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Land Tenure Security and Urban Agriculture: Focusing on the Vegetable Cultivation in Morogoro Municipality, Tanzania

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ABSTRACT

Land tenure insecurity is one of the challenges facing urban dwellers given the increasing demand on land as the population increases in Tanzania. The main objective of this study was to examine the tenure security within urban agriculture on access to land. Specifically, it assessed different ways farmers' access land for cultivation, the extent of land security among farmers, and implications of land tenure insecurity on vegetable cultivation. The study employed a cross-sectional design whereby snowball sampling was used to select 69 male and female vegetable farmers at the open space in Morogoro Municipality. Data was collected through household survey, in-depth interviews, observation and informal conversation. Results indicated that farmers access land through informal means by renting from the landlords who have legal land rights. Hence, social relationships have become important to access land while close relationship with the landlord determine the extent of land security a farmer has. Lastly, land tenure insecurity not only affects gardener's vegetable cultivation but also creates uncertainty and hatred between farmers and their landlords. It is therefore imperative to integrate urban agriculture into urban development planning to enhance land tenure security of farmers since it has become permanent economic activity.

Keywords: *Land, Access, Tenure security, Urban agriculture, Vegetable cultivation, Informal land rights*

INTRODUCTION

Globally, there are more people in urban areas than in the rural areas (United Nations, 2019), urban areas are expected to add 2.5-3 billion people, 90% of whom will be in Asia and Africa (UNDESA, 2018). In Tanzania, the percentage of people living in urban areas has increased from 18.8% in 1990 to 33% in 2016 (MoHCDEG, 2016). It is also expected that by 2050 half of the country's population will reside in urban areas (Wolf et al., 2018). There is also significant population increase in

Morogoro Municipality from 74,114 in 1978 to 117,760 in 1988, 227,921 in 2002, 315,866 in 2012 (URT, 2012; NBS, 2015).

The increasing population in urban areas does not match with the demand of food supply of urban people and more land is consumed for urban development (World Bank, 2013; Wenban-Smith et al., 2016; UN-HABITAT, 2020). For example, in Morogoro Municipality, the built-up areas have expanded (Ernest et al., 2017; Sumari et al., 2019) from 2.85% in 2000 to 4.14% in 2010 and 9.45% in 2018 (Sumari et al., 2019). However, with the increasing population, access to urban land for agricultural activities is becoming complex (Pauleit et al, 2019), this left urban farmers land insecure. Tanzania is no exception of this, non-agricultural economic activities are progressing in urban areas while urban agriculture is also growing (World Bank, 2015).

Urban Agriculture (UA) in Tanzania entails cultivation of crops, vegetables, herbs, flowers and keeping livestock in urban areas (Foeken et al., 2004). Studies have indicated economic (FAO, 2012; Mntambo, 2017), food security and nutrition (Pillai, A et al., 2016.; Malekela et al., 2018) as well as social (Slater, 2001; Mntambo, 2021, 2017) benefits of UA. Urban agriculture is within informal sector activities and has a conflicting interest with the Local Government Authorities (LGAs) over land use for cultivation (for instance limited space for UA, cultivation close to water sources-below 60 metres as well as environmental degradation). Currently UA displays the characteristics of shifting cultivation, that is, due to land insecurity, when evicted from one location, they tend to shift to another location and continue with the cultivation (see Halloran & Magid, 2013). Despite the land insecurity, UA is expanding as the cities grow and has become an integral part of the urban food system (FAO, 2012). For example, it is estimated that in Dar es Salaam over 650 hectares of land is used for agriculture activities (Ibid). Adding to that, UA in Morogoro Municipality employs 32% of the population (URT, 2012).

Land tenure security and Urban Agriculture

Scholars have documented land tenure security and urban agriculture in sub-Saharan Africa (Simiyu, 2013; Gore, 2018; Sucha et al., 2020). For example, Sucha et al., (2020) argued that in South Africa the concept of land tenure security in UA is focused on legal status rather than other factors such as perceived and de facto tenure security. The later factors

are important in influencing investments in urban agriculture. Simiyu (2013) researched access to and utilization of land by food producers in Urban Kenya. He stated that social connections and informal use of the land around the neighbourhood are one of the ways farmers access lands. Based on urban farmers in Kenya and Zambia, Davies et al., (2021) state that land tenure insecurity is one of the barriers that impact the ability of farmers to expand production. Moreover, in Nigeria land tenure insecurity that prevails among urban farmers cause stress and inability to invest more (Lynch et al., 2001). From the ongoing argument land tenure security in urban agriculture is important just like in rural agriculture. This is because, secured land tenure improves the ability to invest in the land, access to credit, sustainable management of the land and others (World Bank, 2003; Sucha et al., 2020; Furaha, 2021).

In Tanzania, UA is mentioned in different policies papers as the contributor of food, income and employment but also the conflicting interest on land is noted. For example, URT (1997: 30) states that ‘urban agriculture has the potential to provide employment, income and supplementary source of food supply [and] in their present form agricultural activities often conflict with the proper planning of urban land uses’. The 1997 National Land Policy states that ‘UA is not a principal function of towns [and] the government will continue to regulate its practice and ensure that it does not disrupt planned urban development’ (URT,1997: 30-31). The 1992 Town and Country Planning (Urban Farming) regulations, restricts urban farmers to occupy or use more than three acres of land. From these policy statements, the intention is to regulate UA so that it does not disrupt the urban development planning. Priorities on land use is given to other development activities such as (housing, industries, school projects just to mention a few) neglecting agriculture (Foeken et al., 2004). Contradictions and inconsistency of policies at national and municipal levels have left urban farmers land insecure. For example, in Dar es Salaam about 5% out of 36,551 of the urban farmers have certificate of land ownership (URT, 2007). This means that, 95% of the urban farmers are land insecure thus they access land through renting, borrowing or encroaching. However limited tenure security affects their agricultural production since they cannot expand their cultivation and also affect the choice of crops, mostly preferred is horticultural crops (leafy vegetables) which are short term (see McLees, 2011), they cannot access credit and limit their ability to

protect the environment. FAO, (2011) indicates that unsecured land tenure is one of the constraints in achieving sustainable urban agriculture while demand for food increases areas for agricultural land diminishes.

The issues of land tenure security are well documented in Tanzania but focus is on rural agriculture, property rights (housing), commerce and others, little attention is paid to UA. Missing out land tenure analysis in UA limits the understanding of the dynamics of informal arrangement as well as the survival of urban farmers. The current study fills the knowledge gap by examining the concept of tenure security within UA. I draw on the informal arrangement of the farmers on access to land and explore how it affects vegetable cultivation. Different ways of how farmers access land for cultivation, the extent of land security among farmers and the implications of land insecurity on vegetable cultivation are explored.

Theoretical Framework

To understand the land tenure security in urban agriculture land tenure, land tenure security, and access are the concepts explored in the study. On one hand, tenure security is the land rights occupied by a person which creates self-assurance for the use of the land and enjoying the benefits of the land (UN-HABITAT, 2004; 2011). On the other hand, land tenure is the relationship between people and land, whether legally or customarily defined (FAO, 2020). It determines who can use what resources, for how long and under what conditions and guarantees a person from any form of eviction. Land tenure can also be regarded as the social relations comprising rules and regulations about land use, control and transfer of rights to others (UN-HABITAT, 2011). Other scholars see land security as a relative concept and the matter of how people perceive land rights (FAO, 2002; UN-HABITAT, 2004, 2008; Payne, et al., 2009). From these perspectives, land tenure is relational and multidimensional which comprises social, economic, legal and political dimensions. In Tanzania legal and customary laws oversee the land tenure system, that is access and other rights to land falls within either of the tenures (NBS, 2019). In this context, land tenure security is guaranteed by formal rights as well as customary rules. However, there is no clear distinction between the two as both may coexist within the same land tenure arrangement (Tsikata, 2003). In this case, exploring land tenure security within legal lens is likely to miss out other informal arrangement and how it produces security over land which is important for urban farmers who are land insecure.

Access is related to property, which implies a person's right to claim the use of things such as resources (Ribot, 1998). In this context a claim is enforced in society either through law or custom, and a right is a fixed concept. Ribot and Peluso's (2003:153) theory of access states that 'access is the ability to benefit from things including material objects, persons, institutions and symbols. While the first definition of access focuses on the *right* to use resources (Ribot, 1998), the latter shifts the focus from the *right* to the *ability* to benefit from things (Ribot and Peluso, 2003). The term 'ability' is broader than 'right' because the later involves a range of social relations (Ibid). Understanding access as ability provides a useful framework for examining how power relations shape the ways farmers access resources, and calls for the analysis of different ways farmers access land.

Given the informal nature of UA I analyzed access to land in the lens of Ribot and Peluso's theory of access (2003) to understand the farmers' ability and the different ways they access land rather than focusing on land right. The theory argues that negotiations within social relationships to access resources are important rather than the legal rights. Within informality social relations is one of the determinants to access resources. Kabeer (1999) argues that social relations determine what rights and control of resources are available to people. Urban agriculture is considered among the informal sector activities (Howorth et al, 2000) thus it lacks formal allocation of resources such as land. Hence informal arrangement in accessing resources for agricultural activities (such as land) prevails. The theory of access is relevant to my study because farmers at the study area do not have formal land rights. Therefore, the theory provides the lens beyond legal rights to understand the dynamics of access to land within the informal tenure.

METHODOLOGY

Study Area

This study was conducted in Morogoro Municipality at the open space where male and female cultivate leafy vegetables. Morogoro Municipality is in Morogoro Urban District, one of the eighty districts in Morogoro Region. The study was conducted in Kichangani ward one of the most urbanized wards of the Morogoro Municipality (Sumari et al., 2019), out of 29 wards of the municipality. Agricultural activities is common in the municipality, for example there is an increase of 428.9 hectares in 2005/06 to 641.9 hectares in 2009/10 of land which is used for

agricultural activities in the municipality (URT, 2012). The study was conducted at the open space namely: Fungafunga Elderly Centre (FEC) in Kichangani Ward. Different leafy vegetables are cultivated such as *Amaranthus* sp (Mchicha), Swiss chard (Figiri), Chinese cabbage, Pumpkin leaves (Majani ya maboga) and *Solanum nigrum* (Mnafu).

Design and Data Collection

The study employed a cross-sectional design for data collection, this design was the appropriate as data were collected at single point in time. There was no sampling frame of urban farmers in Kichangani Ward given the informality of UA. Therefore, I used snowball sampling method to make initial contact with few farmers who were relevant to the topic and then established contacts with others (Bryman, 2012). Through this procedure I identified 69 male and female farmers in FEC.

Primary data was collected through household survey, in-depth interviews, observation and informal conversation that addressed the land tenure security in gardening activities. The latter method was relevant given the land insecurity farmers has which ultimately affected how they welcome a researcher. Within this, informal conversation was used to establish friendly connection with the farmers before household survey and interviews. Key informants' interviews were conducted to Municipal Officer, Ward Agricultural Officer, Ward Counsellor and NGO staff. Secondary data including articles, reports and policies related to land tenure and urban agriculture in Tanzania were used.

After the household survey, the questionnaires were checked for errors. I used the Statistical Package for Social Sciences (SPSS) Version 20 to enter and analyse the quantitative data to produce frequencies and percentages of different ways of accessing plots. This study is mainly qualitative thus recorded interviews were analysed under the main themes of this study: access to land, security of land, effect of land insecurity, and social relationship.

FINDINGS AND DISCUSSION

Socio-demographic characteristics of farmers

This section describes the socio-demographic profile of 69 male and female farmers. It consists education and number of years in agriculture. Education facilitates the production of urban agriculture (Foeken et al, 2004). In this study, majority of the farmers have completed primary

education, few have attained secondary and college while 12.9% have not attained education. The findings are similar to other studies in UA such as Foeken et al, (2004); Zella, (2018). In the study area farmers have practiced vegetable cultivation from 6 months up to 30 years. This shows that not only that they are experienced in the practices of UA but also it is not a transitory rather a permanent activity. Lastly vegetable cultivation is the main source of income among 69 farmers although 62.3% have diversified into other income generating activities.

Different ways farmers access land

This section explores the dynamics on how farmers access land (gardening plots). In this paper, gardening plots is also referred to land. The main finding is that farmers access land through informal means. That is, there is no any formal legal binding over the use of the land between the farmers and the landlords, this corroborates with UA literatures (McLees, 2011; Halloran and Magid, 2013). In this arrangement farmers are granted temporal use rights by the landlords. This implies that they can be evicted from the land at any time, farmers informal tenure security lies at their landlord mercies. Table 1 present different ways of accessing gardening plots:

Table 1 : Mechanisms of accessing plot (N:69)

How plot was accessed	Frequency	Percentage
Through friends or relatives	47	68.1
Direct to the Elderly Centre (Manager)	18	26.1
Being a labourer or food vendor	4	5.8
Total	69	100

Source: Mntambo, (2017)

Majority of the farmers have used friends or relatives to get introduced to the manager at FEC to get available plots (Table 1). While others used different means as being a labourer or selling food to the farmers. All these are informal means of accessing land. This study argues that, accessing land through friends or relatives, being a labourer and/or food vendor implies the significance of establishing a social relationship with the existed farmers. Through this way, a new comer is being informed by the gardener about the availability of vacant plot and/or get introduced to the landlord. Therefore, establishing a relationship with a gardener is crucial step for accessing gardening plots. This implies that, social relations are important access mechanism within the informal land tenure,

this was also cited in the introduction that land tenure is relational. Table 1 justifies that there is more to legal and economic means of access to resources, that is social relations is emerging as the important entry point for people who do not have formal land rights. The following statements from male and female farmers consolidates the significance of social relationship Mntambo, (2017: 155-157):

I knew a gardener who was employed at the centre. I asked him how to get plots at FEC and he wanted a small token as motivation to connect me to the officer who was allocating plots. (Peter)

I was hired as a labourer to do the irrigation. After two years, I rented five plots. (Jamal)

I had been selling snacks here, I was known to many farmers so one of them helped me to get the plots. (Mwanahamisi, Farida)

The above declarations confirm that farmers access land through informal means while a key starting point is to establish a relationship with the existed gardener as noted earlier. Informal conversations and interviews revealed that over the past six years, access to gardening plots has become more difficult at the FEC. This is because the land is fixed while more people are interested to engage in vegetable cultivation at the centre since FEC is very popular site for leafy vegetable cultivation in the Municipality. Therefore, a lot of customers within the municipality (retail and wholesale) come to buy vegetables and at times buyers from Dar es Salaam. This makes Fungafunga Open Space a strategic location for vegetable cultivation. This has made access to land complex thus new entrants have to employ different strategies to access land. As indicated in the Study Area that Kichangani ward is one of the wards mostly urbanized in the municipality; hence it increases the vulnerabilities of farmers over land use (Halloran and Magid, 2013). Increasing competition over land access at the FEC created new routes to access land, that is subletting arrangements to either increase the number of plots or for newcomer to access plots temporarily. It was found out that about 16 percent of the farmers rent their plots through other farmers 'subletting'. This is a local internal arrangement between farmers, the landlord is unaware of the arrangement. The gardener who sublets the plot(s) uses the arrangement as the additional source of income, while the subletter use this as a way to have access more plots or start vegetable cultivation for a new comer. However, in this kind of arrangement the subletter is more vulnerable because the landlord is not aware of the arrangement. Despite this, it is found out that there are farmers who have

cultivated at the FEC for over 20 years. This implies that, despite the land insecurity farmers continue to cultivate at the centre. Timely payment of the plot rent was mentioned as critical factor for retaining the plots. From the ongoing discussion there are other subtle ways in which land is accessed and retained which ultimately determines the degree of security among farmers. The coming section presents the extent of land security for some of the farmers.

The Extent of Land Security: Close Relationship with the Landlord

Despite the farmers land insecurity, it was noted that, the close relationship with the landlord at the FEC enhance the land security. During the fieldwork I have noted that there was a threat from FEC to evict farmers so that they can utilize the area for the same purpose, vegetable cultivation. Thus, it came to my attention that a close relationship (that is being related to any of the employees at the centre) is a bonus to access more plots and retain them. It was reported that employees of the FEC are being allocated their own plots for cultivation, and thus, they have influence over who access land. I present a case of a female gardener whose mother is working at the FEC:

[My mother works as a nurse at the centre and we have lived in this vicinity since my childhood. I started helping her in the garden when I was young. Later she helped me to get plots here]. (Irene). (Mntambo, 2017: 163)

Irene has more than 20 gardening plots. She is well-known, successful and respected female gardener at the FEC. Informal conversation revealed that she was not worried about the FEC threat to evict farmers rather the eviction will only reduce her number of plots. This is because her mother is still employed at the centre therefore, she will still have access to her mother's plots. Another case is a male gardener who was employed at the centre and his wife is still the employee at the centre. Although he has retired from FEC, he still retains about 30 plots allocated to him while he was an employee together with his wife's plots. He is also not worried with the threat to be evicted from the land, he said:

I am the child of the Fungafunga family; no one can evict me here. (Jacob). (Mntambo, 2017: 164)

The above statement utters the sense of security, that is the male gardener still feels he belongs to the FEC. This is because he still has the land use

right given his previous employment at the centre as well as his wife current employment at the centre. The case of male and female gardener presented here suggests that not all farmers have the same land insecurity. The two farmers are secured than other farmers who are more vulnerable. The two farmers are successful in vegetable cultivation primarily because they have more plots than others. For example, they can harvest up to 2000 bunches of vegetables per crop cycle compared to a gardener with 1-5 plots whose harvesting can reach 300 bunches. These two farmers can supply in large scale, a male gardener has a tender to supply vegetables at the factory while the female gardener has a good network of customers from Dar es Salaam especially during the rainy season. This implies that access to FEC authorities has increased their chance of accessing and securing more plots ultimately it has increased their vegetable production. This means that farmers land security led to investing more on inputs such as improved seeds and fertilizers to increase production.

The previous section and the two cases present the dynamics of access to land and security among farmers. It still confirms that social relations are important to access and retaining resources. However, other farmers who do not have close relationships with the landlord they end land insecure and vulnerable hence they cannot expand their vegetable production. It also shows that, although informal networks are the major means of accessing land in UA (see McLees, 2011), there are other ways which can create the possibility of land security within the informal arrangement. The following are the estimates of the plot distribution at the FEC:

Table 2: Plots distribution at the centre

Number of plots	Female	Male
Fewer than 5	7	21
5-10	4	19
11-16	5	11
17-30	1	1
Total	17	52

Source: Mntambo, (2017)

As stated earlier, the two farmers with relationship with FEC employees have more plots while majority of the farmers have between 1 and 10 plots (Table 2). Having more plots is a buffer to vegetable cultivation as the above two cases present. Having secured land is important because farmers can invest more in the cultivation hence increasing vegetable

production. Moreover, vegetable cultivation is lucrative since Morogoro Municipality is closer to Dar es Salaam City which has high demands for fresh horticultural foods during rainy season. This explains that, farmers with less plots are not only land insecure but also cannot increase their production.

The two sections above presented different access mechanisms and the extent of security farmers have. Using the Access Theory (Ribot and Peluso, 2003) lens to explore the land tenure among farmers the study found out different strategies farmers employ to secure temporary access to land and the importance of social relationships. Majority of farmers are aware of their land insecurity but they still employ different ways to gain more plots even if it is for temporary usage. This implies that UA is not a transitory activity and has important contribution to the lives of people. The last section presents what it means to be land insecure in vegetable cultivation.

Implications for Land Tenure Insecurity on Vegetable Cultivation

Limited expansion of vegetable cultivation

UA literature in Tanzania indicates that, urban farmers face the challenges of insecure land tenure (Foeken et al. 2004; McLees, 2011; Halloran & Magid 2013; Mkwela, 2013; Namwata et al. 2015; Mntambo, 2017). They have limited formal rights over the use, control or transfer of land thus they rely on informal land rights with the landlords as stated earlier. For intra-urban cultivation, limited land rights affect their choice of the type of crop, for example farmers opt for short-cycle leafy vegetables (McLees, 2011; Mntambo, 2017). This is because, farmers fear that they might be evicted from the land hence they cannot cultivate long-cycle crops. This study notes that with limited land tenure farmers are facing constant fear from being evicted from the land, Mntambo (2017: 104, 159):

Mguu mmoja ndani mwingine nje, [‘one leg inside and the other outside’, meaning that life is uncertain so one must be prepared for any outcome]. It’s hard to continue investing in cultivating vegetables. (Julius)

Land insecurity is a big threat. I do not know how I will cope with life if we’re evicted from here. My life depends on this garden. (Mwantumu)
The threat of eviction is a big challenge because we do not know about tomorrow. Once you harvest your vegetables you quickly sow other vegetables so that no plot is left vacant. (Lucy)

UN-HABITAT, (2008: 14) states that ‘people who fear the eviction are not likely to operate to their maximum potential, or invest in improving their...farms’. This is similar to the above two statements which indicate the confusion of the farmers and the marked effects of the land insecurity towards farmers. They cannot invest more since their future on the land is precarious. This is similar with McLees, 2011; Halloran & Magid, 2013 who stated that land tenure insecurity affects UA production as it limits farmers ability to invest in the improvement of the land, inputs and infrastructure. For instance, McLees states that water is very limited during the dry season, but farmers cannot invest in dipper wells since they are not certain about their future on the land. During the fieldwork, farmers reported they lack motivation to use improved seed, fertilizers and the alike. So that, in case they are evicted from the land they will not incur huge loss. Some of the farmers explains their uncertainty about the land, Mntambo (2017: 159):

There is chaos here – we’re just waiting for the outcome. You cannot keep other people’s property by force when they want it back. We’re waiting for the outcome of their decision. (Farida)

This area belongs to the government, and if they decide to take it back there’s nothing we can do. (Rahma)

The above statements confirm that farmers are uncertain and worry about their future on the land as well as their source of livelihoods. In other words, the above statements indicate that farmers have use rights agreement with the landlords to only use land for the meantime. In this case, there is no official agreement rather the agreement results from social negotiations. The current study notes that land insecurity is one of the factors that majority of the farmers have diversified their income generating sources. About 62.3% have diversified into other Income Generating Activities (IGAs) such as cooking and selling snacks, renting out a motorcycle, making soap, running a small shop, and hawking vegetables on the street. Despite this vegetable cultivation is still preferred as evidenced by farmers who argued that it is profitable when you have more plots and land secured. On the contrary, interviews with the key informants revealed the following Mntambo (2017: 107-110):

I am aware that there are urban farmers. How are we going to get vegetables if they do not cultivate them? But they need to cultivate and follow the [by-laws]. One of them is that cultivation should take place 60 meters from the river. (Municipal Director)

We do not support farmers who cultivate leafy vegetables because they are for home consumption. There are no leafy vegetable farmers who can invest on a large scale. We support farmers who cultivate 1-3000 acres of land. (NGO staff)

There is no agriculture in town, there are only gardens. Land in town is supposed to be used for residential and commercial purposes. We do not allow crops which can hide bandits such as maize. Farmers are important in town, since they supply food, but we do not allow them to cultivate permanent crops. (Ward Councillor)

Municipal or Ward offices do not give agricultural inputs to urban farmers. We only offer advice to farmers. (Ward Agricultural Officer).

The above statements indicate different perception from different stakeholders on UA. Despite the fact that they acknowledge the presence of urban farmers their statements indicate lack of Local Government Authorities (LGAs) support to urban farmers. As a result, farmers are faced with many challenges and land tenure insecurity is one the major challenge.

Uncertainty among farmers

The previous section indicated different impact of insecure land tenure on vegetable cultivation such as limited agricultural investment, diversification into other IGAs, limited support from the LGAs and others. As stated previously FEC was threatening to evict farmers from the land so that they can invest in vegetable cultivation. This has created a lot of uncertainty on farmers Mntambo, (2017: 159-160):

[The centre officials want to take the land after realising that gardening is profitable, this might bring conflict since some of us have cultivated here for many years when it was a forest].

The threat to evict the farmers is based on selfishness. The rent we pay to use the plots helps the elders. The elders live in a good environment, but in the past when this area was forest it was unsafe to pass through here. We have cleared the forest and now they want to evict us.

Farmers who have started cultivation at the centre many years ago feels that they have invested so much labour for clearing the land, now the land is good for any activity hence the value of the land has increased. This indicates sense of informal ownership although farmers do not have the power to hold the land. McLees (2011) argues that the relationship

between landlords and urban farmers is based on unequal power relations; landlords have more power than farmers as they own the land, which gives them the right to take it back at any time. During the fieldwork there was no any physical conflict observed however fear and tension among farmers, and hatred towards the landlords was noted since farmers are worried about their future.

On the whole, this paper has shown that among 69 farmers participated in the study all access land through informal arrangement through social connections. This confirms that informal ways of access to land is part of the land accessibility. Thus farmers only have temporal use rights that make them insecure and vulnerable. UA is not only ignored in policy papers but also stakeholders, this is similar to other studies in Tanzania (Foeken et al. 2004; McLees, 2011; Halloran & Magid 2013; Mkwela, 2013; Namwata et al. 2015; Mntambo, 2017). Within this situation, urban farmers cannot invest on improvement of the land, agricultural inputs or infrastructure (McLees, 2011; Halloran & Magid, 2013; Mntambo, 2017). Insecure land tenure has so many implications on farmers as noted in this section which ultimately the chance to improve their source of livelihood is jeopardized.

CONCLUSION

This paper examined the concept of land tenure security within urban agriculture focusing on vegetable cultivation. It draws on informal arrangement farmers have to understand how they access land, the extent of land security among farmers, and implications of land insecurity to vegetable cultivation. This paper has demonstrated that farmers are land insecure, that is, they rent land from the landlords who have the formal land right. Farmers are only offered the temporary use right ultimately, they become land insecure. Thus, social relationship has become an important mechanism for farmers to access and retain land. Hence, the extent of farmer's land security is determined by their relationships with the landlords. I have also shown that land tenure insecurity creates uncertainty among farmers since they are not certain about their future on the land, which also affects their expansion of vegetable cultivation consequently their production is affected.

The evidence presented suggest that despite the complex access to land among farmers, limited support from the Local Government Authorities, vegetable cultivation continue to thrives. Based on the evidence available

UA in general is not a transitory activity as long as it continues to provide income, employment and food to the farmers and to urban dwellers. This calls for a rethink among LGAs since they have a role to play in supporting urban farmers for instance to include UA within urban land planning to make farmers land secured. Hence, they will be able to increase vegetable production, income and become the frontiers to keep the environment safe for urban sustainability.

