMA and own resources in their household (Mmasa, 2013). However, the well-being of the middle aged women is less than that of older women. Suggesting that in addition to their involvement with WMA activities the older women might enjoy other sources of income from activities which they are engaged in. Furthermore, in relation to income earnings, it shows that there is a statistical significant ($p \leq 0.016$) relationship (Table 3). On the other hand, the high percentage in the category of 56 years and above of age is clear indication that a high percentage of the women in the study village are aged and dependent. A similar finding was observed by Emmanuel (2013) in the respondents' age structure. The group above 60 was considered to be of high dependency ratio, thus are treated economically as a less productive age group.

3.1.2 Respondents' marital status

Since the purpose of this research was to determine the contribution of WMAs on women's well-being, it was important to investigate whether respondents were married or not. The marital statuses of the respondents who are married are about 100% and consist of those that are well off and those not. This indicates that the majority of the women respondents were married (Table 2); the observation is a common phenomenon in most rural areas in Tanzania (Muywanga, 2004). The study has observed that marital status significantly influenced income earnings among the Maasai community, especially after the establishment of EWMA in the study area. It was found to be highly statistically significant ($P=0.001$) (Table 3). As pointed above most of the respondents were married suggesting possibility of more labour availability i.e. in terms of children and spouses, hence a large labour force compared to those not. Moreover, in marriage there is a possibility that for the married women each member can engage in more than one income generating activities which cumulatively can raise their total household

income. Therefore, participation of women in EWMA could be based on the need to gain income to supplement or compliment other family income sources. Moreover, the influence of marriage is also reported by Emmanuel (2013), who argues that marriage has an effect in population activities as it affects the availability of labour in the household, which in turn is associated with the possibility of engaging in forest management and utilization.

Married women play an important role in educating their family and friends as they associate with many aspects such as socio-economic activities. According to Muywanga (2004), married women participate in various economic activities mainly to supplement their husband's income. However, despite the fact that marital status has influence on income earnings, it was found that more than half (54.5%) of the women were not well-off, which implies that household income earnings might have been controlled and owned by the males or by their husbands. This phenomenon is common in the Maasai community whereby the patriarchal system is rampantly practiced (Mariki, 2016).

3.1.3 Respondents' education level

Education and training equip learners with skills and knowledge which enables them to live and positively contribute towards the development of their society and environment (Nshobemuki, 2009; Woodroffe *et al.*, 2005, Milner *et al.*, 2014). Education is always valued as a means of liberation from ignorance. However, results of this study (Table 2) show that the majority (54.5%) of respondents with no formal education are well-off compared to 40.9% and 43.8% of the respondents with some education i.e. standard 2-5 and those who had completed primary school respectively. This shows that the impact of education on the well-being of the respondent is yet to outpace the impact of lack of formal education. These findings suggest that less educated individuals could be facing the challenge of getting formal employment, hence opt for WMA activities. Furthermore, in most Maasai communities' female literacy rate is low (Mariki, 2016). This is attributed to the Maasai culture of forcing girls into early marriage, or sometimes giving them heavy workloads, and low support for girl's education (Mariki, 2016).

Furthermore, Kamwenda (1998) argues that level of education is considered as important factor in relation to natural resource utilization and conservation. Generally, an increase in education level does increase options of respondents to identify livelihood options (Mayeta, 2004). In addition, Maro (1995) and Murphree (2009) argue that primary education can foster human creativity, community readiness to integrate innovation, into sustainable use of natural resources and management. Moreover, Munishi *et al.* (2007) and Kideghesho *et al.* (2007) claim that better educated residents

have access to better employment and that education has a direct influence towards people's participation in conservation activities. Furthermore, education creates awareness, positive attitudes, values and motivation for better natural resources management among the people.

3.1.4 Respondents' household size

Results show that 53.4% of the respondents who had household size ranging between 2-7 members are well off, whereas only 23.5% of households with 8 members and above were well off. However, about half (46.6%) of the households with lower household size of 2-7 members are not well-off compared to over three quarters (76.5%) of the large households. The observation suggests that in this community the household size has influence on the well-being of the households (Table 1). The study's observations are in line with the debate in literature that household economic and social status is influenced by the household's size.

Furthermore, it is argued that smaller households have a better economic stand than the large sized ones due to increased dependency. Generally, larger households struggle on how to satisfy their basic needs. Therefore, large households' may face challenges in meeting their basic needs in terms of food, housing, education costs among others. Hence, it may be forced to engage in various economic activities such as those offered under EWMA. Thus, women are placed in such a dire position to support the dependents through these activities such as farming, livestock keeping, horticulture and tourist related trading.