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Effectiveness of Exemption Measure in Providing Healthcare Services among Old People in Tanzania: The case of Kasulu District

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ABSTRACT

The study aimed at assessing effectiveness of exemption measure in providing healthcare services for old people in public hospitals in Tanzania. The study was conducted in rural and urban areas of Kasulu district in Kigoma using cross sectional descriptive research design. The total number of respondents engaged in this study was 323. These included 304 old people, four medical doctors, eight nurses, one district medical officer and six social workers. Data were collected by using questionnaire, interview, focus group discussion, observation and documentary review. Qualitative data was analyzed by using thematic method while quantitative data were analyzed by using Statistical Package for the Social Sciences (SPSS) to obtain frequencies, percentages and statistical measures for triangulation purposes. Study findings revealed that exemption measure was partially implemented and less effective. Healthcare services in public hospitals were not easily accessible for old people under exemption measure. The major challenges affecting exemption measure is lack of essential medicine, bureaucratic procedures in executing exemption process and unofficial payments. The study hereby recommends that the government should enact law to enforce implementation of exemption and increase budget allocation to the health sector so as to increase availability of medicine and diagnostic instruments in public hospitals. Further, since the scope of the study was limited to Kasulu district; there is a need to conduct country survey to assess effectiveness of exemption measure in providing healthcare services for old people in Tanzania.

Keywords: *Effectiveness, Exemption, Health, healthcare Services, Old People*

INTRODUCTION

Exemption for healthcare services is one of the global strategies adopted by different countries to promote Universal Health Coverage (UHC) for all people including old people (World Health Organization/World Bank, 2013; and Dake & Wielen, 2020). A number of countries adopted exemption policy within the health sector in order to meet health needs of increased number of old people in the world accompanied by diseases transition from Communicable to Non-Communicable Diseases (NCDs) that require long hospitalization, and on-going medications (Wan He, *et al.*, 2015). Population of old people is said to increase from 901 million in 2015, and it is projected to increase twofold, reaching 1.4 billion by 2050 across the world (United Nations Population Fund and Agriculture & HelpAge International, 2011 & United Nations, 2015). This increase is likely to constrain the provision of healthcare services for old people (Wan He, *et al.*, 2015; UN, 2015 and Dorothy and Estes, 2016). In order to implement exemption measure both developed and developing countries have responded differently by putting access to healthcare services for old people as one of the policy priorities. Developed countries such as German, USA, and Canada, have introduced universal health insurance as one of the initiatives to ensure health coverage to all (World Health Organization 2010; Grosse-Tebbe *et al.*, 2005). Besides, health financing is one of the major priorities within the national budget to ensure continuum supplies of medical care, diagnostic instruments and qualified doctors (Reinhard and Blume, 2014).

In sub-Saharan Africa a number of countries have implemented exemption policy within the midst of limited resources (Haazen, 2012). Despite the fact that African countries have been argued by the Abuja protocol in (2002) to spend 15% of their Growth Domestic product (GDP) in financing healthcare services, majority of the African countries have not attained this target due to weak economy, lack of policy priority and small budget allocation to purchase essential medicine for the diseases affecting old people. This situation further limits application of exemption policy for healthcare services for the most vulnerable population including old people. Apart from lack of financial viability to most African countries to implement exemption policy, the process of identifying those who qualify for exemption is another challenge (Marwa *et al.*, 2013).

Tanzania recognizes the fact that ensuring access to healthcare services for old people is one of the fundamental factors for ensuring their survival within the midst progression of diseases resulting from old age. In realizing this fact, the government of Tanzania hailed exemption as one of the strategies to offset the impact of user fee that was introduced in public hospitals in 1993 (Mubyazi, 2004). While user fee in public hospitals was meant to generate revenues for the purpose of improving the quality of healthcare services; on the other hand, it had reverting effects in terms of accessibility and affordability to healthcare services among low-income earners (Cowi *et al.*, 2007). Initially exemption targeted to protect children under five years, pregnant mothers, people with disabilities, patients suffering from chronic diseases such as Human Immunodeficiency Virus (HIV)/ Acquired Immune Deficiency Syndrome (AIDS), diabetes, leprosy, tuberculosis (TB), polio, and cancer. However, in 1994 exemption was extended to all old people aged 60 years and above as a means of protecting them from the effect of user fee in public hospitals (Ministry of Health, Tanzania, 1994; Mmbuji *et al.*, 1996; Newbrander and Sacca, 1996 and Wang and Rosenberg, 2018). Along with exemption, Tanzania formulated the National Ageing Policy (2003) and National Health Policy (2007) respectively and both policies clearly state that old people should be exempted from user fee in public hospitals. Despite that exemption is a statutory government document that directs that all old people with the age above 60 years to receive free treatment in all public hospitals in Tanzania, a number of empirical evidence document that access to free healthcare services for old people in Tanzania is limited (Kuwawenaruwa and Borghi, 2012; Mackintosh and Mujinja, 2010; HAI, 2013 and Manyama, 2019). Whole HelpAge International (2013) projects that about 82 percent of all old people in Tanzania live in rural, it is estimated that 85% of old people living in rural areas have no access to free healthcare services from public hospitals. It not known why exemption measure has not managed to meet health needs of old people despite of its existence since 1993. Therefore, this study has significant contribution to policy makers, health practitioners and social workers in improving delivery of healthcare services to old people in Tanzania. Further, this study is one among the few studies conducted in the area of social work. Findings obtained are expected to add the existing knowledge gap in the area of gerontology and provision of specialized social work services for old people such as counseling, advocacy, empowerment in order to address spectrum of social, emotional and health needs of old people in Tanzania.

THEORETICAL FRAMEWORK

The study was guided by Durkheim's theory of Structural Functionalism. The theory was relevant to the study as it provided a gauge on how different social structures function to maintain social order and stability in meeting health needs of the society (Durkheim, 1932; Boundless, 2013). The main assumptions underlying functionalist theory is that society is made up of different social structures that are interlinked and work collectively to fulfill social and emotional needs so as to maintain a balance and keep the whole society functioning (Boundless, 2013). Pioneers of functionalist theory such as Talcott Parsons, Max Weber, Émile Durkheim, and others view poor healthcare provision as the outcome of dysfunction of different social structures (Genove, 2014). Such structures that are responsible for meeting health needs of old people include the family, government structures through its established policies, laws, and guidelines. For instance, family as one of the social structure has an important role to provide nutritional and psycho-social support (Mabeyo & Kiwelu, 2019); while the government on the other hand has a role to ensure that laws, policies and guidelines established are effectively implemented to ensure that old people have access to free healthcare services as the exemption guideline, the Tanzania National Ageing Policy (2003) and Tanzania National Health Policy (2007) directs in all levels of health facilities from dispensaries, healthcare centers, district hospitals, designated regional hospitals and the national referral hospital. It is therefore assumed that exemption for healthcare services for old people can be effective if all the government structures such as the parent Ministry of Health, Community Development, Gender, Elderly and Children and social welfare department on the other hand the family and the community as a whole should play significant roles to ensure different needs of old people are met including access to healthcare services in public hospitals.

METHODOLOGY

The study employed cross-sectional descriptive research design informed by pragmatic philosophical assumptions. The choice of this type of design was to allow collection both qualitative and quantitative data from a large sample at specific point in time (Creswell, 2014 & Klenke, 2016). Mixed approach was adopted to avoid biases that each method has in data collection. The use of qualitative and quantitative approach was meant to offset the flaw that could result from using one method. While quantitative data was presented in terms of frequencies and percentages to

determine occurrence and magnitude of the problem, qualitative data was used to provide in-depth information such as feelings, views, and opinions that cannot be captured through quantitative measures.

The study was conducted in Kasulu district in Kigoma region. Kasulu district is predominantly rural occupied by the 'waha' as the main ethnic group and their economic activity is subsistence farming and at a small-scale commercial activity. The choice of Kasulu district was based on the fact that it is among the peripheral districts in Kigoma region with low economic growth accompanied with poor infrastructure development that reduces its capacity to provide healthcare services to old people (Kigoma Regional Profile, 2012). Again, the National Census report of 2012 indicated that number of old people in the district is low (4.8%) as compared to the national average of 5.6% of the total population. Low number of old people suggested high pre-mature deaths among the old people resulting from poor nutrition, lack of social support and good health services to treat old age-related disease in the district.

Respondents were obtained from six wards of Kasulu both urban and rural namely Murubona, Kimobwa, Rusesa, Nyakitonto, Nyenge and Nyachenda by using simple random and purposeful sampling procedures. The target population in this study were old people, district medical officer, social workers, medical doctors and nurses. Sample size in the quantitative part covered 323 drawn from Kasulu district rural and urban. This included 304 old people aged 60 years and above, six Social Workers, one District Medical Officer (DMO), four Medical Doctors and eight Nurses were selected by using simple random sampling method. Sample size in the quantitative part (old people) was calculated using Taro Yamane's formula {i.e. $S = n / [1 + n (e)^2]$ at 5% margin error (Ahuja, 2001) where S = Sample Size, n = number of respondents and e = Margin Error. In the qualitative part, sample size was reached at the saturation point. This point was reached at 57 informants participated in interview and focus group discussion. Saturation points or redundancy was reached when no additional information was obtained from other informants (Mason, 2002; Creswell, 2014). Collection of data was done by using combination of instruments such as in-depth interview for DMO, Medical doctors, nurses, old people and social workers; questionnaire for old people, DMO, Medical doctors, nurses and social workers; field observation; two meetings for focus group discussion (FGDs) for old people and documentary review. Different instruments of data collection

were used in order to capture relevant and quality information as suggested by (Yin, 2003) that the use of multiple methods of data collection in the same study reduces the weaknesses that can be encountered in another instrument; thus, providing relevant and quality data. Both qualitative and quantitative data were collected and analyzed separately. Qualitative data were analyzed by using thematic method. Data were sorted, categorized and organized into themes while quantitative data were analyzed using SPSS to obtain frequencies and percentages and statistical figures for triangulation purposes.

Study Limitations

It is rarely to conduct a study without coming across certain limitations. In this study a number of limitations were encountered. The first limitation was the method of data collection used in collecting data from old people. Majority of the old people are illiterate who can't read and write thus making the process of filling in the questionnaire difficult. A lot of time was spent in reading for them and filling in their responses.

The second limitation was the geographical location of Kasulu district. Being one of the remote districts in Tanzania, during the data collection some of the wards were reached with difficulties due to poor transport infrastructures within the areas. In order in order to address this challenge, motor cycle transport was used in areas which were not served by cars.

The third limitation was communication barrier. Majority of old people in Kasulu speak their native language (Kiha) and could not express themselves in Kiswahili. Henceforth, the use of local research assistant who was familiar in Kiha was essential in order to get the right interpretations of the responses. Despite these limitations, the entire research process was successfully done without affecting the quality of information.

Findings and Discussion

Findings are presented based on three thematic areas that is; Identification and Exemption Procedures, access to health care services and effectiveness of exemption measure in providing healthcare services as discussed here under;

Identification and Exemption Procedures for Old People

This part highlights different procedures used to identify old people as well as exemption procedures. Study findings indicated that

identification for old people and exemption procedures are not systematically applied. The concept of who is an old person is still a paradox to among the government officials and health practitioners. Age criteria are challenged by lack of evidence to prove the right age for health exemption. While the use of birth certificate or voter's registration cards is commonly used by health practitioners to identify those with the right age for exemption, questionnaire findings revealed that majority of 189 (62.2%) out of 304 of the old people had neither birth certificates nor exemption card as evidence to prove their age. Old people further reported that procedures used to identify is slow and is being affected by unnecessary bureaucratic procedures such as being requested to produce introduction letter from village executive officers (VEO) and exemption letter from social workers. Regarding exemption procedures respondents during the focus group discussion respondents had the following to say:

“Procedures set by the Kasulu district to obtain exemption card is very difficult for us old people who have limited mobility. First you need to be identified by the ten cell- leader, village executive officer then you go to the ward executive officer to prove your age, and then your document is sent to the district level. In all those stages you need to go in person. Now how do I manage with this condition you see (62 years old man from Kimobwa Ward)

This implies that the process of identifying old people is challenged by lack of evidence to prove their right age and bureaucratic procedures and a big number of old people fail to process health exemption cards. However, other old people retaliate that sometimes those who deserve health exemption are denied services with the view that they look younger than their age. This is evidence is also provided by one old man who said that;

“Exemption is not applicable for all of us, sometimes when you go to the hospital, doctors deny exemption with the view that you still look young and therefore you don't fall under exemption category” (64 years old man from Kimobwa Ward)

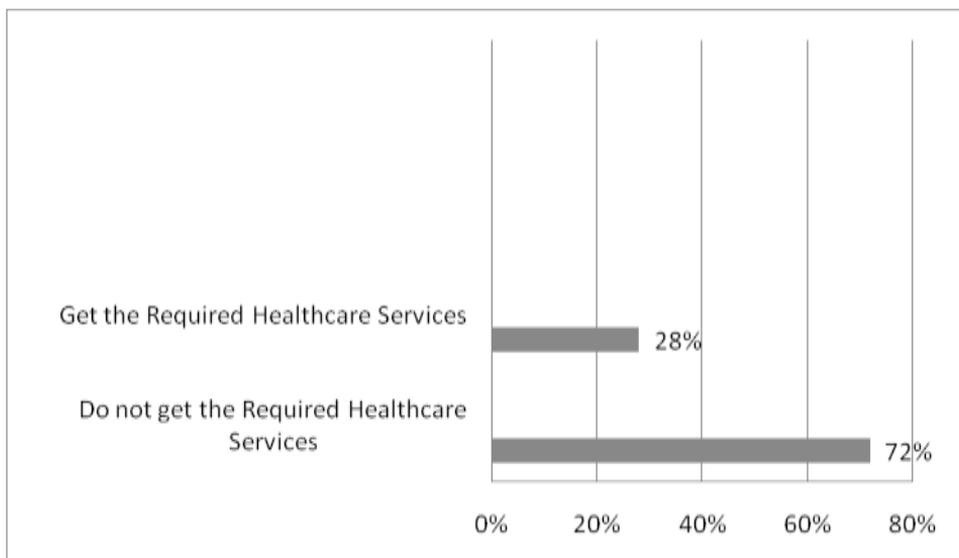
Though social workers in collaboration with medical doctors play a great role to ensure all old people receive healthcare services, they lack specific criteria to use when granting health exemption. As a result, the social workers or medical doctors use their own discretion to grant exemption. While other old people reported that due to life hardship and hazardous work done in rural areas, health condition of old people deteriorate at the tender age thus looking older than their chronological age. This condition

adds difficulties in accessing healthcare services under exemption measure in most of the public health facilities. This finding coincides by other studies (Maluka, 2013; Ka Ousseynou *et al.*, 2017 and Manyama, 2019) found that potentially exemption is ineffective since procedures used to identify old people who qualify for exemption are not clearly defined and each practitioner used his or her own criteria. Bureaucratic procedures and lack of criteria to identify old people who qualify for exemption were of the factors that impede implementation of exemption for healthcare services in public hospitals.

On the other hand, during with the in-depth interview with the District Medical Officer (DMO), it was reported that, the government has created a good environment for all old people to process health exemption cards without overcoming difficulties. For instance, it was revealed that, old people with limited movement, processing of exemption card is done at their homes so as to ease the process. The big challenge in this process is low awareness among the old people especially those living in rural areas to utilise health services available in public hospitals. Further it was revealed that, old people are treated whenever they visit health facility even if they do not have exemption cards. On the other hand, one of the social workers at Kasulu district hospital added that, all people deserve to be treated including old people. Therefore, those who do not have exemption cards and are not able to pay for medical services we grant them exemption letter that qualify them to receive free treatment at that specific health facility.

Extent to which Old People get the Required Healthcare Services under Exemption Measure

Questionnaire findings indicate that access to free healthcare services under exemption measure in public hospitals is still one of the major challenges for old people. Figure 1 summarizes the findings (n=304)



As presented by Figure 1, majority of the old people said that they do not get the required healthcare services while others said that they get the required health services. Among the challenges they revealed was lack of medicine in public hospitals and exemption does not extend in private hospitals to provide wider choice of health seeking. Further, during the focus group discussion, old people revealed that exemption is not granted in full. They still pay to some of the complicated diagnosis such as Magnetic Resonance Imaging (MRI), Computed Tomography-Scan (CT-Scan) and medicine of specialisation as revealed by one of the respondents who said that;

“Health exemption does not provide a guarantee to old people to get all the healthcare services in public hospitals. Some of the medical services prescribed doctors are not covered by exemption..... Further, old people have multiple problems that need high specialisation which are also not covered by exemption” (68 years old man from Nyakitonto ward)

This narration explains that old people are not getting proper medical services as they are forced to pay to some of the medical services that are potentially fall under exemption. Also, exemption policy addresses medical needs instead of focusing on other needs that promote quality of health such as nutrition, shelter, and psychosocial support. Nevertheless, findings show that exemption favored those who had the ability to access healthcare services through other mechanisms such as the use of National Insurance Cards (NHIF) and out pocket payments outside the hospital in

case medicine are not available within the public hospital. This is asserted by one respondent during the focus group discussion who revealed that those using NHIF to access healthcare services have better advantages compared to those depending on exemption alone;

Old people who have NHIF cards have a freedom to choose either to go for public hospitals or private hospitals. As for me, I have NHIF card and I do not get problems in getting medicine that are out of the hospital facility. In case one type of medicine is not available in public hospitals, I can still get it from the pharmacies in town by using NHIF card. (66 years old woman from Kimobwa Ward)

This implies that NHIF is more effective than exemption cards provided by the district authorities. It was observed that old people with NHIF cards can access medical services in all health facilities including private health facilities. It was also noted that old people living urban areas are more advantaged to access healthcare services compared to those living in rural areas under exemption measure. They opined that health facilities in urban areas are more developed compared to rural areas. For instance, about 167 (89%) of 188 old people living the four rural wards of Kasulu, (Rusesa, Nyachenda, Nyange, and Nyakitonto wards) expressed similar feelings that in principle operation of exemption has a limited coverage. While others complained of poor health facilities such as diagnostic instruments, others argued that health facilities located in rural areas lack medicine and doctors specialized to treat health problems facing old people. In expressing this situation, one old man said;

“I think the government has forgotten these health centres in our villages. Even if they say that we old people receive exemption, now what are we being exempted if there are no medicine? Those who have access to district hospital are in a better position because they can access improved medical services including specialist doctors” (82 years old man from Nyange ward)

This explains how unequal distributions of health services between rural and urban areas affect old people. From the respondent’s exposition it can be remarked that, though exemption exists in every level of health facility, availability of healthcare services varies significantly. It was seen that shortage of medicine, diagnostic instruments and specialist doctors are the main challenges affecting provision of healthcare services in rural areas. Apart from that, old people form the part of the population especially in rural areas with low income (Helmet *et al.*, 2009). For

instance, findings from the questionnaire indicate that about 156 (51%) of the rural old people had a monthly income of less than 10,000/= . This situation affects ability to afford both medical and nutrition in terms of quality and quantity. These findings are in line with Braveman, *et al.*, (2011) points out those financial problems reduce the ability to access important healthcare services such as medicine, good nutrition shelter, and transport and health insurance scheme. In contrast, old people revealed that though the government has played its part to construct health facilities in every ward, however, needs of old people cannot be met by the government alone. Using Durkheim's theory of structural functionalist theory, meeting health needs should be a community concern. For instance, the family, clan, religious institutions have the roles to ensure that health, nutrition and emotional needs are met. Further, there is a need to integrate health exemption for old people in private hospitals so as to widen access to medical services.

Apart from financial problems, gender issues were also mentioned to affect access to healthcare services in public hospitals. This problem emanates from the discourse of patriarchy system that deny women to access and own family resource. Evidence from the field indicates that majority (89%) of old women living in rural areas do not own family resources such as land, income and family asset. So, when an old woman becomes sick, she solely depends on assistance from the husband or other family members afford cost associated with healthcare. To describe this situation on old women had the following to say:

“...last year I was taken to hospital after my condition had become very worse. Whenever I complained to my husband that I am sick, he was not listening to me. I told him to sell one of the goats we are keeping here but he refused..... In most cases we depend on men to take us in hospital when we become sick” (79 years old woman from Nyachenda)

From this argument, it is evident that apart from lack of access to resources, they also don't have power to make decision when to access healthcare services. It is the man who decides when a woman should attend health facilities. These findings are in line with other studies such as (HAI, 2001; Andrew *et al.*, 2003 and Wairiuko, 2014) who also pointed out that gender affect accessibility and utilization of healthcare due to the outcome of patriarchy system that empowers men to own family resources and power in terms of decision making. In terms of

illness, women seek permission from their husbands/men to go to seek for health facilities.

On the other hand, while number of problems related exemption of health care services in rural areas have been documented, old people living the urban context ought to be better due to the coverage of public hospitals and dispensaries. However, respondents in Murubona and Kimobwa wards which are located in Kasulu urban had similar experiences on exemption policy. During the focus group discussion, one of the respondents illustrated the situation by saying that;

“The government has shown a good concern on exempting us old people from paying. But the problem is that when we go to hospital, we are told that there is no medicine. This is one of the big problems that affect us”
(72 years old woman from Kimobwa)

This further indicates that the main challenge facing execution of exemption measure is shortage of medicine in most of the public health facilities located in rural areas. Therefore, there is a need for the government to purchase and distribute essential medicine for old people. This call is echoed by another respondent during the in-depth interview who recommended that;

“In order to extend its coverage, I think the government should extend exemption in private hospitals and this will reduce the problem of shortage of medicine in public hospitals” (81 years old woman from Kimobwa)

Therefore, it can be realized that, in order to improve access to healthcare services among the old people, there is a need to integrate exemption measure with other health providers such as the private sector. Further from the functionalist view, all social structures involved in the care and support for old people should work in collaboration with the government efforts to ensure health and nutrition needs for old people is met.

Effectiveness of Exemption Measure in Providing Healthcare Services for Old People

The aim of exemption policy was to relieve old people from the burden of user fee in all public hospitals as a way of avoiding exclusion and promote equality in accessing health services (Mamdani and Bangser, 2004). In order to measure effectiveness, different indicators were used.

Such indicators included; availability of geriatrician, medicine, diagnostic instruments and time spent to seek healthcare services. Findings emanated from questionnaire that was administered to 304 old people and healthcare services providers. Figure 2 summarizes the findings (n=304)

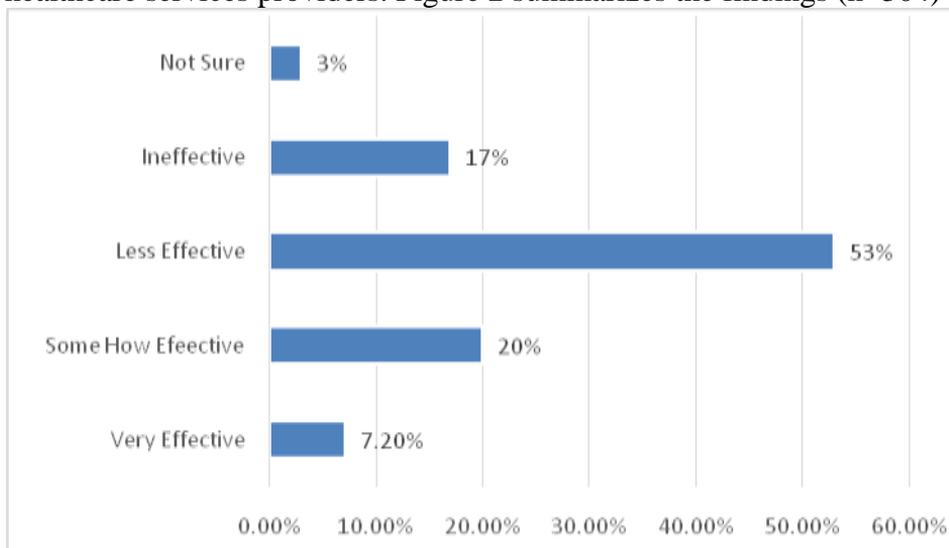


Figure: 2.: Effectiveness of Exemption in Providing Healthcare Services for Old People

As revealed by Figure 2, respondents had different opinions regarding effectiveness of exemption measure in providing healthcare services for old people. Differences in response were due to diversity nature of old people based on how they view the healthcare services provided in public hospitals. However, findings revealed that majority of the old people reported that exemption is less effective while others said that it is ineffective in providing healthcare services.

Those who argued that exemption is less effective had the view that though the goal was to provide healthcare services without incurring financial expenses within the public hospitals, the major challenge was that exemption not granted in full. Old people are still using out pocket payments to access medical services of high specialisation. Further, bureaucratic procedures and lack of systematic way of identifying old people make exemption less effective. However, those who said that exemption is not effective revealed that public hospitals are lacking essential medicine at different levels of health facilities, insufficient number of geriatricians who are trained to address complex health

problems facing old people and unofficial or official payments. Further old people also pointed out that the scope of exemption is limited only to public hospitals. Therefore, they lacked freedom to access medical services from private hospitals where they believed that healthcare services are better than the public hospitals. Study findings are in line with studies conducted by (Maluka, 2013 and Ka Ousseynou *et al.*, 2017). Findings of these studies revealed that exemption is not effectively implemented because of low funding, mismanagement of the fund and unnecessary bureaucratic procedures of the exemption procedures.

Despite that exemption aimed at relieving them from the impact of hospital user fee in order to promote access to healthcare services among the vulnerable and marginalised groups such as children, pregnant women, and old people; the current practice shows that; it has not met the intended goal. Evidence from empirical studies such as (Nhongo, 2005; Spitzer *et al.*, 2009; Mujinja and Kida, 2014) further confirm that, implementation of exemption is still challenged by number of constraints such as poor allocation of fund and mismanagement, bureaucratic procedures as well as reluctance of health service providers and local government officials to adequately deliver to old people their entitled services. Again, despite rigorous efforts and initiatives by the government of Tanzania to ensure health coverage for all old people under exemption scheme, field findings indicated that, its implementation is limited in some specific health services such as medical consultations, diagnosis and pain killer medicine.

In line with this finding, another study conducted by Ka Ousseynou *et al.*, (2017) also revealed that major medicine envisioned for the treatment of the chronic illness such as arterial high blood pressure, diabetes and other medicines of speciality are not available in the pharmacies of the public health centres. Findings further illustrated geriatric medicines do not appear on the list of essential medicine which is guaranteed by exemption. During the in-depth interview and focus group discussion respondents voiced that lack of essential medicine, poor diagnostic instruments, long waiting hours, transport problems due to their mobility problems. Experience shows that exemption policy in public hospitals has not met the intended goal of providing wider health coverage to old people as they are still experiencing difficulties in accessing healthcare services. One respondent during the in-depth interview narrated that;

“Despite that the government is trying to create good environment for us old people to get free healthcare services, truth of the thing is that healthcare services for old people is not free as others think. If you go to hospital, you must carry money to buy medicine and other un-described charges. When you go to the hospital, doctors and nurses receive you well, but medicine prescribed by doctors when you go to the hospital pharmacy, they tell you that this medicine is not available..... you will hear them telling you that go to Mr. Tupatupa (private pharmacy) in town to buy medicine” (75 years old woman from Nyachenda ward)

Though old people acknowledge that the government has committed resources to ensure that old people get healthcare services, their outcry is still on the availability of medicine. As a result, they are forced to use out pocket payments to access medical in private health facilities. This has negative consequences to majority of the poor old people who can't afford the cost and they end up selling their personal asserts as she revealed further that;

“Last year I was attacked by asthma and I had a severe chest cough as you can see my health condition, I have not fully recovered yet. I went to mlimani hospital (Kasulu District Hospital). After taking an X-ray, the doctor wrote for me medicine. When I went to the pharmacy, they told me that these medicines are not available. The only medicine I got was Panadol which did not help me. I survived with my illness till I sold my two goats to get money for buying those medicines”

It was also realised that exemption measure is limited to simple illness. When it comes to complicated ill-health conditions that require medical services of high specialisation, its coverage is almost insignificant. This implies that exemption measure has not been translated into clear plans that are realistic to address health needs of old people. Exemption directives remain in theory. Cooksey (2016) agrees that among the problems facing health initiatives in developing countries such as Tanzania is that politicians endorse policies and programs that are not realistic in implementation and does not consider social-economic conditions prevailing at the moment. Additionally, (Spitzer *et al.*, 2009) also echoes similar findings by proposing that existing plans by governments in most of African countries do not link with needs of the people including old people. During the in-depth, old people expressed their sentiment that implementation of exemption is hindered by lack of

political will and commitments by government officials. One old man remarked by saying that.

“.....exemption for old people is being used by politicians to gain popularity. When there is no election coming, you won't see any leader coming to listen to our problems. As for now election is near and you will see them being close. But what they address to the general public is different from the reality....., if you go to the hospital, you will witness yourself how old people are struggling to get healthcare services. Our leaders don't show any commitment or being concerned” (68 years old man from Kimobwa ward)

It can also be stated that lack of political will, accountability and commitment is among the factors that hinder effective utilization of exemption services for old people. Study by (Kanukisya, 2008) argues that political-will was ranked top ten as a necessary condition for implementation of any policy. Basing on these findings, it can be concluded that if the government commits itself to provide healthcare services to all old people in Tanzania, health problems experienced by old people will be minimized.

Findings again are in line with study by (Kwesigabo *et al.*, 2012) and Mackintosh *et al.*, 2010). These scholars argue that major challenges for implementing exemption within the health sector is shortage of essential medicine and unnecessary hospital charges. Other results (Mmbuji, *et al.*, 1996) found that, there is mismatch between the existing policies and plans to meet the growing needs of the old people. Again, respondents expressed their deep concern that the government doesn't give priority to old people and they are neglected. They argued that high priority is given to pregnant women and children under five. For instance, one old man his feelings that;

“.... the government see old people as people who don't contribute anything to the nation. That's why they don't consider our needs. You will hear different programs for children, pregnant mothers and youth but not for us old people. So even the issue of exemption it is not for us because we don't see real commitment of the government” (81 years old woman from Nyakitonto ward)

However, social workers had different opinions from old people. They claimed that old people are treated with dignity and they are being treated equally like other patients. However, they pointed out that exemption for

old people is very crucial as their income to purchase medicine declines. One of the big challenges is noted by social worker were the way medical officials especially at the pharmacy section are treating them. Doctor may prescribe medicine but when they go to the window, they are told that this medicine is out of store. This was strongly supported by one of the social workers who pointed out that;

“The initiatives by the government to introduce exemption for old people are a good measure. It has reduced the problem of old people walking with letters from village executive officer begging for contribution to buy medicine. The big challenge now is medicine. It is common for old person to go to the pharmacy and miss medicine. But those who pay directly to the cashier they get medicine” (health social worker at Kasulu district hospital)

In order to gain further insight about this problem, during an in-depth interview one of the government officials clarified that;

“...It is not true that we do not give priority to old people. We value them and honour their contribution; however, old people have generative problems in nature and cannot be addressed at once. So, in case we face crisis in medical supply, we give priority to children and pregnant women because they can lose their life for delay. Old people can wait or can come another day” (DMO- Kasulu)

From the aforementioned quotation, it can be concluded that among other factors that contribute to ineffective of the exemption is less priority given to address health needs of old people. This echoes findings by (Haazen, 2012) that found that advancing health coverage in most African countries is being hindered by lack of policy priority to its people including old people.

Another factor that affects implementation of exemption is low awareness on exemption among old people. Findings further indicate that some of the old people were not aware of the free services under exemption scheme. For instance, 3% of the respondent could not be able to tell whether exemption exists in public hospitals. Despite that exemption has been in operation since 1994 in Tanzania, little has been done to create awareness among the old people especially those living in rural areas. It was observed that majority of the old people do not visit hospitals because they are not aware of the free healthcare services provided under exemption. However, even those who managed to visit hospitals could

not demand for their entitlement of medicine. These findings correspond to findings by Ka Ousseynou *et al.*, (2017) in Senegal that revealed existence of low awareness among the old people on exemption. Another study by Musa, (2016) on the implementation of the ageing policy in Morogoro points out that the policy was not well implemented as there is a gap between what the policy directs and the real practice on the ground. Also, the same study revealed out that about 35% of the old people were not aware on the policy content, procedures and its implementation. During focus group discussion, old people voiced that there is low awareness among them is one of the factors that affect implementation of exemption. Others don't know if they deserve to be treated free. They think free healthcare services are for children only. For instance, regarding low awareness among old people, one respondent had the following to say;

“I do not know if we are not supposed to pay for healthcare services. Because when I go to hospital, they still ask me to pay 500 for opening file. I think exemption is only for children and not us old people” (67 years old woman from Rusesa Ward)

This explains that old people are still asked to pay some amount of money. For instance, when opening personal file, they are being charged Tsh. 500, buying medicine that are not available in public hospitals and other unofficial payments such as transport from home to health facility as it was revealed by one respondent. Again, old people expressed their concern that medical doctors and nurses do not give them special attention as compared to children. So when it comes to access free healthcare services, they become second option.

Another respondent shared his sentiments by remarking that:

“...in the absence of medicine, special priority is given to pregnant women and children and not us old people. When you ask them why they say that you are not sick and at the end they end up giving you pain killer to please you.” (64 years man from Rusesa Ward)

This evidence suggests that, in case of scarcity of medicine, old people are affected greatly. There is no special medicine set to treat old people are a result they consume what is available at that particular moment. Long queue by old people was also observed in Kasulu district hospital

especially during diabetes clinic. The slogan “*mpishe mzee kwanza*” existed in the doors of doctors but in principle it was not implemented and some old people didn’t know if they are being given such priority.

On the contrary, other small segment of the respondents 22(7.2 %) claimed that exemption measure introduced by the government is very effective. Old people revealed that, currently the government is effectively implementing health programs that foster effective provision of health services to all people including old people as revealed by one of the respondents;

Un like in the past, nowadays exemption is very effective. If you go to the hospital, the bureaucracy we used to get is no longer there. Health workers are now responsive to their work. If you go to mlimani hospital (Kasulu district hospital) and other health centres like Murubona you can see that medical doctors and nurses are ready to help. I think under the current present Magufuli, health care services to us old people are improved and medicine is available. (62 years old woman from Murubona Ward)

However, it was observed that those who were in favour that exemption is effectively implanted were those who had financial ability access medicine beyond public hospitals. Others were using NHIF cards to access health services. For instance, one respondent reveals that the following when she becomes sick;

I prefer going to public hospitals when I become sick and they are no big delay. But in case I don’t get the required services or if I am told to buy medicine that are not available in public hospitals, I use my NHIF card to get medicine from private pharmacies that accept the cards. We who have cards especially government retirees are in a better position to get medicine either private or public hospital. (68 years old woman from Murubona Ward)

It is worth noting that, beneficiaries of exemption especially old people can enjoy free health services if they are linked with other health services that are provided by private sectors so as to provide free choice and wider coverage. Drawing theoretical assumptions from functionalist theory, it should be noted that exemptions can only be effective if it is implemented in collaboration with other stakeholders such as the family, private hospitals and other none governmental organisations that cater for needs of old people including healthcare services. Apart from that, it is assumed that individual’s and family income potentially play a great role in

enhancing access to healthcare services; hence there is a need for the government and none governmental organisations to empower families living with old people so as to increase nutritional and financial access to healthcare services. Evidence from the field suggests that old people with stable family income had a choice to access healthcare services from public hospitals or private hospitals that seem to have better healthcare services. Findings are in line with study conducted by Ka Ousseynou *et al.*, (2017) which found that Despite that old people are exempted from hospital charges, exemption is limited to essential medicines and those medicine of speciality and major operations are not covered under exemption; hence old people and their families are obliged access in the private pharmacies with high cost.

CONCLUSION

This paper concludes by holding the view that; exemption for healthcare services among the old people in public hospitals is ineffectively implemented. At different levels of health facilities, exemption is not systematically applied and, in some cases, old people are forced to use out pocket payments to access medical services that are not available within the public hospitals. The scope of exemption is also limited to medical services in public hospitals only, excluding private hospitals. Further, there is a need for the government to integrate health needs of old people with other existing social structures such as the family, community, religious institutions so as meet health, economic and social support to old people. This condition calls for immediate measures such as family empowerment to address the problems so as to improve delivery of healthcare services to old people especially those with low income and living in rural areas.

RECOMMENDATIONS

Introduction of health exemption in public hospitals for old people in Tanzania was one of the important government initiatives in promoting healthcare services for old people especially those with low income and living in rural areas. However, the process is challenged both budgetary allocation and scope of its operation. Therefore, study recommends the following in order to promote access to healthcare services for old people through exemption measure. The current practice shows that health exemption for old people is limited within the public hospitals only. There is a need to extend exemption in private hospitals so as to widen choice and scope in accessing healthcare survives for old people. Also,

there is a need for the government through the parent Ministry of Health, Community Development, Gender, Elderly and Children drawing reference from Tanzania Social Action Fund (TASAF) program; to empower households' families with old people through fund transfer so as to increase access nutrition and medical facilities that are not available in public hospitals.

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Watching the Watcher: Evaluating the Tanzania Revenue Authority in Its Administration of Tax

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ABSTRACT

This article evaluates the role of the Tanzania Revenue Authority (TRA) in the administration of tax in Tanzania. It works on the premise that proper tax administration enforces tax compliance by taxpayers, with tax administrators better placed to understand principles, laws and procedures of taxation than taxpayers. Yet, tax administrators are not always impartial in collecting revenue from taxpayers. Therefore, this article argues that tax administrators in Tanzania must acquaint themselves with laws governing tax and adhere to their core values to enhance tax compliance and boost revenue for the country's development. Moreover, the article calls for the amendment of the tax laws to make them much more tax-payer friendly to facilitate compliance and further boost government coffers.

Keywords: *Tax administration, Tanzania Revenue Authority, Autonomy, Tax compliance.*

INTRODUCTION

The past thirty years have witnessed the establishment of revenue authorities in many African countries. These revenue authorities are governmental agencies charged with collecting tax revenue to fund public services (OECD 2019). Before the establishment of these revenue authorities, tax collection departments were placed under the Ministry of Finance in many countries (Fjeldstad and Moore 2009). However, the actual revenue collection and general tax administration were problematic. Most of the departments were unable to raise revenues and many countries suffered enormous budgetary deficits, hence failing to cater for social services and run their respective governments (Fjeldstad 2003). In response to such budgetary deficits, many countries established revenue authorities to engender better revenue administration performance (Fjeldstad 2007).

These authorities have more autonomy than many governmental departments under respective country's Ministry of Finance.

The semi-autonomous revenue model is used to design the revenue authorities in many African countries including Tanzania (Crandall 2010). The model aimed to achieve the following- Firstly, it seeks to limit direct political and executive interference in the revenue authority's operations (Devas and Delay 2001). This implies creating a government agency as a corporate board with a separate legal status with clear responsibilities and duties. Moreover, such a legal entity ought to operate under a board of the management whose members are independent of government and are nominated from a diversity of sources from both inside and outside government, with relatively long, fixed tenure revocable only on clear criteria and through open and legal processes; moreover, they have remunerations that cannot be affected by any government in power (Fjeldstad and Moore 2009, 5). In addition, it entails placing all the employees under the authority of the chief executive, chosen by and answerable to the management board. Furthermore, such an entity requires an operational budget independent from normal annual national budget through constitutional provisions or self-financing by appropriating a fixed share of the revenues it collects (Fjeldstad and Moore 2009,5).

Secondly, the model requires the creation of a revenue managerial autonomy. This refers to the extent to which managers can dispense with standard public service rules about staff recruitment, deployment, remuneration, procurement and operating procedures (Fjeldstad and Moore 2009, 6). Thirdly, it facilitates tax administration reforms (Fjeldstad and Moore 2009, 4). This facilitation refers to the extent to which revenue authorities are committed to instituting various reforms within the authority including introducing taxpayer identification number, establishing separate offices or departments, improving tax-auditing and records, reducing corruption, providing user-friendly procedures and embracing information communication technology (ICT) in increasing revenue collection (Fjeldstad and Moore 2009,9). However, the autonomy under this model does not make revenue authorities fully independent of the government and cease to be part of the public sector. Conversely, oversight on the part of minister responsible for finance and external audit bodies outside government must be strengthened (Junquera-Varela et al, 2019). Thus, these revenue authorities oversee over all taxes with specific

responsibilities related to collection of tax revenue. Accordingly, they also assess, collect and account for government revenue in addition to promoting tax compliance.

Tax administration is an art of legally administering taxes in a respective country. As such, revenue authorities are tax administrators established and empowered by the laws to administer taxes of the country, enhance public revenue, create efficiency in public resource utilisation, promote taxpayer compliance to reduce compliance costs, corruption and bureaucracy among other reasons (Fjeldstad and Moore 2009,9). Additionally, revenue authorities are privy to providing solutions necessary to attain better revenue collections than the defunct departments under the Ministries of Finance. However, most of the revenue authorities have not lived up to the full expectations of both taxpayers and governments. Although there are positive progresses in collection of tax revenue, the functioning of the revenue authorities still suffers from similar challenges that faced tax departments before their own establishment. Therefore, this article evaluates the TRA in the administration of taxes in Tanzania. Specifically, the article evaluates tax laws governing TRA operations and the interplay with its core values in raising revenue collections and promoting tax compliance.

METHODOLOGY

This article applied doctrinal method, which was complemented by empirical method addressing the concern surrounding administration of tax in Tanzania. Typically, the doctrinal method focuses on statutes and case laws because the primary legal data are obtained from legislation through critical reading (McGrath 2007). This descriptive article interprets the application of tax laws in tax administration. The historical approach was used in outlining the challenges the TRA counters in administering taxes since its inception. The article critically evaluates how tax laws have been enforced by the TRA to enhance tax compliance with a view of increasing revenue collection. The focus is to establish the extent to which tax legislation addresses the current issue raised. The doctrinal qualitative data was analysed through canons of statutory interpretation particularly literal meaning. To complement doctrinal method, empirical method used to establish the effect of the law in practice and its effect in the society (Makulilo, 2012). This method helped to establish the effect of tax legislation as enforced by TRA and its interplay with core values to taxpayers. The empirical data was collected

using face-to-face interviews held with taxpayers and field observation in Mabibo and Tegeta, Dar es Salaam region. Observation entailed listening to various testimonies and claims by business community or individuals during executive meetings and parliamentary proceedings. The data obtained through empirical method was interpreted in the context of legal provisions and drawing conclusions and coming up with recommendations.

TAX ADMINISTRATION IN TANZANIA

The Tanzania Revenue Authority

Like many other African countries, Tanzania embarked on reforming its tax administration in the 1990s. The Tanzania Revenue Act 1995 (revised in 2019) established the Tanzania Revenue Authority (TRA) as the tax administrator, which became operational in 1996. The TRA is a corporate body with a perpetual common seal constituted by a governing board and other operating departments (TRA Act 2019, s.4). The board is responsible for formulating and implementing TRA's policy. The law empowers the board to direct the Commissioner-General to provide information, reports and other relevant documents for monitoring purposes, determine terms and conditions of the TRA's staff and provide for organisation structure among other functions. However, the board has no power to intervene in the determination of tax liability of a taxpayer (TRA Act 2019, s. 13). The Chief Executive of the TRA is the Commissioner General, a Presidential appointee, who is responsible for executing daily operations of the TRA under general supervision and control of the board. Accordingly, the Commissioner General is responsible for the management of funds, property, administration, organisation and control of other officers and staff in TRA. The Commissioner-General is assisted by the Deputy Commissioner General, other commissioners, and staff. (TRA Act 2019, ss16, 17, 20 and Tax Administration Act 2019, s.5). In running its activities, the TRA is financed by the general government budget through the annual parliamentary budget (TRA 5th Corporate plan, 27).

The TRA as tax administrator is vested with power to administer and enforce tax laws, monitor and ensure collection specified revenues from the government and private sector, promote voluntary tax compliance and advise the government accordingly on matters of fiscal policy. In discharging its functions, the TRA has the power to identify, suggest amendments of tax laws to improve the administration and compliance,

among other things (TRA Act 2019, s.5). To curb any revenue loss, it determines steps to counteract fraud and any other form of tax including other fiscal evasions (TRA Act 2019, s.5 (1)g). The following part revisits the TRA corporate plans enshrining its operations and core values and their implication for administration of tax.

Revisiting the TRA's corporate plans is necessary to establish the historical development and achievement of the authority's objectives, specifically its purpose tied to the mission and associated challenges of such corporate plans. The historical approach is necessary in establishing whether the same challenges affect all the five corporate plans. In each corporate plan, the TRA had a specific mission aimed to achieve specific goals. Such missions mostly feed on each other with a slight point of departure caused by changes in the material condition of a particular period of a corporate plan. The remarkable change in all the TRA plans was automation of TRA's activities in a bid to enhance administration of taxes. However, largely, challenges remained the same in almost all the corporate plans. Hence, it is necessary to evaluate the TRA as tax administrator based on its core values.

The TRA has formulated five corporate plans since its establishment. The First corporate plan was from 1998/1999 to 2002/2003. Its mission was institutional setup and capacity-building for its staff. The second corporate plan was from 2003/2004 to 2007/2008 whose mission was the improvement of service delivery to taxpayers. The first and second plan missions differed from the rest but are compatible since they built the foundation of future TRA plans. The third corporate plan was from 2008/2009 to 2012/2013 with a mission to transform the TRA into an efficient tax administrator meant to promote voluntary tax compliance by providing high-quality customer service with fairness and integrity through the competent and motivated staff (TRA 5th corporate plan,8). Its vision was to make the TRA a modern tax administrator. Increasing revenue collection through cost-effective, modernisation of operations, provision of high quality and responsive customer services, promotion of voluntary tax compliance and enhancing staff performance management system was key in the plan (TRA 5th corporate plan,8). Essentially, the plan was a continuation of activities in the two previous plans. The point of departure was the automation of the TRA activities and restructuring of the organisation. During this period, TRA divided revenue collections into three departments, namely, large taxpayers, domestic revenue, and

customs and excise. Other seven small departments supported these departments. The information and technology dealt with the automation of TRA operations while, the Planning and Modernisation Unit coordinated the TRA's activities. Both these TRA wings were instrumental in strategically streamlining, modernising and automating TRA.

The fourth corporate plan started from 2013/2014 to 2016/2017 to bolster convenience, compliance and continual improvement of the authority. This mission was almost the same as that of the third plan which aimed to promote voluntary tax compliance and boost revenue collection through tax compliance. Unlike its predecessor, the fourth plan operated for four years only. The TRA was obliged to re-plan and re-strategize its business to accommodate the newly-elected fifth government's desire of increasing domestic revenue. Other reasons included the desire to be in line with the United Nations' Sustainable Development Goals of 2015, the National Vision of 2025, and the second five-year development plan 2016/17 to 2020/21. Moreover, it needed to address concerns raised by the International Monetary Fund report of 2016 (TRA 5th corporate plan,1) and to accommodate all these concerns, the TRA developed the fifth corporate plan of 2017/18 to 2021/22 under its motto: "We make it easy to pay tax and make lives better." The duality of "easy to pay tax" and "makes lives better" underscores the value of boosting the state coffers through facilitated voluntary tax compliance for the betterment of the lives of Tanzanians and socio-economic development. Such voluntary tax compliance could be achieved by expanding the tax base and enhancing efficiency in tax administration (TRA 5th corporate plan,16).

The 5th corporate plan has three strategic goals. The first is to foster convenience by supporting voluntary compliance and enhanced trade facilitation. Generally, compliance entails improving compliance management, enhanced risk management, and good governance. The second strategic goal is to continually improve the operational efficiency. The third strategic goal is strengthening institutional capacity (TRA 5th corporate plan,1). It is in its fifth plan that TRA embarked on collecting tax from local government authorities. Why is this shift? This was a measure to expand the tax base. As such, taxes originating from local government that were initially meant to be collected and used by the Local Government Authority were taken to the Central Government to reduce the gap (Tanzania Budget Speech for 2016/2017 2016). Consequently, the tax law was amended to accommodate taxation of the

informal sector (TAA2019, s.22). However, this turning point is not explicitly stated in the TRAs' fifth plan despite arguing that it capitalised on the zeal of the fifth government in increasing the tax revenue. This could partly explain TRAs' change of plan. Arguably, the TRA's initiatives in increasing tax revenue collection seems partly to depend on the will of the government in power.

Since its establishment, the TRA managed to set institutional and capacity-building goals for its staff (TRA 1st Corporate plan). It strengthened operational efficiency, integrated its operations, enhanced customer services, promoted tax compliance among taxpayers and fostered transparency in the application of tax laws (TRA 3rd corporate plan, 2). Other achievements include providing convenience services to taxpayers. This was achieved by introducing new customs information and business community management systems, establishing one-stop border posts and call centres. Furthermore, the TRA enhanced compliance by integrating collection and accounting systems, promoting tax investigation capacity, developing risk-based compliance, and anti-corruption strategy. Additionally, the TRA introduced an automated tax payment and stamp system (TRA 5th corporate plan,3). More significantly, it increased revenue collections from Tanzanian Shillings 9.383 in 2013/2014 financial year to 11.11 trillion in the first half of 2021/2022 financial year by December 2021 (TRA quarterly statistics 2022).

Despite these achievements, TRA still faces challenges in the implementation of the objectives of its establishment. These challenges include still rather low tax compliance from taxpayers, low number of registered taxpayers, taxation of electronic transaction, corruption, inadequate knowledge, skills and expertise in some of the tax areas, tax evasion, legal barriers, and lack of integrity among some of the staff (TRA 5th corporate plan,8). Subscribing to this view, Mzalendo and Chimilila (2020, 276) posit that an increase in revenue resources is undermined by low level of tax compliance. These challenges, however, do not make TRA irrelevant or less important in the administration of taxes in Tanzania. Even though the achievements of the TRA are commended, it leaves much to be desired in terms of tax administration. For the TRA to achieve its establishment objectives, it must address the challenges outlined here thus far.

In its operations, the TRA is guided by three core values in executing its plan. The first core value is professionalism that entails commitment to applying tax laws consistently and responsibly with credibility using skills and knowledge as a prerequisite in administering tax. The second is accountability that entails creating and sustaining an organisation that values and promotes accountability. The third core value is integrity built on fairness and honesty in dealing with taxpayers and other stakeholders (TRA 5th Corporate plan). Generally, these three core values define TRA's personality and standards, upon which TRA is evaluated because they serve as a commitment to taxpayers and other stakeholders. The following part provides an overview of the law governing Tax administration in Tanzania.

Tax Administration Legal Framework

Taxation does not take place in a vacuum. Tax laws regulating taxation in Tanzania ought to be consistent with the Constitution of the United Republic of Tanzania of 1977 (CURT). From a legal point-of-view, tax laws must be clear and, thus, unambiguous to enable statutory interpretation of tax laws. Where the tax laws are vague or inconsistent with the Constitution, such tax laws are likely to affect both the taxpayer and the tax administrator. In fact, taxpayers can end up having such a big burden of tax and end up resorting to non-compliance and, hence, loss of government revenue. It is in this context; therefore, the CURT requires all the taxes to be imposed by law enacted by the parliament according to the procedures lawful prescribed (CURT 1977, Art.38[1]). This means that no one should be taxed except as per the law (Ongwamuhana 2011,79). It is in this context the Constitution empowers the government to present bills related to financial matters in Parliament.

Similarly, administration of tax is required not to be done arbitrarily but rather it has to be founded in tax administration laws. Such laws must ensure fairness and justice to both taxpayers and the government. Action Aid explains tax justice to mean 'a transparent, accountable, and efficient set of arrangements that raise a set of substantial revenue for public services and government infrastructure through broadening the tax base with proportional largest contribution coming from those with greatest wealth and income (Action Aid, 2013, 2). Generally, fairness in taxation entails a fair tax administration regime that will enable taxpayers to pay what is required as stipulated under the law and that will make the government obtain its right share of the revenue. The effectiveness of the

tax administration is found in tax administration laws. Thus, fair and just tax administration balances between powers of the tax administrator and the rights and obligation of the taxpayers (OECD 2019,110). Tax administration laws can be fair and just if they incorporate principles of justice in governance and enforcement of tax laws. If tax administration laws do not guarantee fairness and justice in tax administration, they may result into a loss of revenue on part of the government and create big tax liability to taxpayers hence lack compliance.

In Tanzania, administration of tax is governed and regulated by the Tax Administration Act, 2019 (TAA). According to its long title, TAA is an Act consolidating tax administration and easing administration and enforcement of tax laws by the TRA. Generally, it provides approaches, directions, powers and obligations upon which the TRA officials may manage taxes. The TAA ought to be crafted in such a way as to ensure taxpayers pay their tax liability justly and timely. Similarly, taxes administered by the TRA are not arbitrary; they are rather provided for by the law. The term ‘taxes’ for tax administration include tax, charges, fees, tolls, rates, levies, duties, penalty and interest imposed in any tax law and any other additional tax payable under any agreements or arrangement (TAA, 2019 s.3). Part II of the Act provides for the manner upon which tax laws are interpreted. This part is important to both the tax administrator and taxpayers because it affects their rights and obligation.

Part III of TAA places responsibility for administering tax laws firmly in the hands of TRA. Thus, TRA officials ought to act in accordance with tax administrative laws. In addition, it provides for the manner and procedures for taxpayers’ identification (TAA 2019, ss. 22, 23, 24 and 25). As a matter of fact, these provisions are a key stone in establishing taxpayers’ database for the projections of tax revenue. This part further establishes Tax Ombudsman Service responsible for reviewing and addressing taxpayers’ complaints regarding service, procedural or administrative matters arising during enforcement of tax laws by TRA. Part IV provides for the manner upon which both the tax administrator and taxpayers communicate and handle documents. In addition, it provides for the rights and access to information. Part VI provides for primary tax liability to taxpayers. This part is crucial in tax administration as it is the main source of disputes between taxpayers and the TRA. Part VII provides for a dispute resolution mechanism between taxpayers and the TRA. It empowers the Commissioner General to make any tax

decision on the assessment, judgement, direction, opinion, approval consent satisfaction or determination of the Commissioner General under tax law that directly affects a taxpayer (TAA 2019, s.50).

Part VIII provides for the manner and time upon which the tax is paid and tax is recovered. The TAA also provides for the interest, penalties and offences for failure to comply with tax laws under part X. Generally, the law governing the administration of tax must be impartial and unambiguous and must meet the objective of its establishment. In this context, the provision of the TAA ought to treat both the taxpayer and administrator equally by providing clear rules and procedures upon which both parties are guided sufficiently. This is important because tax administration plays critical role not only in shaping economic development but also in developing effective country (Bird 2015, 1).