Table 1: Respondents socio-economic characteristics and women's well off status (n=120)

Characteristics		Well-off		Not well off	
		Frequency	%	Frequency	%
Age (years)	21 – 35	14	(37.8)	23	(62.2)
	36 – 55	29	(43.3)	38	(56.7)
	56 – 65	12	(75)	4	(25)
Education level	No formal education	18	(54.5)	15	(45.5)
	Some primary (2-5)	9	(40.9)	13	(59.1)
	Completed Primary	28	(43.8)	36	(56.3)
	Secondary education	0	(0)	1	(100)
Marital status	Married	50	(45.5)	60	(54.5)
	Single	0	(0)	1	(100)
	Widowed	4	(80)	1	(20)
	Separated/Divorced	1	(25)	3	(75)
Household size	2-7	55	(53.4)	48	(46.6)
	8>	4	(23.5)	13	(76.5)

NB: Numbers in the brackets indicate percentage

3.1.5 Respondents main occupation

The respondents' main socio-economic activities in the two villages included agriculture, livestock keeping, and selling curio goods. These opportunities if properly supported and managed could help household in EWMA earn substantial incomes towards improving their livelihood. Agriculture being the backbone of most of rural communities is the major economic activity and main contributor to poverty reduction. The above economic activities are similar to those reported by Mmasa, (2013) who argued that agriculture sector in Tanzania is characterized as female intensive, meaning that women provide labour force in agriculture. Agriculture also comprises a greater part of women's economic activities than men's. About 81% of women, compared to 73% of men are engaged in agricultural activities (Ellis *et al.*, 2007). As shown in Table 3 respondents who engaged in wage (2) and farm casual activities (3) were found to be in the well-off category. As regards other income earning activities there is almost equal proportion between the well-off and non-well off groups. Very few women were engaged in small-scale business, or public employment for instance the income earned from those women who were found to be engaged in some employment and casual farm labour was statistically significant ($P \leq 0.05$) higher than those of the other respondents. The observation seems to suggest livestock keeping and farming may not be the only sources of livelihood for the Maasai community.

Based on the above WMA's could promote or encourage the Maasai community to actively engage in non-farm activities to reduce pressure on land. Moreover, women's involvement in business enabled them to properly employ themselves and "reduce dependency on family members". The study's observation in line with previously reported work of Jamali (2009) who also found that, the pursuit of financial independence motivated women entrepreneurs to engage in business in order to take control of their life and career. The quote below is a testimony to the above.

... For some of us, earning from tourist related business is used to improve wellbeing by access to better diet, medical services, and pay school fees for our children (Interview with A49-year-old female respondent Tinga Village 6/12/ 2018).

Generally, money obtained from business enables women to provide support in terms of covering basic needs for their household life status. The study's findings are also supported by Datta and Gailey (2012) who argue that women are generally motivated to engage in entrepreneurial activities because the resultant incomes enables them to provide good education to their children.

Table 2: Occupation of the response and residency status (n=120)

Characteristic	Status	Well-off		Not well off	
		Freq		Freq	(%)
Occupation	Farming	55	(46.2)	64	(53.8)
	Livestock keeping	54	(46.2)	63	(53.8)
	Small business	7	(35)	13	(65)
	Selling curio goods	45	(48.4)	48	(51.6)
	Wage from employment	2	(100)	0	(0)
	Casual farm worker	3	(100)	0	(0)

NB: Number in brackets indicate percentages

Table 3: Comparison of women income status before and after involvement with EWMA

Characteristic		Estimated income						P-Value		
		F ≤500,000	% 500,001-1,000,000	F 1,000,000-1,500,000	% 1,500,001-2,000,000	F	%	F	%	
Age	21-35	23	19.2	13	10.8	0	0.0	1	0.8	0.016
	36-55	38	31.7	26	21.7	3	2.5	0	0.0	
	56-65	4	3.3	10	8.3	0	0.0	2	1.7	
Household size	0-4	20	16.7	12	10.0	1	0.8	1	0.8	0.990
	5-8	30	25.0	23	19.2	2	1.7	1	0.8	
	9-12	14	11.7	13	10.8	0	0.0	1	0.0	
	≥13	1	0.8	1	0.8	0	0.0	0	0.0	
Education	No formal education	15	12.5	14	11.7	2				0.702
	Not completed pr. school	13	10.8	9	7.5	0	1.7	2	1.7	
	Primary school	36	30.0	26	21.7	1	0.0	0	0.0	
	Secondary school	1	0.8	0	0.0	0	0.8	1	0.8	
Marital status	Married	60	50.0	4	39.2	1	0.8	2	1.7	0.0001
	Single	1	0.8	0	0.0	0	0.0	0	0.0	
	Widowed	1	0.8	1	0.8	2	1.7	1	0.8	
	Separated	3	2.5	1	0.8	0	0.0	0	0.0	
Income earning activities	Farming (current)	64	53.3	49	40.8	3	2.5	3	2.5	0.837
	Farming (previous)	113	94.2	5	4.2	1	0.8	0	0.0	

Livestock keeping (current)	63	52.5	48	40.0	3	2.5	3	2.5	0.963
Livestock (previous)	111	92.5	5	4.2	1	0.8	117	97.5	0.922
Small business (current)	13	10.8	5	4.2	1	0.8	1	0.8	0.363
Small business (previous)	18	15.0	2	1.7	0	0.0	0	0.0	0.329
Casual labour (current)	0	0.0	3	7.9	0	0.0	0	0.0	0.214
Casual labour (previous)	3	7.9	0	0.0	0	0.0	0	0.0	0.671
Hand craft (current)	48	40.7	42	35.6	1	0.8	2	1.7	0.131
Hand craft (previous)	90	76.3	3	2.5	1	2.5	0	0.0	0.085
Wage from employment (current)	0	0.1	1	2.5	1	2.5	0	0.0	0.021
Casual farm labour	1	2.5	1	2.5	0	0.0	0	0.0	0.019

3.3 Respondents major income sources and amount earned

The findings as presented in Table 4 below show the respondents major income sources and average annual income earned. Table 4 shows that more than a half (57%) of the respondents are self –employed, whereby their sources of income are farming activities, livestock keeping and few (3.3%) from tourism related business. The results of the present study are similar to those reported by Sulle *et al.* (2011) demonstrated that in the case of Enduimet in Northern Tanzania villages have set aside over 90% of village land where 90% of community livelihoods come from farming and herding. Further to the above findings, the study shows that the average annual income generated by more than half (53.3%) of the women in EWMA ranges between 500 000 and 1 000 000/= Tsh as shown in Table 4.

Table 4: Respondents major income sources and amount (n=120)

Characteristic	Frequency	Percentage
Major sources of income	Farming	69
	Livestock keeping	45
	Hand craft for selling	4
	Wage employment	1
	Casual worker	1
Average Annual income (Tsh)	Less than 500 000	50
	500 000 – 1000 000	64
	1000 0001 – 1500 000	3
	1500 001 – 2000 000	3

3.4 Economic activities supported by Enduimet WMA

The study findings as presented in Table 5 show that under a third (31%) of the women in Enduimet WMA mentioned financial grants support. Others mentioned road construction support, provision of torch for scaring wildlife to avoid destruction of field crops and support of collection poles for household construction. Study findings further show that EWMA provides capital for business start-up whereby women in the villages organised themselves in to groups and thereafter receive seed money of Tsh 700 000/= to support various economic activities in their groups. It was also noted that these groups were

established mainly to assist women reap the benefits of growing tourism activities in the areas.

Observations from the FGDs and Key informant interviews show that besides capital, the women were also trained on business skills, improvement of design style of baskets, mats and other weaved products. In addition, women were also trained on marketing of their products which were targeted to both the local community and tourist who visit Enduimet. Surprisingly, it was observed that over two thirds (68%) of the respondents were not aware of the support, the study is of the opinion that the support given to the community has assisted the women play a significant role in poverty alleviation at household level, hence to improve their well-being. Observation from the study show that, despite the efforts done by the EWMA in trying to support reduction of field crops destruction by wild animals through offering of torches, the impact of this support has not been significant due to the fact that large numbers of the wild animals are not easily chased away using these torches.

3.5 Infrastructure support

The study findings (Table 6) show that EWMA constructed roads for the community. This support has simplified women's movements from their farms to the market places to sell their produce. According to the literature Fedderke *et al.* (2006) access to markets can be one of the areas that assist in poverty reduction through income growth obtained from crops sales. In addition, the roads also eased the passage to women's daily fetching clean water. During the FGDs conducted in Tinga and Olmolog, it was observed that infrastructure support has simplified women's movements from their farms to the market places to sell their produce. The study's finding is similar to that of Fedderke *et al.* (2006) who argued that infrastructure provision has an important link with productivity, economic growth and finally the well-being of the people.

Table 5: Specific socio-economic support provided by EWMA (n=120)

Socio-economic support provided by EWMA	Response	Frequency	%
Financial grants to women group	Yes	38	31.7
	No	82	68.3
Road construction support	Yes	105	87.5
	No	15	12.5
Provides torch for prevention of wild animals	Yes	105	87.5
	No	15	12.5
Support of collecting poles for construction	Yes	108	90
	No	12	10

NB: The totals in the table could exceed 120 due to multiple responses

3.6 Women's response on economic activities supported by EWMA

The findings from the study show that about three quarters (74%) of the respondents claimed to collect firewood, poles and fetch grass for household construction in the areas under the WMA. In addition, they also fetch water from sources conserved under the EWMA (Table 6). All these benefits help to meet their basic needs hence, improve their livelihoods. Moreover, fuel wood is used as one of the main sources of energy in many Tanzanian households. Furthermore, in rural areas it is used not only to cook meals but also to provide warmth and lightning when needed (Fontana and Natali, 2008).

Other products collected around EWMA are poles for immediate household construction and building of fences around the homesteads. The poles are also used in manufacturing of beds and storage facilities for harvested crops. Therefore, from the economic point of view, pole collection minimizes cost that could be spent on buying furniture and steel fences. Moreover, tree stems and poles are also used on farms preparation and making farm boundaries to protect crop from wild animal and sometimes act as wind breakers. Observation from the FGDs in Tinga and Olmolog show that women depend directly on access to natural resources such as fuel wood and fodder, poles and grasses for their livelihoods including the sale of such products. The study's observation is supported by literature (Fontana and Natali, 2008) whereby it has been reported that an estimated 1.6 billion people in the world depend on natural resources partly or totally for their livelihood and food security requirements. The findings are also in line with those of Marshall *et al.* (2006), who found that non-timber forest products, poles, honey and wild fruits, contributed to poverty reduction in Mexico and Bolivian Central America.