However, this has not always been the case. Some provisions of the law seem somehow in favour of the tax administrator because the law guarantees wide chance for tax administrator to act arbitrary. For example, the Commissioner-General is a key player in tax administration, who is vested with powers to enable smooth tax administration. The powers conferred upon commissioners are mandatory and discretionary. Mandatory powers are those prescribed by the which the Commissioner-General must carry out such as to enforce tax laws, collect tax, and recover tax liabilities (TAA 2019, s.5(2)). By contrast, discretionary powers are the ones that give the Commissioner-General freedom and authority to decide how to act or decide based on independent judgment. As a norm, such discretion powers need to be exercised judicially as was stated in the case of *Karibu Textile Mills v the Commissioner General* [2008] 2 TLR 197. Such a limitation is based on the principles of natural justice and the law conferring such powers. Under the TAA, discretionary powers include determining the objection raised by the taxpayers on tax decisions that is made by the same Commissioner General, which is provided under section 51 of the TAA, 2019 and Regulations 53 and 92 of Tax Administration (General) Regulations, 2016. Such powers violate the principle of justice, which requires no person to be a judge on his cause. Likewise, the power to have free access to premises without prior notice provided under section 42 of TAA 2019 violates the right to privacy and injures taxation justice. The existence of such provisions are likely to negatively affect administration of tax if are not exercised in the spirit of the law.

The Income Tax Act, 2019 (ITA) is the main substantive tax law. According to the long title this Act provides for the charge, assessment and collection of the income tax, for the ascertainment of income charged and for matters incidental thereto. Part I of the Act essentially provides for the scope of application and interpretation upon which TRA officials are required to rely on when executing the primary responsibility of collecting tax revenue. Part II of the ITA stipulates eligibility and liability to pay taxes. It provides for income base and means upon which income tax should be calculated, particularly chargeable income, exemptions from tax and deductions. It also provides for tax accounting and timing for submission returns. Part III provides for quantification, allocation and characterisation of the tax amount. Equally important, Part IV provides rules applicable to the types of persons such as partnership, trust and corporations. Parts VI and VII provide procedures and taxpayer obligations on income payable upon assessment. Further, Part VIII provides for the consequences of non-compliance for which offences, penalties, and interests are prescribed. Part X is of particular interest as it provides for the administration of tax by the commissioner.

Generally, an overview of the laws discussed thus far provide for relevant rules and procedures that TRA officers are required to be acquainted with and act in accordance with the spirit of the law. Hence, tax administration provisions in both administrative and substantive tax laws should support effective and efficient tax administration (D'Ascenzo 2015, 88). This is because the effectiveness of tax administration is governed by the legal provisions, culture of tax administrator, and integrity of its officers. The commitment by TRA to apply the provisions of the law consistently and responsibly triggers evaluation to establish whether the tax laws are applied consistently in administering taxes.

FINDINGS AND DISCUSSION

Lack of the Autonomy of the TRA

The TRA was designed as a semi-autonomous corporate body with considerable independence. The notion of semi-autonomy in the context of revenue authority refers to the independence of the revenue authority in terms of management, legal status, financing, budgeting, and human resources (Kidd and William 2006,11). The main objective of such autonomy is to limit direct interference by politicians and executives in its daily operations. TRA is a separate legal entity with clear responsibilities

and wide powers in administering taxes. However, the minister responsible for finance has general supervisory and oversight role over the TRA. TRA is empowered to hire and fire but it follows public service rules in recruitment. The TRA board is a governing body having relatively long and fixed period of tenure revocable on clear criteria as provided for under section 11(2) of the TRA Act 2019. Regarding funds, the operational budget is independent and funded via the parliament with limited budget flexibility.

Even though TRA seems to have autonomy in terms of legal status, funding and human resource, the autonomy in terms of governing board and its chief executives, are partial. The TRA board is not independent of the government because members are not nominated by diverse sources inside and outside government, but by the Minister responsible for Finance. The Chairperson of the board is a presidential appointee. Consequently, the chair and board, as presidential appointees, may subject them to termination and dissolution at any time by the appointing authority. For example, in 2016, the President of the United Republic of Tanzania terminated the appointment of the chair of the TRA board and dissolved the board (Mtulya 2016). Likewise, the commissioner and deputy commissioner-general are presidential appointees and thus may be dismissed by the him or her. Although section 16 (4) of the TRA Act provides for conditions upon which commissioners are terminated, this has not always been the case. For example, the TRA General Commissioner and his deputy were axed over tax evasion fraud on November 28, 2015 (Malanga 2021). Likewise, between 2015 and 2016 three commissioners had their services terminated. The lack of desired management autonomy and security of tenure in the TRA is likely to create uncertainty and does not ensure independent and objective decisions of its board for effective tax administration.

Also, the daily operations of the TRA are not free from executive interference. For example, the TRA in implementing its fifth plan pertaining to the taxation of the informal sector in corroboration with the National Identity Authority introduced special identity cards for informal sector taxpayers (TAA,2019, s.22). While implementing this move, the office of President issued new special identity cards for informal sector taxpayers (Msikula 2018). Unlike the former identity cards that were prepared by the TRA, the identity cards issued by the President contained secret features with no details of the taxpayers and nature of the business.

The only determinant factor for one to qualify was to have 4,000,000/= (four million) Tanzanian shillings as a threshold. The cost of obtaining the cards were 20,000/= (twenty thousand) payable to the TRA directly in the central government account. This scenario prompted the TRA to stop what it was doing, hence leaving taxpayers from the informal sector in a lurch and confused. An interview with small vendors in 2018 in Kinondoni district revealed that some of them were denied identity cards because their capital was too small. Notably, at that time, the implementation was done without having clear rules and guidelines. Similarly, there has been confusing directives by the executives to the TRA on matters related to tax dispute resolution. For example, the Prime Minister in a meeting with the Kariakoo business community held on 28th February, 2019 directed suspension and arrest of some TRA officials accused of corruption. In another scenario, the President in a meeting with businessmen representative across the country held on 7th June 2019 ordered compensation for the aggrieved taxpayers.

One of the core values of the TRA is professionalism, which entails commitment to applying tax laws consistently and responsibly as well as credibly using skills and knowledge as a prerequisite in administering tax. Such professional traits ought to be evident in TRA's discharging its of main responsibility of tax collections. However, this has not always been the case. Empirical evidence shows that the government was concerned about what it perceived as TRA not timely collecting tax from large taxpayers. To ensure that paying tax was not evaded, the government established a special tax force to collect tax in cases where reliable indicators of tax evasion on the part of the businessmen was evident. The said task force created by the executive for collecting revenue created uncertainty and fear among taxpayers by subjecting some taxpayers to cases related money laundering. (Kamagi 2021). Consequently, some of the key businesses were closed because business owners were unable to meet the demands set by the task force. Responding to queries regarding the justification of the use of tax force, the government argued that the was necessary to collect huge overdue amounts of taxes from large taxpayers. (Kamagi 2021). The government further charged that the TRA was involved in the processes and that the task force was not ousting TRA's primary responsibility of collecting revenue (Kamagi 2021). The use of special tax force outside the TRA framework to collect certain kind of overdue tax, however, amounts to an interference of the TRA daily

operations. In essence, the establishment of a tax force sounds more like ousting the primary responsibility of collecting revenue by the TRA.

This discussion suggests that the TRA is not free from executive and political interference. Even though the interference by executive might somehow bring about positive results, the question that arises is: Why has the TRA been interfered with in its daily operations? The answer could be lack of autonomy on the one hand. On the other hand, the TRA seems to create conducive environment for the executives to interfere in its daily operations primarily because some of the actions and directives by the executives ought to be an integral part of their responsibilities in enforcing the tax law. This situation raises questions regarding the commitment of the TRA in applying tax law professionally, consistently and responsibly as well as with credibility using skills and knowledge at their disposal as a prerequisite in administering tax.

Relationship between TRA and taxpayers affecting tax compliance

The TRA's primary responsibility is to collect tax revenue from taxpayers for the country's development. This responsibility, however, depends on the relationship between the tax administrator and taxpayers based on the rights and obligations of both parties. The OECD provides for the rights of taxpayers to include the right to information, assistance and being heard, to pay the correct amount of tax prescribed, certainty, privacy, confidentiality and secrecy. Meanwhile, the obligation of the taxpayer includes being honest and co-operative, providing accurate information and documents on time, keeping records and paying tax on time (OECD 2019). Implicitly, if both parties play their roles, the compliance rate is likely to increase as well as revenue collections.

Tax compliance means the willingness of the taxpayers, whether as individuals or as a legal entity, to act within the spirit and the letters of the tax laws and administration without applying force in fulfilling their tax liability. For taxpayers to comply in the first place, the public should have trust in the government. An interview conducted with small vendors at Tegeta and Mabibo markets in Dar es Salaam in 2021 revealed that many Tanzanians have trust in the government because they were sure of social services provided by the government such as free primary and secondary education; improvement of health services in both rural and the cities; enhanced transport infrastructures, water services, and improved electricity in their areas. According to the Tanzania budget of 2019/2020,

most of these development projects were funded internally from revenue collections. This developmental growth has brought about positive taxpayers' attitudes towards the government, which were likely to enhance tax compliance. Equally important, tax compliance is likely to increase by providing public education to the people in such a way that the culture of paying tax becomes part of their practices. For example, the TRA Mbeya region launched taxpayer education programme for three months to enhance compliance in digital tax collection (Mathias 2021).

Despite the positive attitude by the taxpayers and TRA's taxpayer initiatives, the TRA seems unable to meet full taxpayers' expectations. The responsibility of the TRA to induce tax compliance to taxpayers remains a major challenge. For the last five years, many taxpayers had been complaining about the way the TRA was handling tax matters. For example, in 2020 it was reported that about 600 businesses in Geita closed shop. The reason for the closures was the high taxes levied and the use of force by TRA officers (Matowo 2021). In parliamentary proceedings of 15 May 2019, it was reported that in the 2018/2019 fiscal year running from July 2018 to April 2019, a total of 16,252 businesses were closed for failure to pay various taxes on time. Subscribing to businessperson's concerns, the Members of Parliament of the URT argued that most of the businesses closed due to unfavourable approach adopted by the TRA in collecting pending taxes. The unfavourable approach includes imposing high penalties and indiscriminately closing businesses, harassment of business people by freezing their bank accounts and forcefully remitting tax due by deducting from the taxpayers' monies (Kamagi 2021). This situation is likely to create a hostile relationship between taxpayers and TRA, which inevitably also affected tax compliance. Consequently, government lose revenue for funding social services.

The use of police force in collecting taxes is another concern. Empirical evidence adduced by some businesspersons shows that some of the TRA officers had allegedly been using the police force in a manner not authorised by the law and for their self-serving interests. For example, in a meeting of the Prime Minister with the Kariakoo business community held on 28 February 2019 one businessman imported goods from South Africa and paid all the required taxes at the Tunduma border post and he goods were cleared to enter in the country. However, when he reached Dar es Salaam, TRA officers in collaboration with police arrested him.

This was after refusing to give them a bribe of two million Tanzanian shillings. In addition, his goods were impounded for three years from 30th June 2016 to April 2019.

Surprisingly, the use of force and police in inducing tax compliance seems to have the support of the executive. On different occasions, the Prime Minister paradoxically blessed the TRA to use the anti-corruption agency and the police when TRA staff were collecting revenue from taxpayers with serious pending tax backlogs. Justifying the use of the state instruments, the Prime Minister argued that some businesspersons were using such opportunity to bribe TRA officers (Parliamentary proceedings, 19 April 2019). However, such a requirement is not provided for in law but rather it is an executive directive. By contrast, the law provides room for the commissioner or an authorised officer to request the assistance of the police in obtaining taxpayers' information where there is resistance (ITA 2019, s. 138 (6)). The situation raises concerns of commitment of the TRA's core value in handing taxpayers with integrity and fairness in administering taxes.

Right to information

Right to information is very important during tax assessment to enhance tax compliance. Tax assessment in the context of tax administration relates to processing returns, including issuing assessment, refunds, notices and statement, processing and payment. Notably, tax assessment is the cornerstone of the tax revenue collection of any tax administrator (OECD 2019). So far, the TRA has made positive progress in assessment. For example, the establishment of an electronic filing system enabled taxpayers to file liable tax returns. In addition, the TRA has simplified the payment system whereby all the revenues are collected in a single account using automatic generated control numbers. This is achieved by using online banking, mobile phones, payment agents, debt and credit card. The automation of filling and payment systems has significantly reduced the number of procedures and amount of red-tape, which hitherto existed. Accordingly, the TRA has simplified the administration cost and boosted time efficiency to taxpayers contributing to an increase in revenue collection.

These commendable TRA efforts notwithstanding, there are still challenges when it comes to tax assessment. Empirical evidence shows that for a long time, small businesses were taxed upfront during the

process of opening a business even before making any business operations. The government addressed this concern by allowing a small taxpayer to pay tax six months from the date of opening the business (ITA 2019, First Schedule as amended by Finance Act, 2019, s.9 (a) (ii). However, this has not always been implemented by the TRA. An interview with taxpayers in

Tegeta establishing small retail shops reported having paid prescribed tax forthwith before starting the business contrary to the requirement of the law.

Further interviews with small retail shop owners in Mabibo and Tegeta revealed that they understand their obligation to pay tax given improved social services in the country. However, they did not know the procedures required to fulfil their obligation of paying tax. It also emerged that taxpayers' education is not well-disseminated among small taxpayers with capital ranging from four million to ten million Tanzanian shillings. They posited that the TRA and the government have given special attention to street vendors and hawkers commonly known as 'Machinga' and large taxpayers. Even when they visited TRA offices seeking clarification of certain matters, they claimed that customer services were not always positive. The argument by these taxpayers was that there was a denial of their right to information. Such acts of some TRA officers were likely to create moral ambivalence among taxpayers and increase non-compliance. As a result, some of the taxpayers decided to close their businesses and opt for special identity cards meant for small vendors. An interview with lady's salon owners at Tegeta Boko in Dar es Salaam revealed that the closure of their businesses was necessitated by uncertainties pertaining to TRA and they opted for small vendors' identity cards to pay only twenty thousand shillings a year rather than one hundred thousand Tanzanian shillings they used to pay under the TRA.

Furthermore, it emerged that some TRA officers used double standards in assessing goods of the same nature and issued high and unreasonable assessment of tax to various businesses, hence leading to the closure of businesses by some of the potential taxpayers. This was revealed during the meeting between the President and business community representatives held on June 2020. For example, one Kariakoo businessman, who had been paying Tanzanian shillings 150 million a month, closed his business due to high tax assessment by the TRA. The evidence by taxpayers suggests that the TRA's initiative to protect the

rights of taxpayers still had a long way to go. The testimony by business community indicates that some of the TRA officials were taking advantage of the taxpayers who were not well-acquainted with the law and tax procedures. This is contrary to TRAs' taxpayer service charter that requires tax officers to provide information in areas of the taxpayer's choice to fulfil their tax obligations.

Apparently, the use of force, corruption and improper procedures by tax officers have significant negative effect on tax compliance. The evidence adduced by the taxpayers interviewed may lead to a decline in tax compliance and bring about negative attitudes towards the TRA. This scenario suggests that the TRA in administering tax laws is not always acting consistently and fairly and, in some instances, it fails to fulfil its primary responsibility of collecting tax. These concerns also may suggest that somehow the TRA is not sufficiently playing its role of assisting taxpayers to understand their tax obligations in paying tax, hence violating its core values. The impact of such acts is the loss of revenue owed to the government coffers and the nation's development.

CONCLUSIONS AND RECOMMENDATIONS

The recent improvement in the enforcement of tax laws by the TRA has brought a dilemma in the administration of tax in Tanzania. Even though enforcement of the law represents an important step towards increasing revenue, it also calls into question the balance among accountability, professionalism, and integrity. Generally, the TRA, as tax administrator, has done commendable work in increasing revenue collection from time to time as its primary responsibility. However, the empirical evidence adduced shows that some of the TRA officers were not fully committed to its core values in enforcing tax laws, hence leading to the malpractices by some of its staff which affected TRA's image and subsequently its performance. Nonetheless, in some areas, there is a clear hostile relationship between the taxpayers and the TRA. Consequently, the taxpayers may harbour a negative attitude towards the government. Dissatisfaction with the integrity of the TRA has led a growing number of potential taxpayers to transform their businesses into small ventures with limited capital of four million Tanzanian shillings to qualify for informal sector identity cards. The results are that the government is likely to lose more revenue due to tax avoidance and diversion. Thus, the empirical evidence by taxpayers on compliance challenges suggests that the TRA has set the bar too high for it to reach.

As noted earlier, the administration of tax may shape the economy of the state. The failure of some of the TRA staff to adhere to its core values within which the TRA operates has affected and shaped the current business operations in Tanzania. This may partly be due to direct interference by the executive in TRA and lack of the required level of autonomy in administering tax. Hence, the sustainability of the TRA depends on its core values while recognising the interest and expectations of the taxpayers. Thus, striking a balance between the TRA's integrity and taxpayer's compliance is critical in achieving increased revenue.

Therefore, this article recommends for the amendment of the TRA Act to provide for more autonomy to TRA and free it from direct political interference in its daily operations. The appointment of the chairman of the board should remain with the President while the appointment of the Commissioner General and deputy require a different appointment mechanism. Instead, the law should empower the Minister for Finance to appoint the Commissioner General and deputy based on the recommendations of the board. The board before recommending any person to hold the posts should subject the procedures to transparent public processes and strive for meritorious appointments. The law should also provide minimum criteria and qualifications for the posts. This is likely to strengthen the powers of the TRA board in their advisory responsiveness to the commissioners and the Minister regarding the TRA operations. As a result, it will minimise direct executive and political interference and their role will be limited to policy directives on the one hand. On the other hand, it is likely to enhance co-operation between the board and management because of the differences in appointing authorities. The directives likely to flow from executives to board which in turn will direct the authority instead of receiving advices and directives from either the Minister or the board as provided for under section 16 (5) of TRA Act, 2019. Accordingly, it will provide security of tenure on part of the commissioners for them to make objective decisions. Moreover, the TRA board must be visionary enough to see tax in broader perspective based on policy and strategy in expanding the tax base and enhancing compliance.

Equally important, the TRA should strive to adhere to its core values in administering taxes and solving problems within its reach before external intervention. It is important for TRA to enhance taxpayers' education,

expand and simplify taxpayer services using technology in addition to respecting taxpayers' rights. This is necessary in striking a balance between enforcement and taxpayers' services. Meanwhile, the TRA should be seen as a friend rather than an enemy. However, this positive image depends on the ability of the taxpayers to understand applicable laws, on the one hand, and on integrity of the TRA staff in executing their duties, on the other hand. Increasing technical capacity-building including sharpening of skills and knowledge in interpretation of tax laws and respecting the rule-of-law in administering taxes can reduce the use of force significantly, which is ineffective in the long run-in inducing tax compliance on sustainable basis.

More importantly, the relationship between TRA and the taxpayer should be laid down in a system of rights and obligations as provided in tax laws. It is important for TRA to understand its strengths and challenges. It ought to thrive to see how best it can work with taxpayers and other stakeholders to improve tax administration. Apart from that, the TRA should use its various organs as well as units to enhance public education among taxpayers to build self-awareness on the value of paying tax. Moreover, the TRA through its board guided by specific research should assist the government in considering how and where improvement can be made to make the TRA a much more efficient and effective tax administrator than at present.

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Seasonal Variability of Water Quality in the Zigi River, Northern Tanzania

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ABSTRACT

Water quality parameters (colour, total suspended solids (TSS), turbidity, electrical conductivity (EC), pH, dissolved oxygen (DO), total dissolved solids (TDS), temperature, nitrate, phosphate and faecal coliforms) were evaluated during wet and dry seasons in relation to human activities in Zigi River and its tributaries. Samples were taken from nine strategic sampling points located in different areas of river. The samples were processed and analysed using established procedures. Results of temperature, EC, TDS, TSS, nitrate, colour, turbidity and E. coli were higher in wet season than in dry season. Significant variations ($p < 0.05$) of temperature, EC, TDS, nitrates, colour and turbidity with changing seasons were observed. Also, results on variations of other parameters were more or less the same in both seasons. Temperature, EC, TDS, nitrate and E. coli were increasing and DO decreasing downstream in both seasons probably due to increased anthropogenic activities along the river. High Pearson correlation coefficient ($r^2 > 0.53$) observed between these parameters indicated that these values are closely related. Results of assessment of water using water quality index have revealed that the river water in both seasons is unsuitable for use as drinking water and that the water is more unsuitable for use during the wet season than during the dry season. Implications of the findings on water treatment are vivid and immediate measures are recommended to minimise the further diminishing quality of the water in this river and thus reduce the costs of treating the water for domestic use.

Keywords: *Seasonal variation, Zigi river, water quality index, drinking water, human activities*

INTRODUCTION

Water is currently regarded as a fundamental human right due to its

significance to human health. This is evidenced by the fact that about 8 million people die every year because of water-related problems such as water – borne diseases (Rahmanian et al., 2015). The quality of water deteriorates when it contains substances that contaminate it, making the water unfit for human consumption. Important physicochemical parameters during water quality analysis include, among others, colour, total suspended solids (TSS), turbidity, electrical conductivity (EC), pH, dissolved oxygen (DO), total dissolved solids (TDS), temperature, nitrate, phosphate and faecal coliform (FC).

The visible colour of the water is mainly due to particulate substances in it or the failure of some wavelength to be absorbed (Chapman, 1996), which gives water its apparent colour. Colour in water can be caused by weathered rocks /soil as well as dissolved organic acids from trees and plants. The colour of the water may provide evidence that there is some form of contamination that imparts adverse effects on human health and the aquatic environment. Colour is not considered a toxic characteristic but is listed as a secondary (aesthetic) parameter affecting the appearance and palatability of the water.

Turbidity is a useful indicator of the effects of runoff from various anthropogenic activities such as agricultural practices, logging activity and discharges (USEPA, 1991). Intensive agricultural activities and mining can aggravate the erosion process that occurs naturally (Chapman, 1996). The colour and turbidity are the main controllers of transmitted light that controls primary productivity (Chapman, 1996). Like turbidity, temperature and TSS variations also depend largely on the extent of human activities

Dissolved oxygen (DO) influences all biochemical processes in the water (Chapman, 1996). Measuring DO can be used to measure the extent of pollution, organic matter decomposition as well as the self-purification of the water. Dissolved oxygen is related to temperature as temperature affects the solubility of oxygen. The presence of coliform bacteria such as *Escherichia coli* in water is a good indicator that given water is polluted by faecal matter. *E. coli* has long been used as an indicator for faecal contamination of the water that originated from animals like humans (Odonkor and Ampofo, 2013). The presence of faecal contamination is an indication that there are potential health risks to individuals exposed to

the water. The presence of human activities in such areas can further aggravate the problem.

Nitrate is commonly found in natural water, which originates from land drainage, plant and animal debris or igneous rocks. Phosphates occur mostly as dissolved orthophosphate polyphosphates or organically bound phosphates. It is rare to find elevated levels of phosphates. Together with nitrate, phosphates levels cause eutrophic conditions and may stimulate algal growth. The eutrophic condition can lead to deoxygenation of sediments that can cause nutrient remobilisation, particularly in slow-flowing rivers. Eutrophication can also cause changes in pH and DO because of the fluctuations between primary production and bacterial decomposition (Chapman, 1996). Eutrophication also can cause excessive phytoplankton growth that poses problems with the intake of drinking water as well as increased treatment costs. Phosphates and temperature are usually included in the monitoring because the temperature has a relationship with many other variables such as temperature, pH and DO.

Rivers are considered the major sources of water for domestic purposes. The Zigi River is the source of water for different purposes for the community living in the river catchment. The Mabayani dam, which is downstream of the Zigi River, is the sole source of water supply in Tanga City and its environs. There are a lot of agricultural activities along the Zigi river (Mwanyoka, 2005), some are seasonal (e.g. food crop growing) and some are all year round (e.g. livestock keeping and mining activities). The principal food crops grown include maize, paddy, sorghum, cassava, millet, bananas, beans, sweet potatoes and nuts, supplemented by fruits and vegetables such as tomatoes, Irish potatoes, peppers and pumpkins. The principal commercial cash crops include sugar cane, sisal and spices (cardamom, ginger, cinnamon and cloves). Livestock kept in the Zigi include goats, cattle sheep and poultry. Bee-keeping and fishing are done though to a lesser extent. These agro-pastoral activities are done on the river banks due to the presence of water, fertile soil and greener pasture throughout the year (Kapinga et al., 2019).

Studies have revealed that there are various socio-economic activities taking place around the Zigi River. Mixed agriculture is practised by more than 80% of the population, while small scale mining activities take place, employing less than 3% of the population (Mwanyoka, 2005). Both socio-economic activities are practised along the Zigi River and its

environs. Mwanyoka (2005) observed small scale and illegal gold mining activities taking place at Sakale where gold processing was taking place in one of the streams forming the Zigi River. There are also timber activities, which are secretly practised in the forest reserves around the river. Such anthropogenic activities could be impacting the river and diminishing the quality of water.

The increased human activities cause serious land-use changes, which impact the quantity, flow and quality of the water resulting from increased deposition of large loads of sediments and organic matter into the river (Mwanyoka and Jambiya, 2009). Furthermore, there is accelerating growth of water hyacinths observed in the Mabayani dam, which results in to change of colour and turbidity. This could increase health risks and increase treatment costs. There is also a difference in the quality of water due to changes in the seasons as a result of changing patterns of human activities in the Zigi River and its environs (Kapinga et al., 2019). This study was intended to unveil the seasonal changes in the quality status of water in the Zigi River and its tributaries by assessing the levels of the selected water parameters and their contribution to water quality in relation to different anthropogenic activities along the river.

METHODOLOGY

The Study Area

The study was conducted in the Zigi river catchment, which lies between latitudes 4° 48'S and 5° 15'S and longitudes 38° 34'E and 39° 03'E. Whereas the upper reaches of the Zigi catchment is dominated by the Sambia ethnic group, the lower reaches are dominated by the Bondei ethnic group. Both ethnic groups engage in mixed agriculture; subsistence cropping and livestock keeping as well as small scale mining activities.

The samples were collected from eight (8) established sampling locations within the Zigi River catchment (Figure 1). The selection of these points was based on the closeness to human activities. The catchment was divided into three sampling zones: upper, middle and lower Zigi. Five sampling points were selected in the Upper Zigi (Sakale, Kwamkoro bridge, Spice Garden, Timber bridge and Longuza), one in the middle Zigi (Lanzoni) and two in the lower Zigi (Mjesani and Mabayani dam).

Sakale was selected because of presumed little anthropogenic activities. As a result, the point was taken to offer baseline data for the study.

Kwamkoro Bridge, which is a junction of the Kihara and Kiganga rivers, was taken to establish the water quality pollution due to tea plantations and subsistence agricultural activities along the Kihara River. Spice garden was selected to assess the water quality pollution due to subsistence farming activities carried out at Mlesa, Shebomeza, Chemka and Mbomole along the Zigi River. The point was also intended to capture the water pollution from farming activities along the Nanguruwe and Dodwe streams. Timber Bridge is a confluence of the Zigi and Kihuhwi rivers. The point was taken to assess the quality of water from the Kihuhwi River, which flows from Potwe passing through various subsistence farms and a rubber plantation.

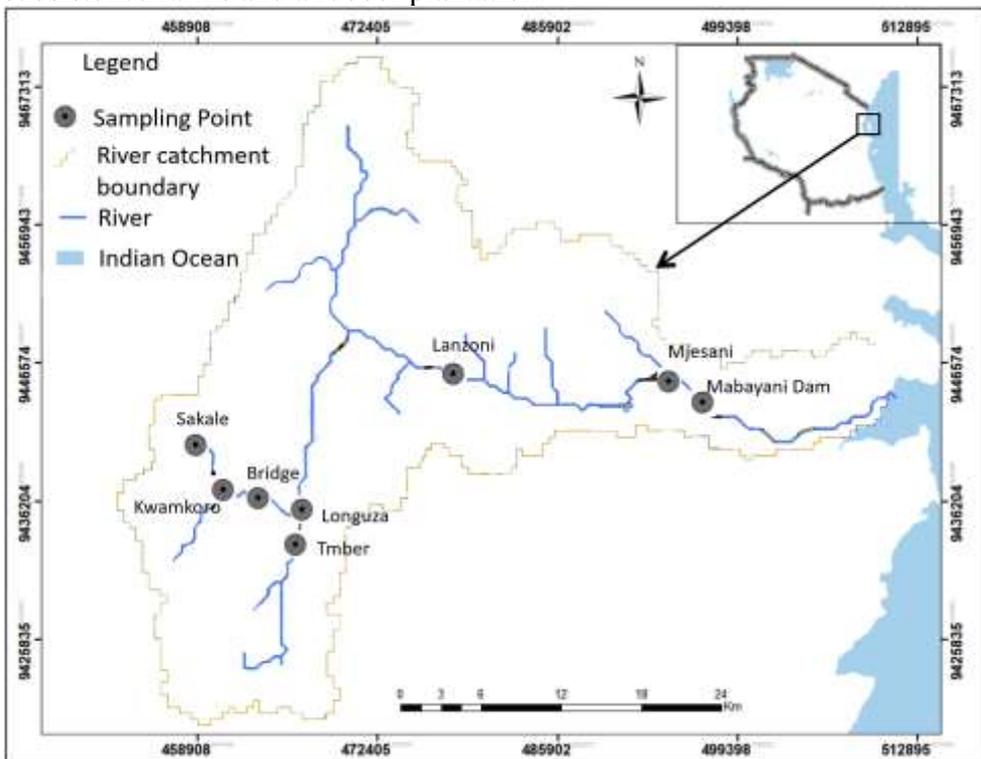


Figure 1 Map showing the location of sampling points. Adopted from Maskini et al., (2018)

Longuza was taken to assess the quality of water due to the presence of the Longuza teak plantation. Lanzoni, which is the confluence of Zigi and Muzi rivers, was taken to assess the quality of water in relation to sisal as well as subsistence farming activities as carried out along the Muzi River. The Mjesani Bridge was taken to assess the pollution of water due to the

Mjesani sisal plantation. This point is also the mouth of the Mabayani dam. Mabayani dam was taken to assess the quality of water in the dam (Figure 1), whose water is used for domestic purposes in Tanga city and its environs.

Sampling

Water sampling was conducted at the eight selected points in dry and wet seasons, where six sampling campaigns were conducted per season. During the dry season, the water samples were taken between 31st January 2015 and 7th March 2015 at one-week intervals when there was decreased water flow. Wet season water sampling was done between 20th April 2015 and 25th May 2015 during heavy rainfall and storm runoffs.

Sampling and preservation of the samples were carried out in triplicate in accordance with the Greenberg et al., (2005) methods and Tanzania Bureau of Standards (TBS) guidelines for water quality (TZS 789: 2016). Samples for analysis of physicochemical parameters were taken in pre-cleaned 1-litre polythene plastic bottles. Except for *in-situ* measurements, samples for analysis of nitrate and total phosphate were acidified with concentrated sulphuric acid (Analar grade) to pH 1.5. Samples for bacteriological tests were taken using sterilized glass sampling bottles (200 mL). The water samples for laboratory analysis of other physicochemical parameters were kept in ice chests at < 6 °C and transported to the Tanga Urban Water and Sewerage Authority (TANGA UWASA) laboratories where they were stored and analysed within two days.

Sample Analysis

Analysis of Physico-chemical Parameters

Analysis of the physicochemical parameters was done using the standard methods (Greenberg et al., 2005). Temperature, pH, dissolved oxygen and EC were measured *in-situ* immediately after sampling while other parameters were determined in the laboratory. The temperature was measured using a handheld thermometer. The pH and EC measurements were determined using a pH and EC meter (HANNA model HI 98130). Dissolved oxygen was measured using the DO meter. The apparent colour was determined within two hours after sample collection. Apparent colour (AC) and nitrate were determined by Spectrophotometric methods (Greenberg et al., 2005) while TP was determined using the ascorbic acid method (Greenberg et al., 2005). Turbidity was measured using a

Turbidimeter (TURB 550). TSS and TDS were determined in a well-mixed sample. The sample was filtered through a standard GF/F glass fibre filter and the residues on the filter were dried in an oven at 103 - 105 °C to constant weight. Later the residues were weighed using an analytical balance (Model HT244). The temperature was recorded in °C, TDS, nitrate and phosphate were recorded in ppm (mg/L), EC in $\mu\text{S}/\text{cm}$, turbidity in nephelometric turbidity units (NTU), apparent colour in platinum-cobalt units (Pt-Co) and DO in mg/L.

Analysis of Bacteriological Parameters

Bacteriological analysis was conducted using HACH (2011) Membrane Filtration Method. Collected samples for bacteriological tests were analysed using the Potable laboratory Kit, which provides a direct count of bacteria in water based on the development of colonies on the surface of the membrane filter. The water sample (100 mL) was filtered through a membrane filter (0.45 μm diameter). The filter membrane was then placed on an absorbent pad (in a Petri dish) saturated with a culture medium (M-endo agar), selective for coliform growth. The Petri dish containing the filter and pad were later incubated upside down for 24 hours at 44.5 °C. The *E. coli* colonies were identified and counted using a microscope and recorded in colony-forming units per 100 mL (CFU/ 100 mL).

Quality Assurance and Control

The quality assurance and quality control, QA/QC, procedures were followed throughout the analytical steps. Blanks and recovery tests were determined to check for the accuracy of the method and the reliability of the results obtained. Procedural blank samples were included in every batch and were subjected to similar treatments as normal samples. Blank correction of the samples was done as appropriate. In addition, calibration of all the instruments was done prior to any measurement.

Data Analysis

Data were analysed using IBM SPSS (v. 23). A two-tailed Student t-test was performed to determine the difference in the means between seasons at $p < 0.05$ and 95% confidence level. Where the t-test normality test failed for a given variable (e.g. TSS, nitrate, phosphate, colour, turbidity and *E. coli*), the Mann-Whitney Rank sum test was performed. Pearson correlation and Principal Component Analysis (PCA) were also

performed to assess the correlation and associations between variables. Graphing was done using SigmaPlot (v. 11.0).

RESULTS AND DISCUSSION

Levels of water quality parameters

Temperature

The levels of water quality parameters in the Zigi river are given in Figures 1 and 2. The mean temperature values of water from the Zigi ranged from $28 \pm 0.49^\circ\text{C}$ to $32.2 \pm 0.8^\circ\text{C}$ in the dry season and from $24.05 \pm 0.15^\circ\text{C}$ to $26.5 \pm 0.26^\circ\text{C}$ in the wet season. There were higher water temperatures during the dry season compared to the wet season in all sites (Figure 1a). The mean observed values of temperature were higher than those observed from a pristine Sakale point ($25.0 \pm 0.6^\circ\text{C}$) in the dry season but lower than the Sakale values in the wet season. The mean temperature of the water was relatively increasing downstream in both seasons (Figure 1a). The difference in the mean values between the wet and dry season water temperatures in the Zigi river is statistically significant ($p = 0.001$). The observed mean temperatures of water at all sites were lower than the maximum value of 35°C set by TBS (TBS, 2016).

The variation of geochemical parameters in a river depends on, among others, (i) the presence of soluble or highly weathered minerals such as gypsum or calcite, (ii) precipitation (iii) the presence of hotspots that release an enormous amount of organic matter, (iv) temperature, (v) soil cover and (vi) thickness of the weathered mineral rock (Chapman, 1996). Anthropogenic activities have a tendency of enhancing natural processes like leaching and erosion. As a result, natural and artificial compounds are added, altering the physico-chemical parameters and increasing the burden in the water.

Water temperature in natural conditions fluctuates between 0°C and 30°C (Chapman, 1996). The temperature of the running water tends to gradually increase from the source downstream due to increased metabolic activities caused by wastewater discharges from different sources. Anhwange et al., (2012) observed that the temperature of any given water may determine the rate of metabolism in an aquatic ecosystem. As expected, the temperature of the Zigi water was increasing with increasing distance in both seasons. The high temperature of the water favours microbial growth, which may consequently deteriorate the

colour, odour and taste of water (WHO, 2011). Microbial activities as well as wastewater discharges increase the water temperature to levels that pose problems to organisms due to increasing levels of toxic substances and increased oxygen demand, and hence low dissolved oxygen (Walczyńska and Sobczyk, 2017).

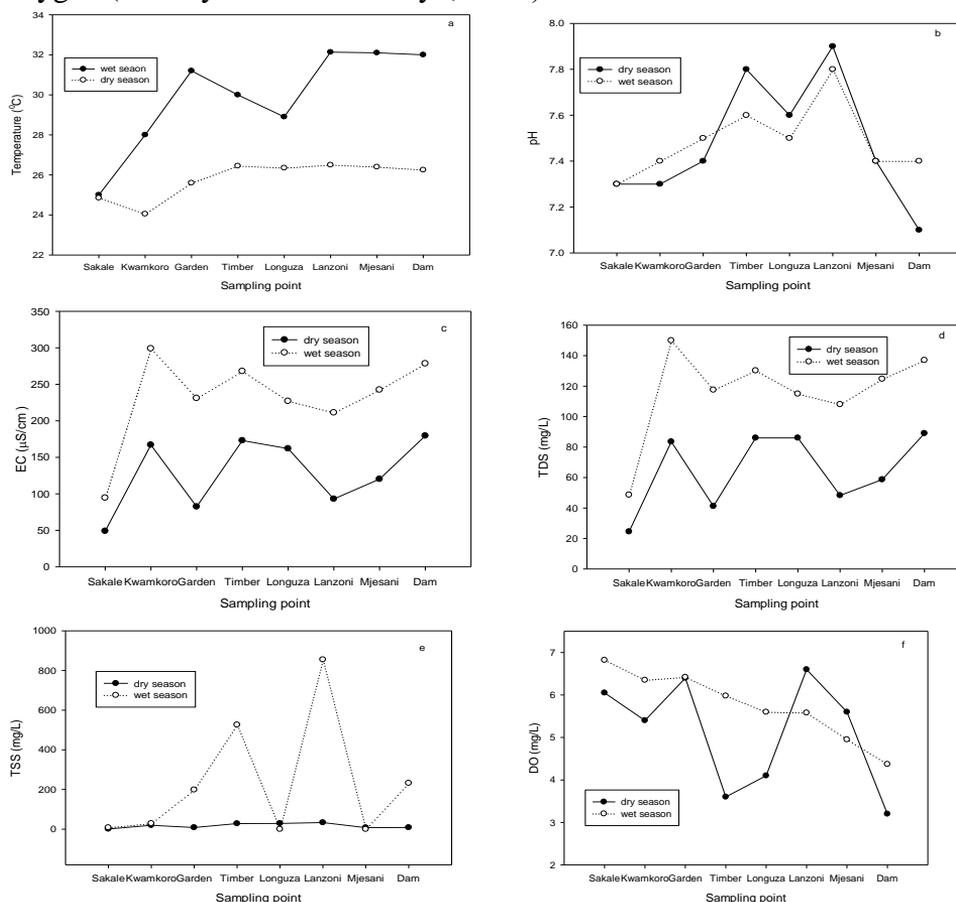


Figure 1: Seasonal variation of temperature (a), pH (b), EC (c), TDS (d), TSS (e) and DO (f) in the Study area

The mean pH values in the Zigi River varied from 7.1 ± 0.05 to 7.9 ± 0.2 in the dry season and 7.30 ± 0.04 to 7.8 ± 0.2 in the wet season. The pH levels were higher than the values observed in Sakale (7.3 ± 0.08) in both seasons. In fact, the levels were more or less similar to the lower boundaries of the observed pH values in both seasons. The mean pH values of the water were relatively increasing downstream in both seasons (Figure 1b). The difference in the mean values of pH between wet and dry

seasons was not statistically significant ($p = 0.912$). The mean pH values were lower than the WHO and TBS set standards of 8.5 and 9.2, respectively.

The pH influences many biological and chemical processes (Chapman, 1996). A change in pH is a good indicator of the presence of effluents (pollutants), particularly when measured together with EC (Chapman, 1996). Most natural waters have a pH ranging from 6.0 to 8.5. The observed pH values in the Zigi river water were within the recommended optimal range in both seasons. A decrease or increase in pH has implications for the quality of water. For example, water pH below 4.5 favours solubility of some metals to levels that may be toxic (Gensemer and Playle, 1999). Lower pH makes water to be corrosive. Similarly, high pH values can alter the toxicity of other pollutants.

Electrical Conductivity

EC values varied from $82.3 \pm 3.4 \mu\text{S/cm}$ L to $179.5 \pm 5.7 \mu\text{S/cm}$ in dry season and from $7.4 \pm 0.04 \mu\text{S/cm}$ to $299.0 \pm 0.2 \mu\text{S/cm}$ in wet season. The mean EC values in other sites were higher than the values observed in a pristine Sakale site ($49 \pm 3.0 \mu\text{S/cm}$ to $94.5 \pm 18.15 \mu\text{S/cm}$) in both seasons. The mean values in the dry season were lower than the mean values in the wet season in all sites (Figure 1c). The mean EC values were relatively increasing downstream in both seasons. The difference in the mean values between the wet and dry season EC in the Zigi river is statistically significant ($p = 0.003$). Mean EC values observed were lower than the TBS and WHO standards of $1000 \mu\text{S/cm}$ except at Sakale and Garden sites in the dry season.

Conductivity is used as a substitute for salinity measurements (Dodds, 1998). Freshwater usually has EC between 0 and $1,500 \mu\text{S/cm}$ and higher conductivity values are expected for typical seawater (e.g. $50,000 \mu\text{S/cm}$). High conductivity values in freshwater always indicate the extent of pollution (Raut et al., 2011). Conductivity values below $50 \mu\text{S/cm}$ are regarded as low, while those which are above $600 \mu\text{S/cm}$ are taken as high. Conductivity $>1000 \mu\text{S/cm}$ is an indication of pollution or land runoff (Chapman, 1996). Low levels of salts found naturally in waterways are important for plants and animals to grow. High levels of salts in freshwater can cause problems to humans and aquatic organisms, thus becoming unfit for use. Observed conductivity values in the Zigi river is an indication that water has acceptable values for use. However, EC

values were increasing downstream in both seasons probably due to increased salts from anthropogenic activities. Atekwana et al., (2004) observed that increase in the concentration of organic, inorganic and dissolved salts in water may increase the TDS in water.

TDS

TDS varied from 41.18 ± 2.49 mg/L to 89.0 ± 2.2 mg/L in dry season and from 108.0 ± 4.61 mg/L to 149.9 ± 5.80 mg/L in wet season. The mean values of TDS in other sites were higher than those from a pristine Sakale site (24.5 ± 1.2 mg/L to 48.6 ± 2.9 mg/L) in both seasons. The mean values were relatively the same in all sites in the dry season but had an irregular trend in the wet season (Figure 1d). The difference in the mean values of TDS between seasons was statistically significant ($p = 0.02$). The observed mean TDS values observed were lower than the TBS standard of 1000 mg/L but higher than the WHO standard of 50 mg/L except at Sakale, Garden, Lanzoni and Mjesani sites in the dry season.

TDS has an influence on water quality as water with extremely low concentrations of TDS may also be unacceptable because of its flat, dull taste. Similarly, extremely high TDS levels are unacceptable. TDS levels are categorized as excellent when the concentration is less than 300 mg/L, good when concentration is between 300 and 600 mg/L, fair when concentration is between 600 and 900 mg/L, poor when concentration is between 900 and 1200 mg/L and unacceptable when concentration is greater than 1200 mg/L (Bruvold and Ongerth, 1969). The observed TDS levels were in the range of 41.18 ± 2.49 mg/L to 89.0 ± 2.2 mg/L, which is acceptable (i.e. excellent condition). However, increased human activities may increase TDS in the water, making them unacceptable.

TSS

TSS mean values varied from 7.49 ± 1.50 mg/L to 33.35 ± 11.06 mg/L in dry season and from 29.03 ± 7.21 mg/L to 854.7 ± 110.6 mg/L in wet season. Dry season mean values of TSS were relatively similar in all sites but wet season mean values had an irregular trend (Figure 1e) that was generally increasing downstream. The mean TSS values in other sites were higher than those observed at a pristine Sakale site (0.93 ± 0.16 mg/L to 7.9 ± 3.32 mg/L) in both seasons. There was no statistically significant difference in the median values of TSS between the two seasons ($p = 0.382$). No WHO or TBS set standard was available for comparison.

Higher TSS values observed in both seasons indicate that there are continuous anthropogenic activities taking place in the study area regardless of the season. In the study area, there are a lot of subsistence farming activities during the wet season and local scale mining activities during the dry season. These activities could result in higher TSS in the river water. Also, there could be increased river flow at some sites which increases the turbulence and thus more suspended solids are observed.

DO

Dissolved oxygen (DO) varied from 3.2 ± 0.5 mg/L to 6.6 ± 0.3 mg/L in dry season and from 4.4 ± 0.1 mg/L to 6.4 ± 0.2 mg/L in wet season. The mean values of DO in other sites were relatively lower than those from a pristine Sakale site (6.1 ± 0.29 mg/L to 6.82 ± 0.08 mg/L). There was no regular trend in both seasons, but there was a decreasing trend downstream in both seasons (Figure 1f). The difference in the mean values of DO between wet and dry seasons in the Zigi river was not statistically significant ($p = 0.260$). DO standards set by WHO and TBS were not available.

DO in rivers may vary between seasons. The decrease in DO of water is due to its poor ability to hold oxygen at high temperatures as a result of the higher rate of microbial metabolism. According to Gupta and Gupta, (2006), the atmosphere and photosynthesis are sources of dissolved oxygen in the aquatic environment and depends on its solubility. DO values close to 10 mg/L, indicates unpolluted water and below 2 mg/L, indicates polluted water or low dissolved oxygen that may lead to the death of aquatic organisms (Chapman, 1996). DO levels in the Zigi river were higher than 2 mg/L, but less than 10 mg/L. The Do levels were, however, decreasing downstream in both seasons. This clearly indicates that the extent of pollution was increasing downstream. Reduced DO levels are associated with high metabolic activities of aerobic bacteria during the decomposition of dead decaying matter. The observed low level of DO in the study area could be associated with the anthropogenic activities that produce a lot of organic matter into the river. The decreased DO is also associated with the increased temperature that favoured increased microbial activities.

Nitrate

The mean nitrate values varied from 2.2 ± 0.96 mg/L to 15.87 ± 4.0 mg/L in dry season and from 8.69 ± 0.69 mg/L to 39.4 ± 3.20 mg/L in wet

season. The mean nitrate values observed in other sites were higher than those from a pristine Sakale site (0.05 ± 0.05 mg/L to 0.08 ± 0.07 mg/L) in both seasons. Mean nitrate values in the dry season were lower than those in the wet season. The values were increasing downstream in both seasons (Figure 2a). The difference in the median values of nitrate between wet and dry seasons was statistically significant ($p = 0.05$). The determined nitrate values in all sites were lower than WHO and TBS standards of 50 mg/L and 75 mg/L, respectively.

Natural water usually has nitrate levels less than 0.1 mg/L nitrate-N and concentrations greater than 0.1mg/L indicates pollution. Nitrate levels less than 5 mg/L are indicative of pollution by wastes (human or animal) or fertilisers from water runoff. In rural areas where subsistence agriculture is a key economic activity, the use of nitrogenous fertilisers can be a major source. For example, Fried (1991) indicated that significant nitrate contamination was associated with agricultural development. Nitrate levels in the Zigi were generally increasing downstream in both seasons. But, the levels in both seasons were below the WHO recommended value is 50 mg/L or 113 mg/L nitrate-N (WHO, 2011) and TBS set standard. Exceptionally higher values were observed at the Kwamkoro site in both seasons. This could be due to poor farming practices. This is evidenced by the extensive tea plantation and subsistence farming along the Kihara River. It has been observed that poor farming practices can be a source of pollution in a river (Jambiya et al., 2011).

Phosphate

The mean phosphate values varied from 0.0 ± 0.0 mg/L to 0.17 ± 0.06 mg/L in dry season and from 0.0 ± 0.0 mg/L to 0.23 ± 0.06 mg/L in wet season. The mean phosphate values observed in other sites were relatively higher than those from a pristine Sakale site (0.0 ± 0.0 mg/L) in both seasons. Like nitrate values, the phosphate values in the dry season were lower than wet season values and the values were generally increasing downstream in both seasons (Figure 2b). The difference in the median values of phosphate between the wet and dry season values was not statistically significant ($p = 0.721$). The observed mean phosphate levels were lower than the WHO standard of 10 mg/L. No TBS value was available.

Phosphate levels in most natural waters have values in the range of 0.005 to 0.02 mg/L PO₄-P, while pristine areas can have as low as 0.001 mg/PO₄³⁻-P (WHO, 2011). High levels of phosphate are indicative of pollution and are responsible for eutrophic conditions. The phosphate values were generally low and were generally increasing downstream in both seasons. However, the levels were higher than the pristine areas. Exceptionally higher phosphate values were observed at Spice Garden in both seasons could be due to phosphate fertilizer applications during extensive subsistence farming at Chemka, Shebomeza, Mbomole and Mlesa along the Zigi River.

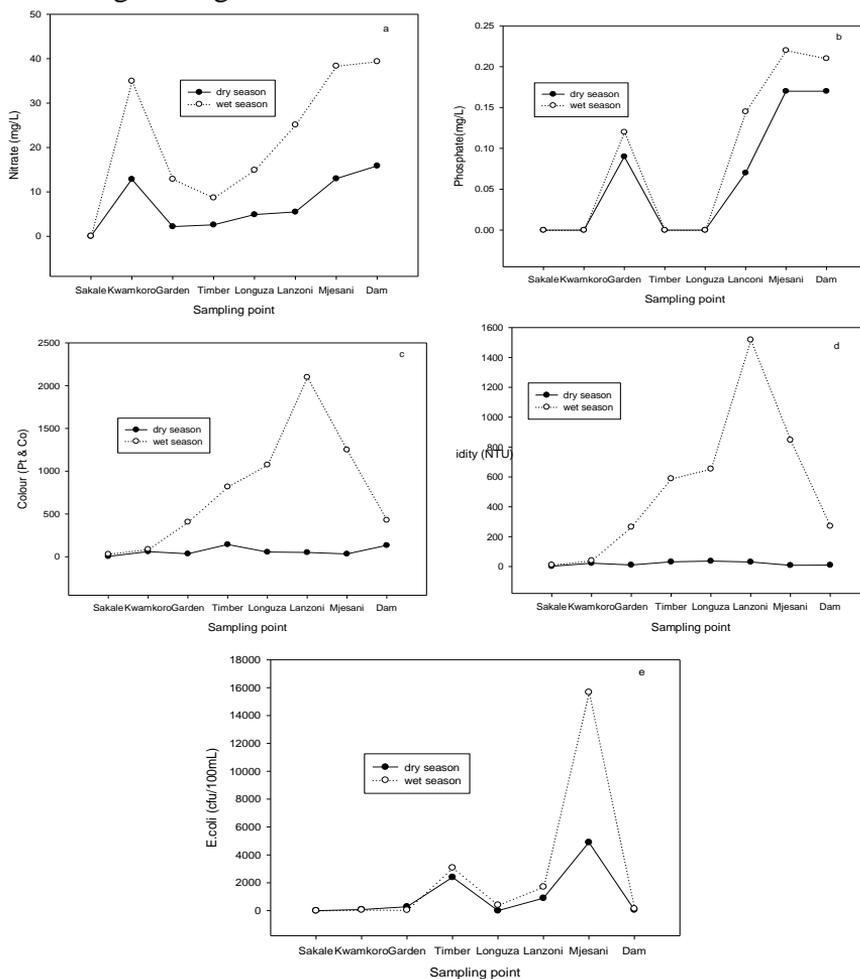


Figure 2: Seasonal variation of nitrate (a), phosphate (b), colour (c), turbidity (d) and *E. coli* (e) in the Zigi River

Apparent Colour

The apparent colour of water in the Zigi River varied from 33.0 ± 5.2 Pt-Co to 143.0 ± 13.6 Pt-Co in the dry season and from 40.0 ± 11.0 Pt-Co to 2099 ± 1013.2 Pt-Co in the wet season. The mean values of colour in the dry season were lower than wet season values. Whereas dry season values were similar in all sites, wet season values were generally increasing downstream (Figure 2c). The mean values of colour were higher than those from the pristine Sakale site (4.0 ± 1.67 Pt-Co to 31.0 ± 9.0 Pt-Co in both seasons). There is a statistically significant difference in the median values of colour between wet and dry seasons ($p = 0.015$). The mean apparent colour was higher than the TBS standard of 50 Pt-Co at all sites in the dry season and Sakale and Kwamkoro in both seasons.

The colour of water is an important physicochemical parameter, especially for drinking water. Colourless water is considered pure but it may be unsafe for human health. The colour of water during the wet season was generally increasing downstream, with values up to 2100 Pt-Co at some sites. The water colour in the dry season was more or less similar in all sites, but higher than the European Union (EU) standard of 20Pt-Co. This is an indication that the water contains other pollutants (e.g., organic matter) that changed the colour of the Zigi water. Water containing dissolved organic matter may form trihalomethane when in contact with chlorine during water treatment. For example, chloroform, which is a common trihalomethane, is considered to be a potential carcinogen. As a result, World Health Organisation (WHO) has set a limit for total trihalomethanes (TTHMs) in public water supplies at 0.1 ppm (100 ppb).