Furthermore, the provision of water and firewood by the WMA has helped women especially those from low income households and has decreased their work load resulting into increased resting time and enough time to attend domestic chores, reduced harassment and gender violence, reduced conflict thus, and helping them manage their families. The above can greatly lead to improve their well-being. The results are similar to those of Mariki (2016), who has reported that women in Nepal walk over 20 Km per day in search of firewood. Moreover, these women claim that access of water reduces the long walking distance in search of these resources. Other studies done by Ellis *et al.* (2007) and Charle *et al.* (2016) pointed out that Tanzania women spend more time and effort than men overall when it comes for providing water and firewood to their households. Furthermore, Zambelli *et al.* (2017) claim that the collection of water and fuel (such as firewood) are the most physically demanding and time consuming care tasks that women regularly undertake.

Moreover, Fontana and Natali (2008), claim that millions of hours could be saved through improvements in infrastructure involved in water collection, fuel collection and food preparation time. Consequently, the saved time could then be spent on more productive work or devoted to more rest and recreation (Fontana and Natali, 2008) which will then lead to improved livelihoods and ultimately to women's well-being.

Table 6: Activities done by respondent's in the EWMA (n=120)

Activities done by women in the EWMA	Response	Frequency	Per cent
Firewood collection	Yes	89	74.2
	No	31	25.8
Collection of building materials	Yes	82	68.3
	No	38	31.7
Fetch water	Yes	120	100
	No	0	0

3.7 Business activities undertaken by women in EWMA

The study findings show that half (50%) of the respondents in EWMA are engaged in selling firewood as an economic benefit based on their involvement in WMA activities (Fig 2). According to the respondents, selling firewood assists them to generate income which sometime is used to meet their households' other basic needs. In addition, availability of firewood enabled their households to save on fuel cost hence more income to meet other household needs.

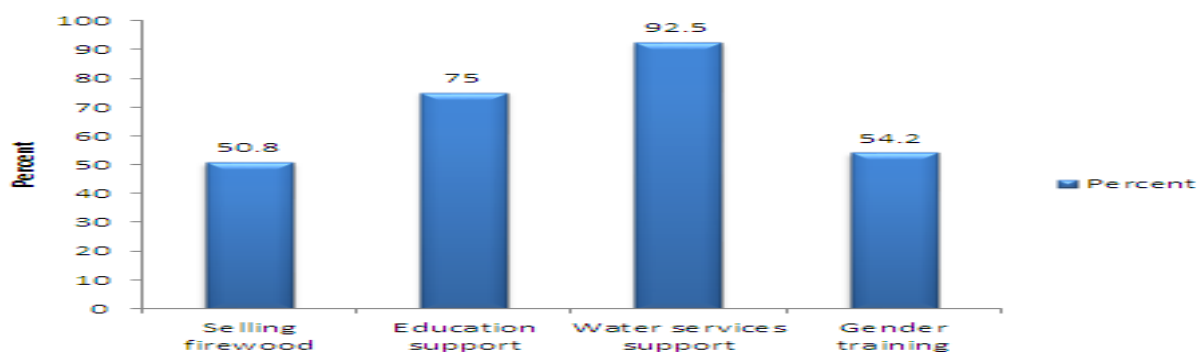


Figure 2: Economic and social benefits accrued by women from EWMA

3.8 Social benefits obtained through engagement with EWMA activities

Study findings as presented in Fig 3 show that most (92%) of the women in EWMA claim that water services provision, educational support such as building classrooms and scholarship to students of both primary and secondary, and gender training were among the social benefits obtained through from the EWMA. Generally, the provided social benefits for example water services near the villages do reduce women's workload in terms of walking distance to fetch water. Therefore, allowing women more time with their families. So it will allow the women to have recreation time hence improving their well-being. Moreover, educational support such as building classrooms and the scholarship offered enable some children to attend school at least to have primary education, secondary education and even higher levels of education for those who progress. Therefore, families save money which would have been paid as school fees. Therefore, the saved money can be used as capital for their small business and to buy other household requirements, hence improving their livelihoods. Discussions with key informants, village and WMA leaders in Olmolog and Tinga revealed that a significant portion of the money is committed to a large number of community social services depending on the preferences in that year. Such services include health services, schools, construction of village office, students' scholarship and construction of water pipes. A similar observation has been reported by Kaswamila (2012), that funds from the WMAs to villages were mainly used for provision of social services construction of classrooms, dispensary and village government offices payment for allowances to WMA staff during meetings and seminars, bursary to students and in supplementing to village government revenues.

Training in gender issues is also considered as a social benefit as many women do not know their rights. Therefore, through the trainings they could be empowered and be better placed when it comes to their participation in household decision making. However, despite gender training being provided by EWMA, some women are still dominated by their husbands who normally make all the decisions for the households. This finding is similar to what has been reported by Mariki (2016) that in patriarchal communities, women are generally regarded as inferior thus lack property ownership rights, and power to make decisions on their own lives.