Turbidity

Turbidity values varied from 8.3 ± 4.1 NTU to 36.5 ± 10.6 NTU in the dry season and from 40.00 ± 11.06 NTU to 1518 ± 718 NTU in the wet season. Similar to colour, mean values of turbidity were lower in the dry season than in the wet season. Furthermore, dry season values were similar in all sites, while wet season values were generally increasing downstream (Figure 2d). Turbidity values in the Zigi water were higher than the values from a pristine Sakale site (1.8 ± 0.4 NTU to 10.83 ± 4.26 NTU) in both seasons. The difference in the median values of turbidity between wet and dry seasons was statistically significant ($p = 0.002$). The observed turbidity values in the dry season and at Sakale and Kwamkoro

in both seasons were lower than the WHO standard of 5.0 NTU, while in the wet season were higher than the WHO standard.

Natural processes, as well as human activities, have a tendency of increasing turbidity. Turbidity was more pronounced during the wet season probably due to increased subsistence farming during the season. In addition, anthropogenic activities such as cultivation and settlement can increase the sediment load in the river. Larsen et al., (2011) observed that land-use practices such as ploughing near the stream bank, on the steep slopes and clearance of riparian vegetation are likely to increase sediment load (Pettigrove and Hoffmann 2003; Carew et al. 2007). Turbidity was increasing downstream and the high turbidity values at Lanzoni in both seasons are linked to the sisal plantation as well as subsistence farming along the Muzi river.

E.coli

The mean number of *E.coli* varied from 58 ± 24 CFU/ 100 mL to 4900 ± 3387 CFU/ 100 mL in dry season and from 46 ± 44 CFU/ 100 mL to 15675 ± 4603 CFU/ 100 mL in wet season. The dry season numbers were relatively lower than those in the wet season and they were increasing downstream in both seasons (Figure 2e). The mean numbers of *E.coli* in the Zigi were higher than those detected in the pristine Sakale site (1-2 CFU/ 100 mL) in both seasons. The difference in the median values of *E.coli* between seasons was not statistically significant ($p = 0.721$). The values of *E.coli* observed were higher than the WHO and TBS standard values of 0 CFU/ 100 mL in both seasons.

The presence of coliform bacteria in a drinking water source in both seasons is evidence of contamination by faecal material. In areas where animal and human wastes are inappropriately collected and treated like the developing countries, faecal contamination is the predominant water quality problem in rivers (Chapman, 1996). High amounts of *E.coli* bacteria in the water are detrimental as may cause urinary tract infections (Gannon and Busse, 1989, Edberg et al., 2000). Faecal coliforms were generally increasing downstream in both seasons to around 4000 CFU/100 mL during the dry season and around 16,000 CFU/100 mL during the wet season. High levels were restricted at Mjesani, which could be linked to the settlement expansion and agro-pastoral activities in the area. Their presence in drinking water is a very serious concern due to its detrimental health effects on humans.

Relationships between Water Quality Variables

Correlation between Water Variables

Pearson correlation coefficients were determined using the mean values of the selected geochemical parameters in both seasons. Table 1 has indicated that pH in both seasons was positively correlated with TSS ($r^2 > 0.81$) and turbidity ($r^2 > 0.69$) in both seasons. Similarly, while TDS in both seasons was correlated to EC in both seasons ($r^2 > 0.80$), phosphate was positively correlated with nitrate in both seasons ($r^2 > 0.61$). Temperature in both seasons correlated positively with TSS ($r^2 > 0.65$) and turbidity ($r^2 > 0.61$) in wet season. The pH in both seasons positively correlated with colour in the wet season ($r^2 > 0.75$). Phosphate in both seasons correlated positively with temperature in the dry season ($r^2 > 0.75$) and negatively correlated with DO in the wet season ($r^2 > -0.76$) and positively correlated with *E. coli* in both seasons ($r^2 > 0.53$).

In the wet season, pH was positively correlated with temperature ($r^2 = 0.542$) and colour ($r^2 > 0.75$), colour was positively correlated with TSS ($r^2 = 0.972$) and DO was negatively correlated with both EC ($r^2 > -0.838$) and TDS ($r^2 > -0.833$). Moreover, while nitrate was negatively correlated to EC ($r^2 = 0.672$), turbidity was positively correlated to temperature ($r^2 = 0.717$) and TSS ($r^2 = 0.973$). In addition, TSS was positively correlated with *E. coli* ($r^2 = 0.754$) and temperature positively correlated with TSS ($r^2 = 0.795$).

In the dry season, DO was negatively correlated with EC ($r^2 = -0.838$) and TDS ($r^2 = -0.833$). Colour was positively correlated with EC ($r^2 = 0.80$) and TDS ($r^2 = 0.779$) but negatively correlated with DO ($r^2 = -0.831$). Similarly, TDS was positively correlated with turbidity ($r^2 = 0.548$). Furthermore, temperature in the dry season was positively correlated with EC ($r^2 = 0.568$), TDS ($r^2 = 0.588$), TSS ($r^2 = 0.649$), turbidity ($r^2 = 0.61$) and nitrate ($r^2 = 0.597$) in wet season and negatively correlated with DO ($r^2 = -0.725$) in wet season. Further positive correlations were observed between TSS in dry season and colour in wet season ($r^2 = 0.638$) as well as between turbidity in dry season and TSS in wet season ($r^2 = 0.747$). Scatter plots showing the relationships between some of the analysed variables are given Figure 3.

Table 1 Pearson Correlation Coefficients of the Analysed Parameters in Wet and Dry Seasons

	T ^d	T ^w	pH ^d	pH ^w	EC ^d	EC ^w	TDS ^d	TDS ^w	TSS ^d	TSS ^w	DO ^d	DO ^w	NO ₃ ^d	NO ₃ ^w	Colour ^d	Colour ^w	TU ^d	TU ^w	<i>E.Coli</i> ^d	<i>E.coli</i> ^w	PO ₄ ^d	PO ₄ ^w	
T ^d	1																						
T ^w	0.689	1																					
pH ^d	0.208	0.493	1																				
pH ^w	0.518	0.542	0.873	1																			
EC ^d	0.273	0.185	-	0.029	1																		
EC ^w	0.568	0.118	-	0.183	0.835	1																	
TDS ^d	0.256	0.198	-	0.056	0.997	0.815	1																
TDS ^w	0.588	0.114	-	0.187	0.808	0.997	0.790	1															
TSS ^d	0.229	0.363	0.825	0.816	0.407	0.352	0.452	0.347	1														
TSS ^w	0.649	0.795	0.861	0.964	0.051	0.130	0.071	0.132	0.826	1													
DO ^d	-	-	0.154	0.156	-	-	-	-	-	-	0.053	1											
DO ^w	0.096	0.326	0.142	0.094	0.838	0.478	0.833	0.429	0.157	0.053	0.516	1											
NO ₃ ^{-1d}	0.447	-	-	-	0.582	0.659	0.550	0.673	-	-	-	-	1										
NO ₃ ^{-1w}	0.005	0.493	0.242	0.582	0.659	0.550	0.673	0.129	0.142	0.340	0.731	1											
NO ₃ ^{-1w}	0.597	0.077	0.333	0.044	0.484	0.672	0.456	0.699	0.020	0.057	0.161	0.729	0.964	1									
Colour ^d	0.378	0.381	0.093	0.235	0.800	0.659	0.779	0.606	0.347	0.297	-	0.831	0.486	0.324	0.238	1							
Colour ^w	0.610	0.734	0.751	0.806	-	0.060	-	0.087	0.638	0.972	0.177	0.412	0.004	0.194	0.010	1							
TRB ^d	0.143	0.328	0.754	0.698	0.497	0.382	0.547	0.375	0.975	0.747	-	-	-	-	0.365	0.524	1						
TRB ^w	0.610	0.717	0.765	0.828	-	0.050	-	0.076	0.634	0.973	0.204	0.387	0.019	0.184	0.019	0.997	0.506	1					

<i>E. coli</i> ^d	0.428	0.442	0.223	0.060	0.048	0.172	0.012	0.189	0.046	0.630	0.020	0.347	0.221	0.287	0.031	0.407	0.087	0.410	1
<i>E. coli</i> ^w	0.401	0.370	0.053	0.086	0.015	0.110	0.047	0.142	0.176	0.754	0.097	0.409	0.339	0.403	-0.146	0.379	0.208	0.369	0.957 1
PO ₄ ^{-3d}	0.750	0.432	0.374	0.084	0.028	0.254	0.011	0.278	0.417	0.138	0.035	0.765	0.618	0.672	0.105	0.226	0.488	0.222	0.432 0.533 1
PO ₄ ^{-3w}	0.776	0.495	0.225	0.075	0.014	0.219	0.018	0.244	0.264	0.363	0.008	0.808	0.625	0.705	0.109	0.404	0.372	0.406	0.440 0.535 0.967 1

Bold values are significant at the level of 0.05 (2-tailed). T = temperature; TRB = turbidity; Superscripts *d* and *w* indicate dry and wet seasons, respectively

Figure 3 has indicated that DO was decreasing with increasing temperature (Figure 3a). This implies that increasing temperature decreased the DO due to decreasing solubility of oxygen. On the other hand, the temperature has been shown to have no direct relationship with pH (Figure 3b) and turbidity (Figure 3f).

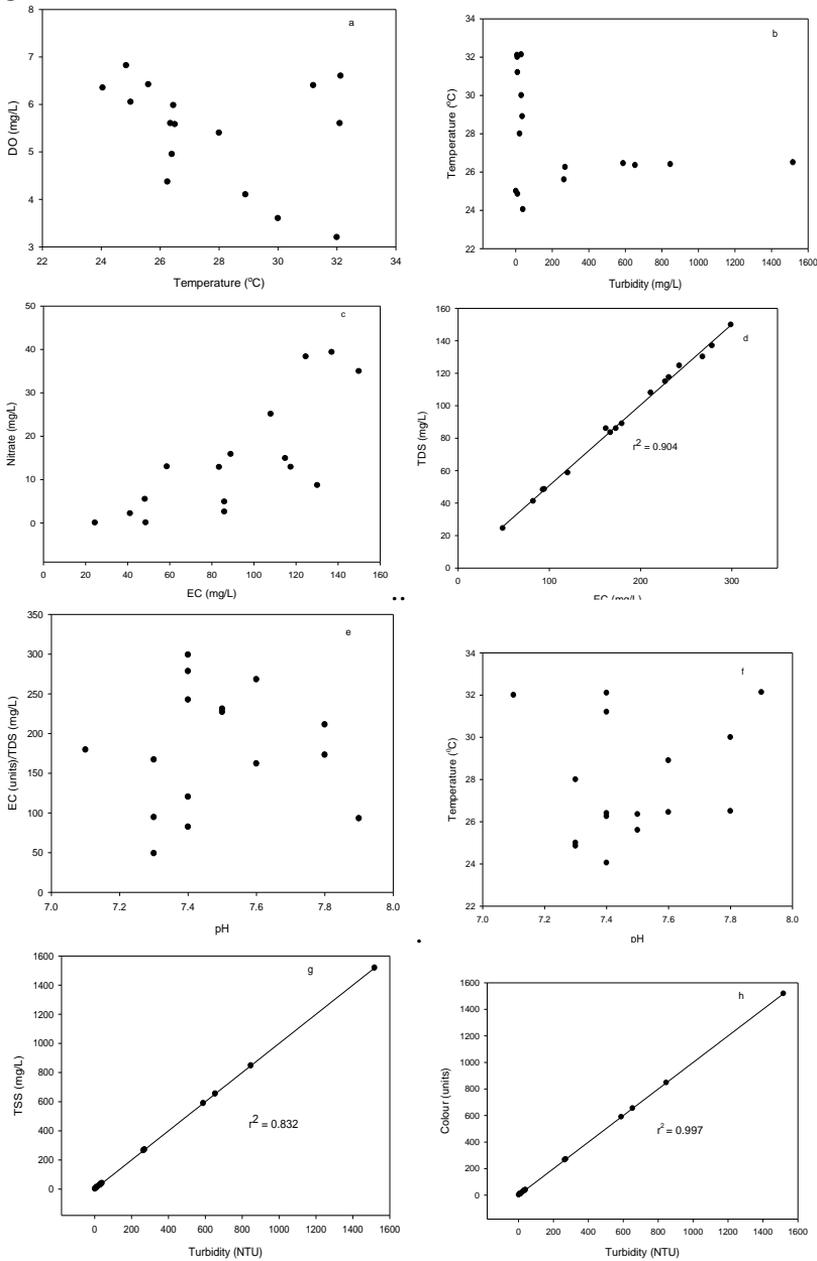


Figure 3: Scatter plots showing relationships between analysed parameters

EC in this river was increasing with increasing nitrate (Figure 3c) and TDS (Figure 3d), indicating that increasing nitrate levels such as by applying nitrogenous fertilisers in agricultural fields as well as TDS will increase EC in the river water. The EC, however, has no direct relationship with pH (Figure 3e). Turbidity was increasing with increasing TSS (Figure 3g) and colour (Figure 3h), which implies that any activity that increases TSS and water colour will increase turbidity. Most activities that can increase TSS, water colour, TDS as well as nitrates are usually anthropogenic, increasing one or more of these parameters will not only increase the parameters but also may affect the temperature and pH as well.

Principal Component Analysis

In order to determine the relationship between variables, multivariate analysis such as Principal component analysis (PCA) after varimax rotation with Kaiser normalisation can be used to compare and contrast the variables, aiming at detecting relationships and possible common source. In this study, a principal component (PC) or varifactor was considered significant when its eigenvalue was greater than 2 (Singh et al., 2004, Shrestha and Kazama, 2007). The measured physicochemical parameters were used as variables (total 11), with the concentrations of the physicochemical parameters obtained during wet and dry seasons in the different sampling stations as objects (total 176). Prior to analysis, the suitability of these data for PCA analysis was checked by performing Kaiser–Meyer–Olkin (KMO) and Bartlett’s sphericity tests. The determined KMO was 0.74 and the value for Bartlett’s test of sphericity was 216.78 ($p = 0.000$), indicating that this is a useful statistic in this study (Varol, 2011; Li et al., 2013).

The application of PCA indicated that the 11 variables from each season can be represented by 3 new varifactors that accounted for 88.92% of the total variance in the original data sets (Table 2). Based on the loading distribution of the variables, TSS, pH, turbidity, *E. coli* as well as wet season colour and temperature had strong loadings in the PC1, explaining 37.62% of the variance. Similarly, TDS, EC, nitrate as well as dry season colour and DO have strong loadings in the PC2, which explained 30.4% of the variance (Table 2). Phosphate as well as dry season temperature and wet season DO have strong loadings in the PC3, which explained 20.89% of the variance. Wet season nitrate had strong positive loading in both the second and third varifactors.

Table 2 Rotated Principal Component Matrix

Parameter	1st PC	2nd PC	3rd PC
TSS ^w	0.961	-0.021	0.262
pH ^d	0.958	-0.144	-0.237
pH ^w	0.958	-0.039	0.196
Turbidity ^w	0.908	-0.159	0.329
Colour ^w	0.902	-0.153	0.348
TSS ^d	0.883	0.300	-0.088
<i>E.coli</i> ^w	0.867	0.259	-0.308
Turbidity ^d	0.836	0.411	-0.189
<i>E.coli</i> ^d	0.778	0.307	-0.408
Temperature ^w	0.708	0.075	0.452
EC ^d	0.054	0.995	0.057
TDS ^d	0.073	0.993	0.063
EC ^w	0.135	0.892	0.171
TDS ^w	0.133	0.866	0.189
Colour ^d	0.284	0.856	0.142
DO ^d	0.072	-0.811	-0.067
NO ₃ ^{-1 d}	-0.291	0.704	0.517
NO ₃ ^{-1w}	-0.103	0.616	0.609
PO ₄ ^{-3w}	0.107	0.097	0.982
PO ₄ ^{-3d}	-0.098	0.143	0.947
DO ^w	-0.147	-0.520	-0.781
Temperature ^d	0.523	0.322	0.699
Eigen value	8.28	6.69	4.60
Contribution Rate (%)	37.62	30.40	20.89
Accumulated contribution rate (%)	37.62	68.02	88.92

Superscripts *d* and *w* indicate dry and wet seasons, respectively

Combining the results of the Pearson correlation and the PCA (Tables 1 and 2), it is clearly indicated that water colour in the dry season is more related to EC and TDS compared to water colour in wet season, which is more related to pH and wet season turbidity and TSS (Figure 4). This is an indication that colour is affected by EC and TDS in the dry season while in the wet season colour is affected by turbidity, TSS and pH. *E. coli* is more related to turbidity and TSS in the dry season whereas pH is more related to turbidity and TSS in the dry season (Figure 4). This could mean that change of seasons could change the effect of turbidity and TSS on other variables. Figure 4 has also shown that wet season temperature is more closely related to pH and wet season TSS, turbidity and DO, indicative of the fact that temperature during the wet season is more influenced by TSS, turbidity and DO than dry season temperature. On the other hand, phosphate, nitrate and dry season DO were not related to each other as well as not to other

variables. This could indicate that these variables are not related to each other and other variables and that there could other factors that control their levels.

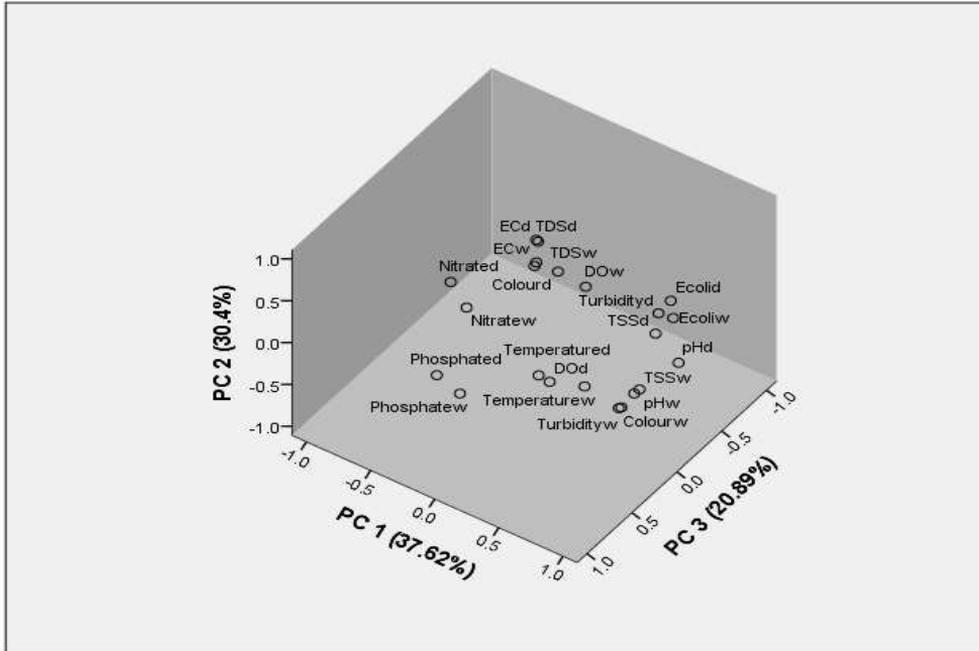


Figure 4: Three-dimensional score plot of geochemical parameters in Zigi River

Assessment of Water quality using the Water Quality Index

The quality of the drinking water can be evaluated using the water quality index (WQI). In order to compute the WQI, each geochemical parameter was assigned a weight (w_i) based on the relative significance in determining the overall quality of the drinking water (Vasanthavigar et al., 2010) as shown in Table 1. A weighted value of 5 was assigned to geochemical parameters that have a significant effect on water quality. Thus, TDS, nitrate, nitrite and phosphate were assigned w_i of 5 due to their significance in the assessment of water quality (Ramakrishnalal et al., 2009). Temperature and TSS were the minimum weight of 1 due to an insignificant role in the water quality assessment. Other geochemical parameters were assigned weights between 1 and 5 depending on their relative significance in the assessment of water quality. A total of 11 geochemical parameters were used in the computation.

The w_i was then used in computing the relative weight (W_i) according to equation 1:

$$W_i = \frac{w_i}{\sum_i^n w_i} \quad 1$$

where, W_i = relative weight, w_i = weight of geochemical parameter i and n = total number of geochemical parameters.

The quality rating scale (q_i) was computed using the observed values of the geochemical parameters and the available guideline value (e.g., WHO or TBS) according to equation 2:

$$q_i = \frac{C_i}{S_i} \times 100 \quad 2$$

where, q_i = quality rating, C_i = observed value of geochemical parameter I in the water, and S_i = WHO or Tanzania Bureau of Standards (TBS) guideline value/ acceptable limit of water standard. All calculations used WHO set standards except where there is no such standard.

The WQI of each river system was finally computed using the W_i and q_i using equation 3;

$$WQI = \sum_i^n w_i = \sum_i^n (W_i \times q_i) \quad 3$$

The summary of the computed WQI results is presented in Table 3.

Table 3: Calculated water quality indexes by season

Geochemical Parameter	Mean levels		WHO ^a	TBS ^b	Weight (wi)	Relative weight (Wi)	Qi		Si	
	Wet season	Dry season					Wet season	Dry season	Wet season	Dry season
pH	7.5 + 0.2	7.5 + 0.3	<8.5	<9.2	4	0.105	88.24	88.24	9.29	9.29
Temperature (°C)	25.9 + 0.9	29.7 + 2.9		<35	2	0.053	74	84.86	3.89	4.47
TDS (mg/L)	84.9 + 24.6	54.4 + 23.0	50	1000	5	0.132	169.8	108.8	22.34	14.32
EC (µS/cm)	172.8 + 51.0	110.6 + 46.7	100	1000	5	0.132	172.8	110.6	22.74	14.55
TSS (mg/L)	308.1 + 326.2	16.8 + 4.2	30	100	1	0.026	1026.67	56	27.02	1.47
DO (mg/L)	5.8 + 0.8	5.0 + 1.3	5	6	3	0.079	116	100	9.16	7.89
Nitrate (mg/L)	3.8 + 3.5	2.2 + 2.4	50	75	5	0.132	7.6	4.4	1	0.58
Phosphate (mg/L)	0.1 + 0.1	0.08 + 0.08	10		5	0.132	1	0.8	0.13	0.11
FC (cfu/100 mL)	2347 + 5107.7	1230 + 1828.6	0	0	5	0.132	234700	123000	30881.6	16184
Colour (mg-Pt/L)	689.8 + 695.1	57.5 + 50.1		50	2	0.053	1379.6	115	72.61	6.05
Turbidity (NTU)	466.5 + 497.6	17.0 + 13.4	5		1	0.026	9330	340	245.53	8.95
Σ					38	1.000	WQI		31295.3	16252

^aWHO, (1996, 2004, 2011); ^bTBS, (2016)

The computed WQI values were then compared with the range of WQI used to classify water for drinking water using the established criteria (Table 43).

Table 4: Drinking Water Classification based on WQI (Sahu and Sikdar 2008)

Level	Range	Classification
1	<50	Excellent
2	50 - 100	Good
3	100 - 200	Poor
4	200 - 300	Very poor
5	>300	Unsuitable

The findings have indicated that the general water quality in the Zigi River is at level five in both seasons. In addition, the water quality index during the wet season was worse than during the dry season. This implies that water quality in both seasons is unsuitable for use as drinking water and that during the wet season the water is more unsuitable for use than during the dry season. The unsuitability of the water from this river in both seasons imply that much more treatment costs in terms of chemicals and time will be needed to make this water suitable for drinking.

CONCLUSION

The levels of selected geochemical parameters in the Zigi River have been determined. Temperature, EC, TDS, TSS, nitrate, colour, turbidity and *E. coli* were higher in wet season probably due to increased river flow during wet season. Wet season levels of TSS, colour and turbidity also increased due to increased river runoff. Temperature, EC, TDS, nitrate and *E. coli* were increasing and DO decreasing downstream in both seasons probably due to increased anthropogenic activities along the river. This implies that water quality was decreasing downstream due to increased anthropogenic activities that cause pollution of the river. Seasonal water quality indicia have indicated that the water in the Zigi River is not suitable for drinking purposes in its current state. This has a great implication for the treatment costs of the water. Immediate measures are recommended to minimise further diminishing quality of the water in this river and thus minimise the costs of treating the water for domestic use.

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Evidence based impact of school inspection on teaching and learning in primary school education in Tanzania

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ABSTRACT

This study aimed to investigate the impact of school inspection on teaching and learning in primary school education in Tanzania. The study was carried out in Mbeya region and data was collected qualitatively from 59 participants where 6 were head teachers, 44 classroom teachers, 8 school inspectors, and a District Education Officer (DEO). Data was collected through open-ended questionnaires, interviews, focus group discussions, and documentary analysis. The findings indicate that school inspectors gave some advice to teachers on how to teach and help the pupils with learning difficulties. However, it was found that school inspectors did not regularly visit the classroom for lesson observations to identify the strengths and weaknesses of teachers for the improvement of teaching and learning. The findings also indicate that school inspectors focused on the professional documents when evaluating the teachers' work performance without classroom observation and helping teachers on how to teach the difficult topics that could be the added value of the school inspection. It was further found that school inspectors' working conditions were poor as they lacked allowances to facilitate their school visits and they lacked a means of transport. It is argued in this paper that for teachers to grow professionally and improve the quality of teaching and learning in primary schools, school inspectors need to carry out classroom observations and be trained based on the subject matter. Nevertheless, improvement of the school inspectors' work conditions and provision of a means of transport to the school inspectorate department is equally important

Keywords: *Classroom, education, observation, primary school, school inspection, teachers*

INTRODUCTION

School inspection has a long history in education systems and it can be

traced back from France under Napoleon's administration regime in particular (De Grauwe, 2007). The term 'school inspection' has sometimes been used interchangeably with 'school supervision' although in practice, the two share almost the same meaning and are used depending on the context of the activity that is deemed relevant at a particular time. However, many countries across the world are more interested to use the term '*school supervisor*' rather than '*school inspector*' (De Grauwe, 2007, p. 7).

Supervision is formative and interactive in nature while school inspection is a form of a summative evaluation and it takes place at the end of the year (Jaffer, 2010). Countries such as Lesotho, Senegal, and Tanzania use the term 'inspector' to signify the monitoring of compliance with rules, whereas the supervisor is there to advise and to stimulate teachers' creativity (De Grauwe, 2007). Malawi uses the term '*education methods advisor*'; Uganda '*teacher development advisor*' and Mali '*animateur pedagogique*' (De Grauwe, 2007, p. 710). In the United Kingdom (UK) and other English-speaking countries, both 'inspector' and 'supervisor' are used as mechanisms for fostering the teacher to perform and give an account for their teaching outcomes (Greatbatch & Tate, 2019; Ololube & Majori, 2014).

What is a school inspection?

Giving a definition of a concept such as school inspection is always problematic as different people have their ways of conceptualising the same term. For example, Richards (2001, p. 656) defines school inspection as the process of "observing work in schools, collecting evidence from a variety of other sources and reporting the judgments". To Wilcox (2000, p. 15), school inspection is a process of "assessing the quality and/or performance of the institutional services, programmes or projects". The only difference between school inspection and supervision is that the former is usually carried out by external authority, while the later is a routine practice and is conducted by someone within the school (Department of Education and Skills, 2016). In countries with long traditions in the field of school inspection such as the UK, the Netherlands, and Germany, education systems are controlled at the central level, signifying an external quality control of education (Greatbatch & Tate, 2019). In this paper, school inspection is perceived as a process of monitoring the teaching and learning concerning the compliance to

educational standards by collecting the evidence and providing recommendations for improvement purposes.