3.9 Satisfaction with EWMA support

According to the study findings in (Table 7), more than three quarters (77.5%) of the respondents are satisfied with the support provided by EWMA. The

reasons for the satisfaction include the EWMA's ability to conserve the natural resources for future generations. Other reasons include the ability of EWMA to assist them to improve their livelihood, increased income source and property (farms) security. During the FGDs, women reported that they are satisfied with EWMA support as the same improved their livelihoods and led to better conservation of natural resources, as shown in the quote below:

...Generally we are satisfied with the support provided by EWMA for example such as provision of poles for construction, provision of torches for scaring wild animals to avoid destruction of field crops. Moreover, the majority of us do not have enough money to buy material (Interview with a 38-year-old female respondent at Tinga village Longido district 5/12/2018).

The study's observation confirms to what has other researchers (Stephanie, 2014; Pailler *et al.*, 2015). According to Stephanie and Pailler *et al* been reported by local people participate in wildlife management and economically benefit from this participation, then wildlife is conserved and at the same time the community welfare is improved.

Table 7: Respondents' Satisfaction with EWMA (n=120)

Characteristic		Frequency	Percentage
Respondents' Satisfaction with EWMA Reasons for satisfaction with WMA	Yes	93	77.5
	No	27	22.5
	Increase income	25	26.9
	Conserves resources for future generations	93	100.0
	Improve livelihood	69	74.2
	Provide access /security to resource property	33	35.5

3.10 Contribution of EWMA to Women's well-being in the target villages

3.10.1 The contribution of EWMA to women's income

Generally, the Enduimet WMA supports the agricultural sector, infrastructure and small business development. Other supports given include poles for house construction, animal feeds and training in community empowerment. Further to the above, the study's tested whether there is a statistically significant difference in women's well-being before and after establishment of EWMA, Average household income before EWMA establishment was Tsh 292 375/=. However, after EWMA establishment of EWMA the income increased to Tsh 587 083/=. the differences between the two averages is Tsh 294 708/=. The difference was found to be statistically significant at 95% ($P=0.001$), as shown in Table 8. Due to the income changes it shows that EWMA has contributed to improving women's income which in turn improves their well-being. Discussions with FGDs in Tinga and Olmolog showed that before the EWMA was established women's incomes were low because the majority were involved in farming and livestock keeping only. However, after establishment of EWMA women's income increased as women started to engage in small businesses i.e. hand craft like making beads, mats, and jewellery, selling horticultural products to the campsite near the EWMA which allows them to generate more income and meet their household's basic needs.

The study findings are similar to those reported Kari and James (2010) from a study conducted in Longido district in Elerai, Kimoukuwa, and Tinga that more than two thirds of households earned some income from livestock sales and 20-25 per cent earned over Tshs 500,000/= in 12 months. Generally, the EWMA has to some extent improved women's well-being from the income perspective.

Table 8: Comparative income among the family before and After WMA

	Paired Differences		t-Test	Degree of Freedom	Significance. (2-tailed)
	Mean	Std. Deviation			
Estimated annual income for the family currently - Estimated annual income for the previous	294 708.3	161 042.2	20.047	119	.000

The study findings as presented in Table 9 show that EWMA contributes to household well-being in terms of scholarship. Table 9 shows there is a

significant ($P < 0.001$) influence change in the household income. It means that household who benefits from WMA scholarship has 29.5% higher chances of increase income.

3.10.2 Factors influencing income of the women participating in the EWMA activities.

The study also assesses factors that influence the income of women who are participating in the EWMA. These factors are health, water points and education. The findings as presented in Table 10 show that access to a health centre that has been supported by the EWMA significantly ($P \leq 0.099$) in influence women's income. This implies that increase in distance to a health centre reduces a household's income by about 9%. Hence, the longer the distance to the health centre, the costly it becomes to access the service, hence affecting women and their households' well-being. On the other hand, households living closer to the health centres do enjoy higher benefits or contribution from the EWMA.

The findings as presented in Table 9 also show that access to a water point has positive influence on changes in household income at 2.4%. That is, as the EWMA reduces the distance from the households to their water fetching points, the more income is available for other household needs. This suggests that households benefiting from WMA water access have higher income savings than before. Therefore, the savings can then be used to meet households' needs and thus improving their well-being. In addition, marital status has positive influence (0.016) whereby married women have higher chances of saving income targeted to education since their children may directly or indirectly benefit from WMA sponsored scholarship.

Table 9: Regression analysis results of the assessment of contribution of WMA activities on women's well-being

Variable		Coef.	Std error	t-value	Sig
(Constant)	11.656	.291		40.087	.000
Child benefit from WMA supported scholarship	.295	.085	.297	3.477	.001
Access to health centre measured in Km	-.099	.058	-.144	-1.713	.090
Access to water point measured in Km	.024	.040	.051	.598	.551
Household member	-.019	.017	-.113	-1.160	.248
Marital status	.016	.063	.023	.263	.793
Respondent age	.014	.005	.321	2.967	.004
Education level	-.038	.051	-.070	-.744	.459

3.10.3 Women's involvement in household decision making and income spending choices

The study shows that most (62%) of the surveyed women are not equally involved in the process of household decision making. These findings are similar to those reported by Ngoitiko (2008) and Mariki (2016) that Maasai women are generally regarded as inferior thus leading to their lack of property ownership rights and power to make decision on their own lives. Furthermore, women are only responsible for domestic tasks including building their *bomas* (huts), collecting water, looking for construction materials. In addition, women are required to collect firewood for cooking, taking care of the children and growing crops for basic household food supply.

3.10.4 Women's participation in community decision making

The study's findings (Table 10) show that under a third (30%) of the surveyed women in EWMA participate in village meetings. In addition, 87% of the women in the study did not participate in decision during the village meetings, generally the women stay quite during these meetings, only a few (13%) of the women do air out their opinions during these meetings. The above is mainly due to the fact that most women fear oppression from the men, who do not want the women to speak during village meetings (Mariki, 2016). Observation from the study also shows that more than three quarters (85%) of the women in the study area attend meetings. However, attendance in the meetings does not clearly show if their participating in decision making and airing their voices. Generally, the patriarchal system in the Maasai society limits women from speaking or airing out their opinions and voices and this can be worse due to their low levels of education. These two factors lower women's confidence to speak out in public. However, in order to reduce this setback Maasai women normally select one or two of their colleagues to speak on their behalf (Mariki, 2016).

Table 1: Surveyed women's involvement in decision making at community household levels

Women's involvement in decision		Frequency	%
Respondents' involved in decision making	Yes	46	38.3
	No	74	61.7
Who determines how income generated is spent	Husband	69	57.5
	Wife	6	5.0
	Both	45	37.5
Respondents' participation in village meetings	Yes	37	30.8
	No	83	69.2
Village meetings and make decision	Yes	15	12.5
	No	105	87.5
Able to participate in influence policy	Yes	102	85
	No	18	15

NB: Responses may exceed 120 due to multiple responses

3.11 Challenges faced by the women involved in EWMA

According to the study, findings (Table 11) respondents claim that destruction of crop by wild animals was a major constraint. Other constraints encountered by women in EWMA are as injuries and deaths of livestock due to attacks by wild animals. These findings are also supported by literature (Loveless, 2014; Homewood *et al.*, 2015) who argue that challenges faced by women in EWMA include injuries and deaths of people and livestock. However, damage to crops from wildlife causes greater concern for women than for men, because women are the ones who are engaged much in agricultural activities to provide food for their family. Respondents from the Olmolog and Tinga FGDs complained about destruction of crops by wildlife which results to crop loss before harvest. To emphasize on this, one participant in FGD said:

Crops destruction due to wildlife causes more hardships such as crop loss, property damage fear, and sleepless nights (A45-year-old women, in Olmolog village 6 Dec 2018).

Further to the above, during the key informant interviews with village and WMA leaders it was reported that, common human-wildlife conflicts include livestock loss to predators, environmental and crop destruction by elephants' attack on humans and crop farm land destruction to be major challenges to both EWMA and the surrounding communities. These results concur with what has been reported in the literature (Homewood *et al.* 2017; Brockington and Igoe, 2006; Brockington and Schmidt-Soltau, 2004; Ferraro, 2002; Kideghesho, 2006; Mackenzie and Ahabyona, 2012) which shows that further hardships suffered by local communities include human-wildlife conflicts such as crop loss, property damage, livestock predation, human deaths, injury and fear, sleepless nights while guarding crops from wildlife, hence affecting women's general well-being in terms of food insecurity, increase fear, loss of income, and psychological torture.

Table 2: Respondents' challenges due to the existence of WMA (n=120)

Respondent challenges due to existence of WMA	Frequency	Percentage
Wild animal attack	73	60.8
Destruction of crop by wild animals	120	100.0
Misunderstanding between villagers and investors	21	17.5
Erodes traditional authority	73	60.8
Too many regulation	30	25.0
Diseases transmission from wildlife to livestock	57	47.5
Loss of agriculture or grazing land	32	26.7

3.12 Suggested solutions to enable EWMA to contribute more towards women's well-being

Study findings as presented in Fig.3 show that one-third (33.3%) of the respondents mentioned controlling wild animals as a major solution that could lead to women's well-being by reduce crop losses, lack of fear and psychological well-being. About 26.7% suggest that cultural *Bomas* should be introduced to enable women sell their cultural products to generate more income to meet their households' needs.