School inspection has been acknowledged to foster the quality of education and teachers' accountability for pupils' learning all over the world (Greatbatch & Tate, 2019; Hislop, 2017; Klerks, 2012). In the Tanzanian context, however, it has not been well known whether or not school inspection can play this key role. Previous works concentrated on school-based teachers' supervision, some focused on the perception of teachers, and others on the relationship that exists between school inspections and school improvement. See, for example, the studies by Dawo (2011), Haule (2012), Ehren and Visscher (2008), and Kasanda (2015). Nevertheless, the literature on school inspection is mostly based on ideas from the European countries, as these are the founders of the world school inspection systems with different styles and experiences. Even the original definitions of the term school inspection tend to be old such as that of Richards (2001) and Wilcox (2000). Thus, it was important to investigate what could be the impact of the school inspection on improving the teaching and learning in Tanzania. The key question in this study was: Can school inspection facilitate the improvement of teaching and learning in primary schools in Tanzania? The study did not investigate the inspection for the schools' financial resources and buildings, although they are also important for any meaningful teaching and learning.

Rationales of school inspection

School inspection plays a significant role in education as it has been witnessed in different countries (Greatbatch & Tate, 2019; Hislop, 2017; Klerks, 2012; Enhen & Visscher, 2008). This paper provides the main six rationales, such as improving the quality of education that is provided to the citizens, fostering teachers' accountability for pupils' learning, it acts as a link between the Ministry of Education and the school, provision of professional support to teachers and helping the parents to choose a school that most fits for their children's education.

Improving the quality of education

School inspection is an instrument for monitoring educational quality and it is an external control of education (Klerks, 2012; Hislop, 2017). Many authors have argued that if countries are to improve and monitor their education systems, then they have to foster external school supervision

(Greatbatch & Tate, 2019; Hislop, 2017; Klerks, 2012). According to Jaffer (2010), an external evaluation can help the Ministry of Education to judge the school's performance and how well the education system itself supports and promotes the quality standards in the institution. As observed by Akay (2016), however, many factors contribute to school effectiveness such as high expectations from pupils on the positive outcomes from education, educational leadership, positive school culture, monitoring progress, staff professional development, level of school resources, and parental involvement in the education of their children. Ehren and Visscher (2008) point more factors that are considered by parents to be significant for their children's learning, such as the quality of the school environment, the pedagogical process, climate, the learning instructional methods, the safety of the school, the school regulations, and school reputation.

Fostering teachers' accountability for teaching

School inspection, all over the world, aims at ensuring that teachers respect rules and regulations and meet educational objectives (Dawo, 2011). According to Greatbatch and Tate (2019), countries such as England, Estonia, Germany, Singapore, and Taiwan have been identified as high performing in Programme for International Student Assessment (PISA) of 2015 as they use a centralised system of school inspection. According to De Grauwe (2007), the traditional role of the school inspector has been to control the teacher's performance in the classroom by observing if teaching protocols are adhered to. In the Netherlands, for example, school inspectors have to visit the schools and observe the lessons in the classrooms. They also have a legal basis for taking actions against underperforming schools such as giving a warning letter (Enhen & Visscher, 2008; Greatbatch and Tate, 2019). In India, Tyagi's (2010) study found that school inspectors seldom visited the classroom from which they could give constructive feedback. According to Tyagi, these school inspectors tended to focus on mistakes that teachers did. This state of affairs as observed by Ball (2004) creates fear and uncertainty and thereby undermines teachers' confidence to teach. According to OFSTED (2019), however, teachers can improve their teaching in the school through self-evaluation. Hargreaves (1995) argues that the most effective evaluation of the school comes from neither internal nor external inspection and to him some combination of both probably does the job better.

Nevertheless, the use of a strong inspectorate generally tends to be part of an organised bureaucracy, a ‘*state centralist*’ system of education, which also selectively retains the chance for central control and interventions even when schools are operated by the local government (De Grauwe, 2007). As stated by Hislop (2017), in a decentralised plan school inspection, as an agent of accountability in education has to be reformed. This means that evaluation has to be carried out at the local level using people who are closer to the school. According to De Grauwe (2007), school-inspection reforms have partly taken place as a response to a new wave of democratisation in African countries, where supervisors of education have to work with teachers as friends and not enemies. This has resulted in demanding for school autonomy with a less hierarchical relationship between teachers and their supervisors.

While many countries, such as England and Wales and the Netherlands, are trying to move towards tight teachers’ accountability through school inspection to ensure that children receive the desired quality of education, some other countries are moving in the opposite way (Webb *et al.*, 1998). France employs both national and local inspections and Finland has no school-inspection system (Gaynor, 1998, Vainikainen, Thuneberg, Marjanen, Hautamäki, Kupiainen & Hotulainen, 2017). Previously, school inspection functions in Finland were provincially based until when it was totally stopped in 1991 when more emphasis was placed on self-evaluation frameworks (Webb *et al.*, 1998; Vainikainen *et al.*, 2017). In Sweden, the inspectorate functions have been taken over by the region, and Norway has no school inspection at all (Gaynor, 1998). Norwegian government, however, has thought to have state school inspections to safeguard the education provided in the country (Hall, 2018). According to Hall, New Zealand’s school inspection has been replaced by a separate body named the Educational Review Agency (ERA). The challenge for these countries, however, is how the national values and philosophical ends are to be monitored without examining what is produced in the educational system.

School inspection as a link between the government and school

School inspectors play an intermediate role in communicating with the Ministry of Education about what takes place in schools, and what should be done to ensure the achievement of the educational goals and objectives (De Grauwe, 2007; Jaffer, 2010). As observed by the Office for Standards

in Education [OFSTED] (2017) in the England and Wales, schools that tended to address school inspection findings-maintained quality after a short inspection. According to the Department of Education and Skills (2016), external inspection facilitates the improvement and changes of the school towards positive results. De Grauwe (2007), however, concludes that African countries, and many others in the world, are less capable of identifying the most relevant principles of school inspections in their own context.

Provision of professional support to teachers

School inspectors are supposed to give an ongoing academic support for teachers using appraisal mechanisms on school progress and performance (Jaffer, 2010). According to Macharia and Kiruma (2014), school inspection is likely to add value to schools if it pays attention to issues related to the improvement of teachers' effectiveness. To Hislop (2017), school inspection reports need to fulfil both improvement and accountability functions through the provision of guidance for affirming good practices. As stated by Sinay (2016), school effectiveness can be assessed by investing in assessment, improved pedagogy, and by using professional development programmes. De Grauwe (2007), therefore, has the view that a clear school inspection's vision should guide the identification of teachers' needs in relation to supervision including offering the services and support that respond to the school and teacher's specific needs.

Provision of the feedback to teachers on what they do

School inspectors as external feedback providers are the key tools for improving the quality of education (De Grauwe, 2007). Leeuw (2002) states that school inspection can improve teaching and learning when it is characterised by reciprocity between the teachers and school inspectors. To Leeuw, school inspectors should focus on *give-and-take* and *you too-me too* reciprocal relationship. The *give-and-take* relationship refers to the type of information that school inspectors need to receive from the school or teachers, and what schools/teachers get back after school inspection. The notion of *you too-me too*, suggests that school inspectors should apply the same evaluation criteria used to evaluate teachers or schools under school inspection. According to Diver, Vaughan, Médard and Lukacs (2019), reciprocity ideas stem from the premise that one cannot take without giving to others. Ehren and Visscher (2006) advise the

school inspectors to build the trust with a reciprocal relationship with the teachers if the aim is to improve teaching and learning in schools.

Parents' choice of the education for their children

School inspection is common in countries that have been influenced by British and French models. In England and Wales, OFSTED publishes on the Internet the school-inspection reports so that parents and pupils can get access to information with regard to achievement or successful and unsuccessful schools (Ehen & Visscher, 2008). Each primary and secondary school in these countries has to be inspected on a four-year basis (Webb, Vulliamy, Häkkinen & Hämäläinen, 1998). Head teachers have to sign an agreement with the school inspectors and prepare an action plan regarding rectification of the weaknesses identified in the inspection report (Webb *et al.*, 1998; Ehren & Visscher, 2008). The published school inspection reports help the parents to make better-informed choices of the type of school they want for their children's education (Ehren & Visscher, 2008). As stated by Ehren and Visscher, this contributes to school improvement since well-performing schools tend to attract more pupils, unlike the weaker ones. Making a choice for education of the children, however, can mostly apply to the rich countries and for those people who can finance education for their children, which may not necessarily be the case for the poor families in developing countries such as Tanzania.

School Inspection in Tanzania

In Tanzania, school inspection was introduced during the colonial regime, especially during the 1920s (De Grauwe, 2007). It was immediately strengthened after independence during the 1960s with intention of reforming the educational system. The main aim was to ensure that teachers provide a quality education that is useful for solving the problems encountered in daily life. The term school inspection has been preferred for many years in the country and school inspection has been one of the ministerial departments (Kiwia, 1994). While the English-speaking countries and particularly the UK still use the term school inspection, in 2016, the Government of Tanzania changed the name of the department to be Quality Assurance Agency (QAA) within the Ministry of Education, Science and Technology (MoEST), formally known as the Ministry of Education and Vocational Training (MoEVT). The Ministry of Education changed the name to strengthen the school inspectors so that

they apply more humanistic approaches and act like friends when dealing with teachers. Yet, it appears that the functions of the school inspection remain the same even if the name has been changed. School inspectors are required to visit the schools for classroom observation. They also need to give professional pieces of advice on what teachers need to improve based on the observation. They are as well required to write the reports on the findings to the school owners (the District/City director and Ministry of education) and what they recommend for actions and for improvements. Are school inspectors fulfilling these key obligations in schools? This question was central to this study.

METHODOLOGICAL ISSUES

This study was carried out using a qualitative approach. The qualitative approach is more revealing and appeals to people lived experiences. Through this approach, participants were free and able to give their own experiences with regard to the school inspection system that has been conducted in their schools. On the part of the research, this approach provided an opportunity to give more clarifications on issues that could not be well understood and allowed the participants to ask questions on the issue that was unclear. It used an exploratory case study design where the data were collected in the Mbeya region. Mbeya region was selected to be a study area as it ranked in the higher position in the National Examinations such that it occupied in the fourth position among 26 regions in the country. Thus, the aim of the study was to investigate whether or not the school inspection contributed to such a success.

Sampling procedures

Purposive sampling was used to select the schools, school inspectors, and the head teachers. Teachers who did not have a class at the time of the school visit were the ones who participated in the open-ended questionnaires and focus group discussion. Three schools were located in the urban area and three schools were in the peri-urban area. The study included a sample of 16 males and 43 females making 59 participants in total, whereby 6 were the head teachers and 44 classroom teachers who came from 6 schools, 8 school inspectors, and 1 District Education Officer (DEO). The sample was obtained through saturation.

Methods of data collection

The study used 4 methods of data collection. These were open-ended questionnaires, interviews, focus group discussion, and documentary analysis as follows:

Open-ended Questionnaires

Open-ended questionnaires were used for both head teachers and teachers. Open-ended questionnaires were used on issues that needed freedom of expression of the teachers to give out their views on school inspection. Since questionnaires tend to have a low rate of return especially when are mailed or just given to the participants without restrictions, they were administered by visiting the schools according to the appointment made.

Interviews

Interviews were employed for the school inspectors and head teachers. Through interviews, it was easy to seek clarifications on issues under discussion on how head teachers viewed school inspection and its impact on improving teaching and learning in primary schools. The interviews were carried out with the head teachers and the school inspectors during working hours. Interviews sometimes may be dominated by the researcher if not careful and it is not a good method for sensitive issues. In this study, it was important to leave the teachers to express themselves on what they felt to be the work of the school inspectors and the questions did not involve sensitive issues. School inspectors as well were free to give their views, especially on challenges that make them unable to accomplish their inspection plan of action.

Focus Group Discussion

Focus group discussion (FGD) involved 7 teachers from 2 neighboring primary schools (School B & C). Four (4) teachers came from the hosting school and three (3) from a neighboring school. These teachers were those who did not have classroom sessions at the time of visit. The technique was useful in collecting huge data as one response triggered other responses. Some of the members in the group, however, tended to go astray, but it was moderated that they follow the issue in question. Some of the questions asked in FGD were: In your own views do you see any value of school inspection in facilitating teaching and learning? How school inspection can be organised to have a greater impact on the

improvement of your work performance? In a focus group discussion, however, participants may extend and dominate the discussion. If not controlled participants may also go astray from the issue under study. It was important to moderate the discussion and make sure that every member had an opportunity to give out his/her views.

Documentary review

This study also employed the document review for data collection. The documents that were surveyed include the schemes of work, lesson plans, and educational policies. Official reports such as that of the OFSTED served as a useful source of information and secondary literature in the form of books, papers, and journal articles were important and readily available including the empirical studies. Some papers were obtained in the library in a hard copy form and others were downloaded from the Internet and they were useful for the collection of information for this study and they complemented the data collected through focus group discussion, interviews, and open-ended questionnaires. To the highest extent possible, the secondary sources were cross-checked before use.

Secondary data can, however, be outdated or may have been collected for a different purpose and background (Hassan, 2007). Some of the surveyed documents were dated back to 1900s to 2000s, but since they had relevant information to this study, they were still taken on board. As stated by Cohen *et al.* (2001), information from documents may also lack objectivity or be unduly selective. The documents surveyed in this study, however, were limited to the specific research purpose. Literature was scrutinised so as to communicate and get accurate information.

Data analysis and research ethics

Data analysis was carried out by transcribing and then coding by using themes and sub-themes after checking their relevance and similarities. Later on, data were organised in tables and were supported by the voices from interviews, focus group discussions, and from the open-ended questionnaires. All research ethics were observed including obtaining the research clearance. Participants were to consent to participate in the study and plagiarism was avoided by paraphrasing or giving the quotations and acknowledging the sources of information.

FINDINGS

School inspection's role in improving teaching and learning

The major aim of this study was to investigate how school inspection leads to improved teaching and learning in primary schools in Tanzania. The majority of teachers (92%) indicated that school inspection did so (Table 1). Teachers acknowledged that school inspectors gave some advice to teachers on how to teach their pupils and helped the individual pupils with learning difficulties. A teacher from school 'C' commented during the focus group discussion:

Teachers as other human beings have some weaknesses and sometimes do things inappropriately. Thus, they need support from the school inspectors. It could be good if the school inspectors visit the schools regularly to remind the teachers of their key role towards pupils' learning, but they need to go further by supporting the teachers on how to teach a subject.

Table 1: Teachers' responses on school inspectors' support to improve teaching and learning and provision of professional support

Statements	Agree	Disagree	Total (%)
1.			
2. School inspection improves the teaching and learning.	46 (92%)	4 (8%)	50 (100%)
3. School inspectors support teachers professionally.	6 (12%)	44 (88%)	50 (100%)

Some teachers, however, commented that school inspectors placed more focus on schemes of work, subject logbooks, lesson plans, and the teaching and learning materials as they are regarded as important tools for teachers' work performance. To teachers, school inspection could have an added value if they could be supported by identifying and helping them on how to solve the identified weaknesses/problems. One of the head teachers at School 'D' stated during the interview:

It is quite common to find that the school inspectors directing the teachers to collect professional documents and the teaching and learning materials to evaluate their teaching. School inspectors, however, are required to visit the classrooms in order to help the teachers to improve their teaching. I think that relying only on professional documents without helping the teacher on how to perform better has nothing to do to improve teaching and learning.

Another head teacher at the school 'E' commented on the same issue that school inspectors collected the schemes of work, lesson plans, pupils' exercise and logbooks without helping them based on classroom findings and he stated:

Teachers are blamed by the school inspectors for their work performance being poor. You wonder how teachers could improve teaching and learning if the school inspectors rely on professional documents and do not give proper support in the classroom on how to teach a specific subject. One may be very good in lesson preparations but not in teaching.

The comments from teachers suggest that despite recognising the contribution of a school inspection to improve teaching and learning, the interviewed teachers still needed further support in order to improve their teaching. They also demanded to be supported in solving the problems that face them in teaching rather than a mere collection of professional documents as a means of judging their work performance.

Provision of professional support to teachers

It was also the intention of this study to explore whether or not the school inspectors provided professional support to teachers. The majority of the teachers (88%) indicated that school inspectors did not offer professional support to them (Table 1). Teachers were of the opinion that school inspection is very important for teachers to improve the quality of education standards if they support them with practical advice and professional knowledge related to the specific subject matter. A teacher from School 'C' commented during the focus group discussion:

I see that the school inspectors put more attention on how many lesson plans are prepared and the exercises that are provided to pupils. They also check the availability of the schemes of work, lesson plans, and subject logbooks. It could be good if school inspectors could help teachers on how to teach difficult topics of a particular subject instead of focusing on the pupils' exercises and other materials that teachers prepare.

A head teacher from School 'F' also stated during the interview that school inspectors blamed the teachers on the pupils' poor performance and did not help them on how they could teach difficult topics so that they cope with the changes in the curriculum and he had this to say:

School inspectors do not help teachers on how to teach difficult topics and cope with this issue of frequent changes in the curriculum. They just come and blame the teachers on the failure of curriculum implementation and pupils' poor performance without any efforts of ensuring that teachers are prepared to cope with the reformed curriculum. For example, the Vocational Skills subject was implemented prior to teachers' preparation. Who is to be blamed for the pupils' failure?

Findings suggest that teachers would like to be supported professionally by the school inspectors on how to teach difficult topics in specific subjects. Teachers also demanded to be oriented on the changes of the curriculum before its implementation rather than blaming them on pupils' poor performance in the National Examinations. To teachers, professional support could be the added value of the school inspectors' visits to schools.

Classroom observation by school inspectors

The study intended to explore whether or not school inspectors visited the classroom as their key role towards observing what is taking place in the classroom setting. The majority of teachers (80%) responded in the open-ended questionnaires that school inspectors did not undertake classroom observation that could help the identification of the challenges that teachers face in teaching (Table 2).

During the interviews with the head teachers, it was also confirmed that school inspectors did not visit the classroom for lesson observation to improve the teachers' work performance. Teachers were of the view that classroom observation could help the school inspectors to identify the weaknesses of the teachers during teaching and learning and thereafter provide professional support. A head teacher from School 'D' stated during an interview:

When school inspectors visit our school, they do not observe classroom teaching. In most cases, they stay in the office and direct the teachers to collect the schemes of work, lesson plans, subject logbooks, and the pupils' exercise books. Thus, the school inspectors judge the work of the teacher based on that material evidence and it is very hard to discern the areas of weaknesses that need improvements.

Table 2: Teachers’ response regarding classroom observation by the school inspectors and the creation of tension and fear to teachers

Statements	Agree	Disagree	Total
1. Classroom observation is carried by the school inspectors when they visit your school.	10(20%)	40 80%)	50 (100%)
2. School inspection brings about tension and fear to teachers in schools.	44 (8%)	6 (12%)	50 (100%)

Another head teacher from School ‘B’ stated the same that school inspectors did not visit the classrooms for lesson observation and she had this to say during the interview:

School inspectors do not care about classroom observation. They sometimes do it for a very short time up to 20 minutes and sometimes they do not do it at all. As school inspectors are very few compared to the available teachers, they cannot afford to visit all classrooms. What they do is to check the pupils’ exercise books, schemes of work, and lesson plans. This is a big problem as they cannot be able to understand what takes place in the classroom setting and help teachers to improve teaching.

The repeated comments from the teachers on excessive concentration on the professional documents by the school inspectors suggest that classroom observation was rarely carried out, although it is stipulated to be their role that they need to play. The school inspectors evaluated the teachers’ work based on the preparatory stage while overlooking classroom observation which is very important for them to discern the weaknesses that may detrimentally affect teaching and learning.

Creation of fear and tension among teachers

The study was also intended to explore if at all school inspectors created fear and tension among teachers as it has been frequently reported in the literature. The majority of teachers (88%) indicated that school inspection to do so as teachers know that school inspectors have to write the inspection reports on strengths and weaknesses for each one of them (Table 2). During the focus group discussion, teachers mentioned that the experienced fear and tension were contributed by their poor preparation.

When teachers were not well prepared and that school inspectors sometimes visited the schools without notification, then it was obvious that teachers found themselves under tension. A teacher from School 'B' stated during the focus group discussion:

Teachers tend to be under pressure during the school inspection period. The tension and fear are created as some teachers are careless and some do not prepare themselves for teaching. Weak teachers cannot be happy to see the school inspectors as they tend to just put their things right to impress the supervisors. Indeed, this is bad as it is a false kind of respect that has nothing to do with improvement of teaching and learning.

Another teacher from School 'E' wrote in the questionnaire on the same issue that weak teachers usually do not care about their profession and that they only prepare themselves after they hear that school inspectors will visit the school and she stated:

In my view the school inspectors are not supposed to inform the schools of their visits. When they do this, it is the very time when the teachers and the head teachers become busy making preparations. When school inspectors come find things in order and the school can just be evaluated positively while in actual sense it is very poor. After the school inspection week, teachers relax without taking into account the school inspectors' recommendations. This is what makes schools not improve in their pupils' performance.

As it can be observed, the findings indicate that tension and fear occurred when teachers were not well prepared to meet with the school inspectors. Yet, some teachers may work properly and be well organised but seeing that school inspectors are coming and knowing that they are external to the school, at the same time they will write the report on individual teachers' work performance, tension and fear may be experienced.

School inspectors' work conditions

Findings indicated that school inspectors encountered various challenges which affected their work performance. These challenges include; a lack of means of transport to visit their schools, particularly those schools that were located in remote areas. Although school inspectors declared that sometimes the DEO supported them with the means of transport, school inspectors believed that such support was inadequate. This was necessarily the case because the cars from the DEO were provided under

the condition that they had to fill in the fuel in their own expenses. Therefore, because of receiving insufficient budget from the MoEST, school inspectors visited only a few schools. One of the school inspectors stated:

Our department does not have even a single car. We use the DEO's car when visiting the schools. Sometimes the DEO has different programmes which are not compatible with our school inspection timetable. Thus, it becomes very difficult to accomplish our school inspection target as you have no freedom of using the car. The other problem is related to fuel. As we use our own fuel budget in a car that does not belong to us, then the number of litres of fuel that remain after finishing the work are not used for the next day as the DEO might have other activities to perform, so we misuse the fuel that have been allocated for school visits and when we need the car we have to purchase the fuel again.

In connection with the lack of transport, school inspectors reported that they visited the schools without being paid the allowances. Because of this, the school inspectors commented that they only worked because of the fear they had of their bosses. This demoralised them and they explained that were the reasons why they focused on the professional documents rather than classroom teaching observation. One of the school inspectors commented:

Why should one expect me to do my work properly without a caring work environment? I cannot pay the transport fare by using my own salary which can be used to support my children. It is very difficult to expect that I can go to the classroom. What we do is a mere sign-up that we have inspected the schools. This discourages us as we think; the government does not care about the School Inspection Department. The Government needs quality education, but it does not support the school inspectors. How can you expect me to perform in a poor working environment!

These voices from the school inspectors indicate that they were not happy with their work conditions. It is quite impossible for one to expect good performance from a person who is uncertain, who lives under miserable life, and depends on someone else's favour in performing the key duties.

DISCUSSION OF THE FINDINGS

Findings indicated that school inspectors gave some advice to teachers on how to improve teaching but, they did not visit the classroom for lesson observations to check how the teaching and learning took place and that

they concentrated on checking the documents such as the schemes of work, lesson plans, and subject logbooks in judging the work performance of the teacher. To teachers, this was not enough to enable the school inspectors to identify the weaknesses that teachers faced in teaching so that they can improve. Teachers also required more support from the school inspectors, particularly on how to teach difficult topics. As suggested by Earley (1998), Wilcox (2000), MacBeath and Martimore (2001), Ehren, Leeuw and Scheerens (2005), Ehren and Visscher (2008), and Macharia and Kiruma (2014) teaching a particular subject and professional support to teachers could be the added value of the work of the school inspectors to improve the quality of education. Wilcox (2000) and Jaffer (2010) argue that school inspectors are supposed to support teachers with pedagogical skills. This may contribute to teachers' professional development and thereby being able to cope with frequent curriculum changes (Barrett, 2005).

The findings also support what Wilcox (2000) has suggested that if teachers are to be happy to be inspected, they need a school inspector who helps them to teach difficult topics. Thus, school inspectors are challenged to be competent in the subject areas. As argued by Su (2017), teachers are the most precious resources and the soul for the core competencies of the school. Hislop (2017) considers that school inspection is an important instrument for the improvement of school effectiveness. Thus, helping the teacher professionally on how to teach a particular topic could be the value added of the school inspection to school. However, for the school inspectors to help teachers improve, they have to understand that teachers may know better about their strengths and weaknesses and so they can be in a better position to find out the solutions to the problems they encounter. De Grauwe (2007) comments that the school inspector needs to have a mutual understanding and needs to be a facilitator and not a master of what should be done by the teachers. It is, thus, important that teachers are involved in the decision-making and in finding out the solutions they face in their teaching. This may create a feeling of being respected among them and thus improve their work performance. As it has been stated earlier, Leeuw (2002) and Diver *et al.* (2019) recommend the *give-and-take* and *you-too-me-too* reciprocal relationship between the school inspectors and teachers if the aim is to improve pupils' learning.

Judging the work of the teacher based on the collection of the subject logbooks, schemes of work, and lesson plans as it was reported by the teachers in this study is unfair. One may be very good at preparing the materials but not in classroom teaching. Thus, a classroom observation is warranted as far as the improvement of the quality of education is concerned. As observed by Hislop (2017), the focus of the school inspectors needs to be on the improvement side rather than placing sanctions on teachers. As Rogers and Freiberg (1994) suggest, school inspection attention should be on how and what pupils learn. This is because what pupils learn has a great influence on their real-life situations. Black and William (2001), have the common thinking that school inspection practice that tends to ignore classroom observation may not effectively be able to give proper guidelines to improve teaching and learning. Coombe, Kelly, and Carr-Hill (2006) state that teaching and learning are what ultimately make a difference in the minds of the pupils and affect their knowledge, skills, and attitudes that are meaningful to society. For this to be practical, then, classroom observation in the classroom setting has to receive special attention from the school inspectors rather than relying on professional documents.

Lack of field allowances and a means of transport to visit the schools for the school inspectors contributed to their negative feeling. They felt overlooked and powerless to the DEO when they were unable to perform their duties. This limited their work performance in accordance with their action plans for the schools to be inspected. Su (2017), states that improving school inspectors' work conditions may help them improve their monitoring of the teaching and learning. According to Wilcox (2000) and Earley (1998), school improvement in teaching and learning can be largely influenced by the school inspection based on the extent to which the government allocates adequate resources. Gaynor (1998) asserts that school inspection is labour-intensive from the planning process, a compilation of the school inspection reports, report writing, and dissemination of the inspection findings to the key stakeholders. To achieve this, school inspectors need financial resources to undertake their responsibilities one of them being the provision of pedagogical support to teachers.