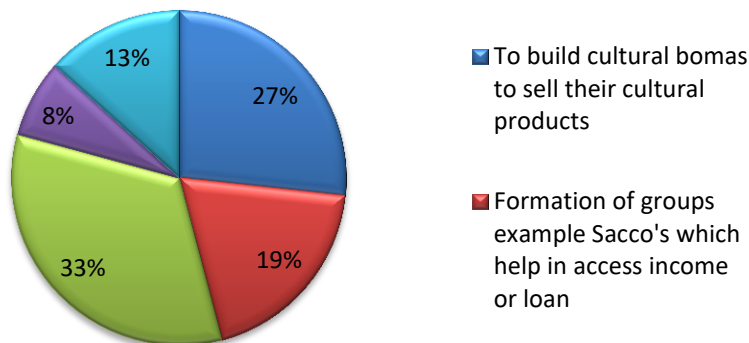


Figure 3: Suggestions on how to improve EWMA

4.0 Conclusions and recommendations

Based on the study it is concluded that EWMA does contribute to women's well-being i.e. those involved in one way or the other with WMA related activities. It is also concluded that EWMA directly and indirectly supports women's economic activities and hence their households general well-being. It is also concluded that the main economic activities supported by EWMA are provision of financial grants. However, due to the social services such as health, water and education services supported by EWMA households are able to save cash that would otherwise be used to pay for the same thus the saved income can be spent on other household needs. It is further concluded that EWMA contributes to women's social well-being through provision of water services, gender training, and building of classrooms and provision of scholarship to both girls and boys in primary and secondary schools. It can also be concluded that the presence of EWMA significantly contributes to women's income. It is further concluded that women's involvement in EWMA activities has significantly contributed to their increased participation in decision making both at the households and community levels. Lastly, it is concluded that the main challenges faced by women were destruction of crops by wild animals, and death of livestock attacked by wild animals which in turn

reduce households' income earnings hence affecting women's general well-being in terms of loss of income required to meet their needs.

Based on the research findings and conclusions, it is recommended that, in addition to the current support to the communities, EWMA should seek to improve further in the following areas in order to further improve the well-being of women in the surrounding areas:

- Design, develop and provide advice on better methods of preventing destructive wild animals from destroying people's crops and livestock. This should be addressed by the District Game Officer, WMA Village Game Scout, and Agricultural and Livestock Extension Officers.
- The management of EWMA needs to come up with new innovative economic activities such as businesses photographic safaris, game viewing, animal filming, campsites and cultural '*boma*' tourism. Doing the above can allow the households generate more income hence improvement of women's well-being. EWMA, management can work closely with Investors and the Village Government to achieve this.

References

- Ashley, C. and Roe, D. 2002. Making tourism work for the poor: Strategies and challenges in southern Africa. *Development Southern Africa* 19: 61–82.
- Brockington, D. and Schmidt-Soltau, K. 2004. The social and environmental impacts of wilderness and development. *Oryx*, 38: 140-142.
- Brockington, D., Igoe, J. and Schmidt-Soltau, K. 2006. Conservation, human rights and poverty reduction. *Conservation Biology*, 20(1):250-252.
- Charle, P. Philiwayo .R. and Emenuga C. 2016. Tanzania, Country Notes African Economic outlook.
- Ellis, A., Blackden, M., Cutura, J., MacCulloch, F., and Seebens, H. 2007. Gender and Economic Growth in Tanzania: Creating Opportunities for Women. Washington, DC: World Bank.
- Fedderke, S., W, Perkins, L P. and Luiz, J. M. 2006. Infrastructural investment in Long-run-Economic Growth South Africa 1875-2001. *World Development*, 34(6): 1037.1059
- Ferraro, P.J. (2002). The Local Costs of Establishing Protected Areas in Low-Income Nations: Ranomafana National Park, Madagascar, *Ecological Economics*, 43: 261-275.
- Fontana, M. and Natali, L. 2008. Gendered Patterns of Time use in Tanzania: Public Investment in Infrastructure Can Help. Paper prepared for the IFPRI project evaluating the Long- Term Impact of Gender-focused policy Interventions.
- Homewood, K., Lund, J. F., Nielsen, M. R., Olila, J., Bluwstein, J., Keane, A., Msuha, M. and Burgess, N. D. 2015. *The Economic and Social Viability of Wildlife Management Areas*, 2(1): 1-23.
- Humphries, K. E. 2013. A political ecology of community-based forest and wildlife management in Tanzania: Politics, power and governance. *International Journal of Wellbeing*, 5(2): 75–90.
- Kari, H. and James, S. 2010. The Whole Village Project Survey Village Reports for Elerai, Kimoukuwa, Eworendeke, Tinga Tinga, Keseriani, Sinya and Kitendeni in Longido District, Tanzania.
- Kaswamila, A. 2012. An analysis of the contribution of community wildlife management areas on livelihood in Tanzania. In sustainable natural resources management.
- Kideghesho, J. F. 2006. Wildlife conservation and local land use conflicts in Western Serengeti Corridor, Tanzania. Thesis for the Degree Philosophiae Doctor, Norwegian University of Science and Technology Faculty of Natural Sciences and Technology Department of Biology.

- Kikoti, A. 2009. Seasonal home range sizes, trans boundary movements and conservation of elephants in northern Tanzania. Thesis for Award of PhD Degree at University of Massachusetts, USA.
- Loveless, S. 2014. Establishing WMAs in Tanzania: The Role of Community-Level Participation in the Making of Randileni WMA. MSc Thesis, University Copenhagen 5: 147-183
- Mackenzie, C.A. and Ahabyona, P. 2012. Elephants in the garden: Financial and social costs of crop raiding. *Ecological economics*, 75: 72-82.
- Mariki, S. B 2016. Social Impacts of Protected Areas on Gender in West Kilimanjaro, Tanzania: PhD Thesis, Department of International Environment and Development (Noragric), Norwegian University of Life Sciences, 4:220-235
- Marshall, E. K., Schereckerberg, A. and. Newton, C. 2006. Commercialization of non-timber forest products: Factors Influencing success: Lessons Learned from Mexico and Bolivia and Policy Implications for decision makers UNEP World Conservation Monitoring Centre, Cambridge, UK.
- Ministry of Natural Resources and Tourism 1998. The Wildlife Policy of Tanzania. Government Printer, Dar es Salaam, Tanzania.
- Mwakaje, A. G., Manyasa, E., Wawire, N., Muchai, M., Ongare, D., Mugoya, C., and Nikundiwe, A. 2013. Community-based conservation, income governance, and poverty alleviation in Tanzania: the case of Serengeti ecosystem. *The Journal of Environment & Development*, 22(1): 51-73.
- Nelson F. and Agrawal, A. 2008. Patronage or Participation community based natural resource management reform in Sub-Saharan Africa. *Development and Change*, 39 (4): 557-585
- Nelson, F., Sulle, E. and Ndoipa, P. 2006. *Wildlife Management Areas in Tanzania: A Status Report and Interim Evaluation*. Tanzania Natural Resources Forum, Dar es Salaam, Tanzania.
- Neumann, P. R. 1998. *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Tanzania*. University of California Press, Berkeley.
- Pailler S, Naidoo R, Burgess N. D, Freeman O. E, Fisher B. 2015. Impacts of Community-Based Natural Resource Management on Wealth, Food Security and Child Health in Tanzania. *PLoS ONE* 10(7): 133-137.
- Pandis, N. 2014. Cross-sectional studies. *American Journal of Orthodontics and Dentofacial Orthopaedics*, 146(1): 127- 129
- Pathak, N., Bhatt, S. and Roe, D. (2005). *Conservation with social justice: The role of Wildlife Conservation*. 188pp
- Rath, T. 2010. *Wellbeing: The Five Essential Elements*. Gallup Press. 88pp

- Sandi, J.S.C. 1996. The Process of Villagisation and the organisational structure of villages.
- Saunders, M., Lewis, P. and Thornhill, A. 2009. *Research methods for business students*. Pearson, New York.
- Shyamsundar, P. E., Araral, E. and Weerartne, S. 2005. *Devolution of Resource Rights, Poverty and Natural Resource Management- A Review*. World Bank, Washington DC.
- Songorwa, A. 2000. Is Community Based Wildlife Management Gender sensitive? Experiences from Selous Conservation Programme in Tanzania. *Uongozi Journal*, 11: 145-166.
- Southwick Associates 2014. The Economic Contributions of Georgia's Wildlife Management Areas in 2013: A state wide and county-level analysis. Georgia Department of Natural Resources, Wildlife Resources Division. Fernandina Beach.
- Stephanie, D. L. 2014. Establishing WMAs in Tanzania: The Role of Community- Level Participation in the Making of Randileni WMA. Dissertation for Award of MSc Degree at University of Copenhagen.
- Sulle, E., Lekaita, E. and Nelson, F. 2011. *From Promise to Performance? Wildlife Management Areas in Northern Tanzania*. Resource Africa, UK.
- Trench, P. C., Kiruswa, S., Nelson F. and Homewood, K. 2009. Still people of cattle livelihoods diversification and community conservation in Longido district. In: *Staying Maasai? Livelihoods, Conservation and Development in East African Rangelands*. (Edited by Homewood, K., Kristjanson, P. and Trench, P. C. (Eds.), Springer Publishers, New York 217 – 256pp
- United Nations 2015. Transforming our World: The 2030 Agenda for Sustainable Development. United Nations Sustainable Development Section, New York.
- United Nations Development Program and the Global Environmental Facility 2004. Developing capacity, conserving biodiversity, sustaining livelihoods. New York.
- United Nations Development Programme 2015. *Matumizi bora ya Malihai Idodi na Pagawa (MBOMIPA) Wildlife Management Area, Report*, Tanzania. Equator Initiative Case Study Series. New York. 12pp
- United Nations Women 2018. Women and Sustainable Development Goals. United Nations Entity for Gender Equality and the Empowerment of Women. New York.
- United Republic of Tanzania (URT). 2007. Wildlife Policy of Tanzania. Dar-es-Salaam Tanzania.

- United States Agency for International Development. 2013. Tanzania Wildlife Management Areas. Final Evaluation Report. Dar es Salaam.
- Williams, A. 2017. Africa Biodiversity Collaborative Group. Community Natural Resources Management in Tanzania.
- World Wildlife Fund 2014. Tanzania's Wildlife Management Areas: A 2012 Status Report. WWF, Dar es Salaam, Tanzania.
- Zambelli, E., Chopra, D. and Roalen, K. 2017. My mother does a lot of work; Women balancing paid and unpaid care work in Tanzania. Brighton: Institute of Development Studies.