CONCLUSION AND IMPLICATIONS

This study investigated the school inspection and its impact on teaching

and learning in Tanzania. Evidence from both the head teachers and teachers indicated that school inspectors gave some advice to teachers to improve teaching and learning but, they did not visit the teachers in the classroom setting where they could identify the areas for improvement. Teachers as well wanted to be supported professionally by the school inspectors especially when it comes to teach difficult topics. It was further found that school inspectors created fear among teachers but this was due to poor preparation in the part of the teachers beforehand.

As many countries and Tanzania, in particular, strive for quality education, and that school inspection is seen as a tool for monitoring the educational standards, the Tanzanian Government must ensure that school inspectors are exposed to professional development programmes for them to be able to help the teachers on difficult topics. For this to be in practice, school inspectors have to be trained in respective specific subjects so that they offer a support to teachers on difficult topics. Teachers also have to identify their weaknesses in teaching and learning that need the attention of the school inspectors if they are to be effectively supported. This has an implied meaning that internal evaluation under the head teachers in schools is also required.

Nevertheless, since we live in an optimistic age where education is regarded to have a powerful influence on individuals' well-being and their nations (Brown & Lauder, 2006; Becker, 2006), monitoring the quality of education remains to be a necessary evil. Indeed, for nations to achieve the Sustainable Development Goals (SDGs), especially goal number four that stresses an equitable quality education, governments of the world have to make sure that schools are properly inspected. School inspectors also have to ensure that they perform their key obligations of supporting the teachers so that they improve teaching and learning.

Teaching and learning are considered to be the major means through which teachers' obligation and caring profession can be fulfilled for bestowing values on pupils' unique dreams and best future possibilities achievement (Garrison, 1997). Thus, it is the role of the teachers to help the pupils in actualising their unique potential and their best position in society, which may not take place without proper monitoring of what is taking place in the classroom setting by the school inspectors. For the Government to achieve the improvement of the quality of teaching and

learning in primary schools; school inspectors need to support the teachers to grow as professionals that could improve the academic performance of the pupils and schools in general and provision of financial allowances and means of transport by the Government to the School Inspectorate Department (SID), the now known as Quality Assurance is important.

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Effect of Job Satisfaction on Organizational Commitment: Evidence from Employees of a Special Mission Organization in Rwanda

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ABSTRACT

This study assessed the effect of job satisfaction and demographic characteristics on the organizational commitment of employees (N = 119) in Rwanda. The study adopted a cross-sectional survey design for data collection. Descriptive, correlation, standard, and hierarchical regression analysis techniques were used to carry out the analysis. The effect of intrinsic job satisfaction was positive and significant on overall organizational commitment, continuance, and normative commitment, but negative and significant on affective commitment. The opposite was the case for extrinsic job satisfaction, although the effect on affective commitment was insignificant. The effect of satisfaction with the work environment was positive but only significant on affective commitment and significantly negative on continuance commitment. Job satisfaction dimensions had a significant unique effect on the overall and all the organizational commitment dimensions, even after controlling for the effect of the five demographic characteristics. From the results, it is recommended that for the organization to enhance employees' commitment, management should adopt measures that enhance job satisfaction among them. This study adds to the much-needed empirical evidence from the developing world, but more importantly, from a special mission organizational context, consistent with the interconnectedness of organizations across the globalized world.

Keywords: *Organizational commitment, intrinsic job satisfaction, extrinsic job satisfaction, working environment, special mission organization*

INTRODUCTION

The performance of a service organization, in carrying out its societal obligations depends on, among other factors, its resource endowment, one of which is its human resource (Brown et al., 2016). However, the

contribution of the human resource to the organization's performance depends on how efficient this resource is managed. It is its management that induces various job attitudes among the employees, two of which are their organizational commitment and job satisfaction (Robbins and Judge, 2018). Organizational commitment is an attitudinal relationship between an individual and the organization, representing a relative strength of the individual's psychological identification and involvement with the organization (Mowday et al., 1979). This conceptualization is referred to as affective commitment, with three factors of identification, involvement, and loyalty (Banai et al., 2004). Angle and Perry (1981) added the continuance commitment dimension in which individuals commit to the organization, not necessarily because of their general positive feeling about it, but because of the need to protect their extraneous interests (pensions, family concerns, etc.). Becker (1960) referred to these extraneous interests as "side-bets" or simply the investments that employees make to the organization, the value of which grows with their age and tenure. Employees may, therefore, commit to (stay with) the organization in fear of losing this value. Meyer and Allen (1991) added a third dimension – normative commitment - arguing that individuals may also remain with the organization as an obligation, making the organizational commitment a three-dimensional concept. Subsequently, Meyer and Allen (1997) summarize organizational commitment as follows:

“... individuals who have strong affective commitment remain in the organization because they feel that “they want to”; some with a stronger normative commitment remain because “they ought to”; and those with strong continuance commitment remain because “they need to” (p.11)

Employees' organizational commitment is important because committed employees are a source of organizational performance and efficiency, which in turn leads to productivity enhancements (Gunlu et al., 2010). However, achieving an appropriate level of organizational commitment among employees requires managers not only to identify its antecedents but also to balance them within the organization. Job attitudes are among these antecedents, but the most actively researched of them is job satisfaction (Saridakis et al., 2018).

Locke (1969, p.317) defines job satisfaction as “the pleasurable emotional state resulting from the appraisal of one's job as achieving or

facilitating one's job values." Locke also defines job dissatisfaction as "the unpleasurable emotional state resulting from the appraisal of one's job as frustrating or blocking the attainment of one's job values." It is an affective, emotional reaction to the job resulting from the employees' evaluation of the actual outcomes against the required outcomes (Hirschfeld, 2000), in an attempt to achieve a balance with their work environment (Weiss et al., 1967). Subsequently, Hirschfeld (2000) classified job satisfaction into two dimensions. The first dimension is intrinsic job satisfaction (satisfaction with job tasks such as variety and autonomy). The second is extrinsic job satisfaction (satisfaction with aspects that have little to do with the content of the work itself, such as pay, work condition, and co-worker relations). These two dimensions, together with working conditions and co-worker relations, form the overall job satisfaction (Weiss et al., 1967).

Past studies on the link between job satisfaction and organizational commitment borrowed heavily from both Social Exchange Theory (SET) and the Psychological Contract Theory (PCT). SET posits that there exists a series of interdependent interactions between two parties that generate obligations between them, where one party is obligated to reciprocate with a positive attitude in appreciation of the valued and beneficial resource that they enjoyed from the other part (Blau, 1964; Homans, 1958; Mitchell et al., 2012). PCT, on the other hand, suggests that in a relationship between two parties (e.g., employee and organization), there exists a perception about what the employee believed to be entitled to or should receive from their job beyond what is formally agreed upon (Taylor et al., 2006). The perceptions lead to an exchange relationship, governed by norms of reciprocity and a set of expectations/obligations. The employees fulfil these expectations/obligations in return for the benefits they enjoyed. In an organizational context, therefore, both SET and PCT advocate that an organization that takes care of its employees, leading to higher levels of satisfaction with different facets of the job, receives in return positive employee outcomes such as higher organizational commitment (Cropanzano and Mitchel, 2005). Employees would be satisfied with their job if they feel that their capacities, experiences, and values are being recognized and organized in their work environment and that the work environment offers them commensurate opportunities and rewards (Van Schalkwyk and Rothmann, 2010). Consequently, the employees will reciprocate with a stronger affective commitment towards the organizations if they perceive

that their organization cares for them and if they experience satisfaction with pay, security, autonomy, and career advancements (Chordiya et al., 2017). Both theories suggest that the employee's job satisfaction will positively influence organizational commitment.

The past studies on the link are many, although they cover some sectors more than others. See for example, in education (Abebe and Markos, 2016; Jonathan, Darroux, and Masseur, 2013; Johnathan, Darroux and Thibeli, 2013; Yucel and Bektas, 2012); hotel industry (Garcia-Almeida et al., 2015; Gunlu et al., 2010; Ozturk et al., 2014), medical services (Al-Hussein, 2020; McPhee and Townsend, 1992; Mehdi et al., 2013; Velickovic et al., 2014); IT industry (Lumley et al., 2011); service industry (Azeem 2010); and in manufacturing (Miarkolai and Miarkolai, 2014). However, the empirical evidence so far is highly mixed (Saridakis et al., 2018). Following the diversity of the measures used to measure job satisfaction, this review focused on the studies that used the Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al., 1967), because it is the measure that the present study applied.

Based on a sample of managers of large-scale hotels in Turkey, Gunlu et al. (2010) reported higher intrinsic than extrinsic job satisfaction and higher normative than affective commitment among them. The study also reported significant positive effects of general (overall) job satisfaction and extrinsic job satisfaction on both normative and affective commitment. Besides, extrinsic job satisfaction had the strongest effect on both dimensions of organizational commitment than intrinsic job satisfaction. The intrinsic job satisfaction had a positive but insignificant effect on affective and normative commitment. Continuance commitment was excluded in the analysis for lower Cronbach's alpha ($\alpha = .55$). Miarkolai and Miarkolai (2014) used a sample of staff from the Red Crescent Society's textile industry in the Islamic Republic of Iran. They reported that the general, intrinsic, and extrinsic job satisfaction, each had a significant positive effect on overall organizational commitment as well as on each of its three dimensions. Filiana (2016) reported the strongest correlation between job satisfaction of generation Y employees in Malaysia and affective commitment, followed by normative and continuance commitment. Moreover, Filliana found that different dimensions of job satisfaction (intrinsic and extrinsic) affected organizational commitment and its dimension differently, amplifying the importance of disaggregating the two constructs in research. Al-Hussein

(2020) used a sample of nurses in Iraq with stepwise regression and reported that the total job satisfaction and its two dimensions – intrinsic and extrinsic satisfaction - were significantly positively related to organizational commitment and its dimensions except for the continuance commitment.

Also, the past studies have compared the results on the satisfaction – commitment link between public and private sector employees (Markovits et al., 2010) and across cultures (US vs. India) (Chordiya et al., 2017). Markovits et al. (2010) compared their evidence on the link between public and private sector employees in Greece. They found that intrinsic and extrinsic job satisfaction were significantly positively related to both affective and normative commitment. Moreover, the relationship was stronger for the public than for the private-sector employees, and the results were upheld even after controlling for several factors, including demographic characteristics. They concluded that when intrinsic and extrinsic job satisfaction increase, both affective and normative commitment tend to be higher in public than in private sector employees. Chordiya et al. (2017) found the affective commitment of public sector managers in India to be higher than that of their counterparts in the US. Similar to the other studies reviewed in the present paper, job satisfaction positively and significantly affected affective commitment overall and in the contextual subgroups (India and five US states). The only deviation from the present review is that Chordiya et al. used Mowday et al.'s (1979) affective commitment scale and a one-item job satisfaction measure. One of their conclusions is that job satisfaction has a significant positive effect on affective commitment despite the cultural differences between the two countries (collectivist vs. individualistic culture).

Other past studies either aggregated the MSQ scale (e.g., Kaplan et al., 2012) or the OCQ scale (e.g., Hashmi and Naqvi, 2012; Jonathan Darroux and Massele, 2013) or both (Bennett, 2019). Kaplan et al. (2012) used a sample of hospital employees and reported a significant positive impact of job satisfaction on affective and normative but not on continuance commitment. Hasmi and Naqvi (2012) used a sample of bank employees in Pakistan and reported a positive effect of both intrinsic and extrinsic job satisfaction on organizational commitment, with the former having the strongest effect. Jonathan, Darroux and Maselle (2013) used a sample of teachers from three public secondary

schools in Dodoma, Tanzania. They reported organizational commitment to be significantly positively affected by both intrinsic and extrinsic job satisfaction. Finally, Bennett (2019) reported a significant positive relationship between job satisfaction and organizational commitment, based on a sample of fast-food restaurant employees in the Caribbean.

Of interest to the present study, are studies on the link focusing on special mission/service organizational contexts. However, relatively fewer studies are available generally and even scantier in Africa, particularly in Rwanda. Examples of special organizational context studies are those that focused on long care facility employees (Rai 2012) and assisted living employees (Sikorska-Simmons, 2005). The attraction to the special organizational context studies is that the employees in them need a higher commitment to the organizations' mission for it to be fulfilled. Rai (2012) used fifteen items derived from Warr, Cook and Wall (1980) to measure job satisfaction and Mowday et al. (1979) nine out of the fifteen items to measure organizational commitment. Rai reported job satisfaction to have a significant positive effect on organizational commitment even after controlling for the effects of demographic variables (i.e., age, gender, marital status, education, tenure, workload, and ethnicity). The study also included in the model other predictors such as facility size and social support. Yet, job satisfaction emerged as the strongest predictor of organizational commitment. In the second study, Sikorska-Simmons (2005) used three items from Cammann et al. (1979) and Seashore et al. (1982) to measure Job satisfaction and nine items from Cook and Wall (1980) to measure organizational commitment. Sikorska-Simmons reported job satisfaction to have a significant positive relationship with organizational commitment. Both studies, therefore, suggest that job satisfaction is also an important predictor of the organizational commitment of employees in special mission organizations.

The present study generally attempted to fill this contextual empirical gap in the satisfaction-commitment link by providing empirical evidence from a frontier country in Africa - Rwanda. The need to extend studies to other contexts is grounded on previous studies' suggestions that affective commitment, for example, varied with employees' satisfaction with aspects of the work context. In cross-national comparative studies like Choridya et al. (2017), it is shown that affective commitment is significantly higher among Indian public managers than among US

public managers. Saridakis et al. (2020) called for further research on the satisfaction-commitment link in different cultural contexts as it will improve the understanding of the nature of the relationship. Specifically, the present study extends the investigation into the satisfaction-commitment link in special mission/service organizational contexts by providing empirical evidence from a sample of employees of a special mission organization in Rwanda (The National Commission for the Fight Against Genocide - CNLG). Constitutionally created in 2007 as a National Commission, CNLG's mission is to prevent and fight against Genocide, as well as to address its consequences both inside and outside the country through its attributions. Its mission implies that society places high expectations on it, making it a natural contextual avenue for studying job attitudes, e.g., organizational commitment and job satisfaction. These expectations, in many ways, can be attained if employees are committed to the organization and/or its course. CNLG was, therefore, chosen because it provides specific services to citizens who were affected by the genocide and are dealing with its aftermath. Operationally, CNLG is headquartered in Kigali, with one coordination centre in every two districts (15 district centres covering all 30 districts). Besides, CNLG also runs a research centre in Kigali responsible for "Gacaca" documentation.

The present study, therefore, pursued several objectives. Firstly, the study assessed the levels of both organizational commitment and job satisfaction among CNLG employees. Secondly, it established the effect of job satisfaction (and its facets) on CNLG employees' organizational commitment (and its facets). The disaggregation of organizational commitment into its dimensions is consistent with the two calls in Saridakis et al. (2020). Firstly, future research should consider the three-dimensional conceptualization of organizational commitment to gain a complete picture of the satisfaction-commitment relationship. Secondly, focusing on particular measures of job satisfaction and organizational commitment will enhance the comparison of findings to past empirical studies. Consistent with the last call, this study's literature review focused more on the studies that used the MSQ to measure job satisfaction. Disaggregating both job satisfaction and organizational commitment is a methodological extension of past studies on the link in the special mission organizational contexts. The Social Exchange Theory, as well as the Psychological Contract Theory, was used as a basis for the expected relationship between the two job attitudes. The

organizational commitment would develop among CNLG employees as their reciprocation in return for their feeling of being satisfied with various aspects of their job.

Lastly, the study established the unique contribution of job satisfaction and its facets in explaining the variance in organization commitment overall and each of its three dimensions after controlling for a range of demographic variables. This step was motivated by past research (e.g., Gasengayire and Ngatuni, 2019; Makovits et al., 2010; Rai, 2012). In Gasengayire and Ngatuni (2019), age had a positive and significant effect on overall organizational commitment and its three dimensions. Gender and marital status had negative and significant impacts on overall commitment and all its dimensions except the affective commitment dimension. Working experience negatively (positively) and significantly affected affective (continuance) commitment. Education, on the other hand, had an insignificant effect on overall commitment and all three dimensions. Besides, Rai (2012) and Markovits et al. (2010) controlled for the impacts of the demographic variables in their estimation of the effect of job satisfaction on organizational commitment, and the effect of job satisfaction survived.

From the preceding literature review, an operational conceptual model was developed (Figure 1). Unlike in the past studies where the MSQ was used with two subdimensions (intrinsic and extrinsic job satisfaction) covering 18 out of the 20 items, this study used a third dimension – work environment (working conditions and workers relations). Thus, six hypotheses were developed and tested from the conceptual model.

- H1 Intrinsic job satisfaction significantly positively affect organizational commitment and its three dimensions
- H2 Extrinsic job satisfaction significantly positively affect organizational commitment and its three dimensions
- H3 Satisfaction with the working environment significantly positively affect organizational commitment and its three dimensions
- H4 Intrinsic job satisfaction significantly positively affect organizational commitment and its three dimensions after controlling for the effects of a range of demographic variables.
- H5 Extrinsic job satisfaction significantly positively affect organizational commitment and its three dimensions after controlling for the effects of a range of demographic variables.

H6 Satisfaction with the working environment significantly positively affect organizational commitment and its three dimensions after controlling for the effects of a range of demographic variables.

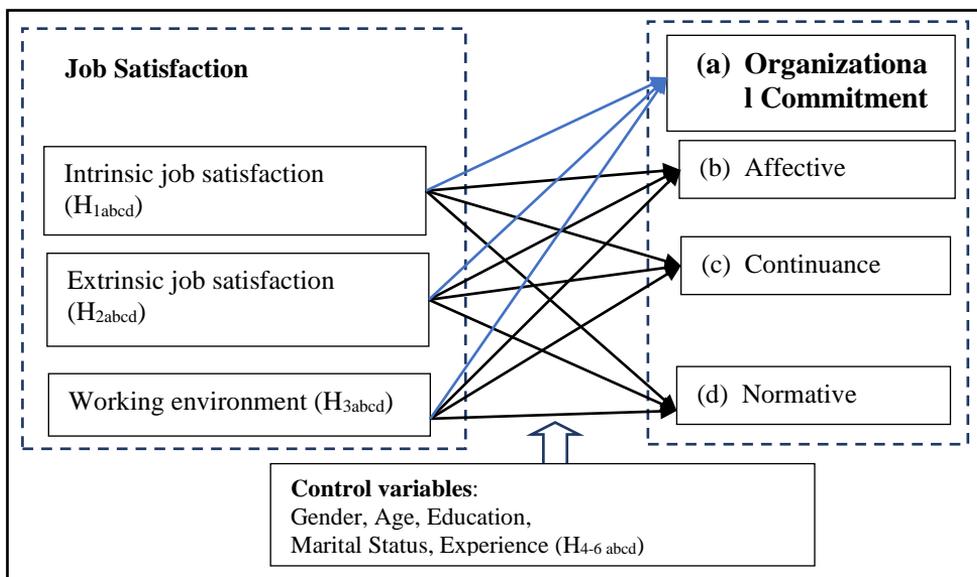


Figure 1. The conceptual model

METHODOLOGY

The study adopted a quantitative cross-sectional survey design using a structured questionnaire to collect data on the study variables from CNLG employees. At the time of the survey, CNLG had a workforce of 135 employees. Sixty-eight of them worked at the headquarters, 35 at the Research Centre, and 32 in the Coordination Centres. To gauge against the threats of possible sampling inadequacy, all 135 employees were targeted. Tabachnick and Fidell (2013, p.123) recommend a minimum sample size of 90 cases for multiple regression analysis with eight predictor variables.

Measures

Job satisfaction: Job satisfaction was measured by the short form of the Minnesota Satisfaction Questionnaire (MSQ) of Weiss *et al.* (1967) with 20-items. MSQ has been widely validated in different contexts including in South Africa by Buitendach and Rothmann (2009) and used in many studies, e.g. Gunlu *et al.* (2010), Jonathan, Darroux and Masselle (2013),

Hasmi and Naqvi (2012), Miarkolaei and Miarkolaei (2014), Bennett (2019), Markovits *et al.* (2010), etc., with acceptable reliability statistics. The MSQ is now available for free under the Creative Commons Attribution – Non-Commercial 4.0 International License and can be used for research without prior consent subject to proper acknowledgement of the Vocational Psychology Research (VPR) of the University of Minnesota¹. Its 20 items can be disaggregated into intrinsic job satisfaction (INJS) (12 items), extrinsic job satisfaction (EXJS) (6 items) and the last two (2) related to working conditions and co-worker relations are added to the intrinsic and extrinsic job satisfaction to measure the general/overall job satisfaction (OJS). In this study, the items for working conditions and co-worker relations are also summed up to form a third construct – working environment (WE), which is assessed to see whether it also affects organizational commitment and its dimensions. Participants were requested to rate their level of agreement with the items on a five-point Likert-type scale ranging from 1= totally dissatisfied to 5 = totally satisfied. Cronbach’s alphas for intrinsic, extrinsic, overall job satisfaction and satisfaction with the working environment were respectively 0.850, 0.849, 0.910, and 0.738 (Table 3), indicating acceptable to excellent internal consistency (George and Mallery, 2019, p.244; Hair *et al.*, 2019). The scores on the items were averaged in each sub-scale across participants to obtain the participant’s mean (index) score.

Organizational commitment: The Organizational Commitment Questionnaire (OCQ), originally developed by Mowday *et al.* (1979) with 15 items, was adopted to measure organizational commitment. Respondents rated their agreement with each item on a 7-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree, where a higher score indicated a higher commitment to the organization. Deleting one item on the continuance scale led to Cronbach’s alpha coefficients: organizational commitment (OC) (14) = .721; Affective commitment (AC) (5) = .780; Continuance commitment (CC) (4) = .777; and Normative commitment (NC) (4) = .797 (Table 3) indicating acceptable internal consistency (George and Mallery, 2019; Hair *et al.*, 2019). Mean scores were computed across the organizational commitment and each of its sub-scales, for each participant.

¹<http://vpr.psych.umn.edu/instruments/msq-minnesota-satisfaction-questionnaire> (Accessed, 27th September 2019)

Demographic variables: Participants' demographic characteristics were captured as follows: gender (1 if male, 0 otherwise); age (1 if >35 years, 0 otherwise), and the highest level of education (1 if 20 years of schooling, 0 otherwise). In Rwanda, these groups translate to Master's and bachelor's degree awards, respectively. Other demographic characteristics were marital status (1 if married or divorced, 0 otherwise), and finally, working experience (1 if ≥ 2 years, 0 otherwise). These were used for two purposes – to describe the sample and to serve as control variables (El-Dief and El-Dief, 2019).

ANALYSIS

Descriptive statistics were computed for the overall and each subscale of organizational commitment. These were interpreted into low, moderate, and high levels of organizational commitment, following Albdour and Altarawneh's (2014) cut-off points of < 2.8 , $2.8 - 4.9$; and > 4.9 , respectively, having been translated from their five-point to a seven-point rating scale. Pearson correlation analysis was run on both organizational commitment and the predictor variables. The first purpose was to check for the correlation between pairs of the organizational commitment items. Cohen (2014) recommends that the three dimensions are correlated to each other. The second purpose is to ensure that the no-multicollinearity assumption in the predictor variables was met; i.e., $r < |.9|$) (Pallant, 2016). The collinearity diagnostics returned a $VIF < 5$. Rogerson (2001, p.139) recommend that beyond this value, multicollinearity problems would be suspected. The third purpose was to test for the linearity assumption between the dependent and predictor variables. Pallant (2016) suggest that linearity between dependent and independent variables will prevail if about 30 percent of the coefficient of correlations $r > |.3|$. Outliers were tested by a combination of Mahalanobis distance, Cook's distance, and Leverage values. Normality was tested using Shapiro Wilk's technique. Homoscedasticity assumption in the residuals was tested using Breusch-Pagan LM and Koenker techniques (Hayes and Cai, 2007).

Standard multiple regression analysis (Equation 1) was used to test the first three hypotheses, each with four sub hypotheses. Four models based on the dependent variables, defined by the type of commitment, were run to test the three hypotheses.

$$Y_i = \beta_0 + \beta_1 INJS + \beta_2 EXJS + \beta_3 WE + \varepsilon \quad (1)$$

where Y is the dependent variable taking the values of organizational commitment (OC), affective commitment (AC), continuance commitment (CC), and normative commitment (NC), depending on the commitment model. β_1 to β_3 are the coefficients of interest, which are used to determine whether a job satisfaction dimension has a significant effect on the OC or its dimensions at the .05 level, holding the other dimensions constant. The multiple regression analysis was followed by a Hierarchical Multiple Regression (Equation 2). The purpose was to estimate the unique contribution of job satisfaction dimensions in explaining the variance in organizational commitment and its dimensions beyond the effects of the selected demographic variables (the remaining three hypotheses, also each with four sub hypotheses).

$$Y_i = \beta_0 + \beta_1 INJS + \beta_2 EXJS + \beta_3 WE + \beta_4 Gen + \beta_5 Age + \beta_6 Educ + \beta_7 MS + \beta_8 Exp + \varepsilon \quad (2)$$

RESULTS

Description of the Participants

One hundred and nineteen usable questionnaires were returned and retained for analysis – an 88.1 percent response rate. The results (Table 1) show that about two-thirds of the respondents were male and 35 years old or younger, consistent with the post-genocide social-political situation in the country. The majority (about 82.6 percent) had bachelors' qualifications (18 years of formal schooling). Half of the participants were singles, while the rest were either married or divorced. Consistent with the post-genocide situation, slightly above two-thirds of the participants had worked for CNLG for two or more years. Over three-quarters of the participants worked at headquarter and the research centre, both located in Kigali; the rest worked at the district centres.

Table 1. Description of the sample

Variable	Frequency	Percentage
Gender (<i>n</i> = 119)		
Male	74	62.2
Female	45	37.8
Age (<i>n</i> = 118)		
≤ 35 years	79	66.9
> 35 years	39	33.1
Years of formal schooling (<i>n</i> = 115)		
18 years	95	82.6
20 years	20	17.4
Marital Status (<i>n</i> = 116)		
Single	58	49.2
Married or divorced	60	50.8
Experience (<i>n</i> = 116)		
< 2 years	35	30.2
≥ 2years	81	69.8
Working station (<i>n</i> = 119)		
Headquarters and Research Centres	87	73.1
District centres	32	26.9

Descriptive statistics for the attitudinal variables

Descriptive statistics for both organizational commitment and its dimensions (7-point response ratings) and job satisfaction and its dimensions (5-point rating points) are presented in Table 2. All mean scores for the organizational commitment scales were above 4.9 (Albdour and Altarawneh, 2014), with standard deviation varying from .47 to .95, implying that organizational commitment was relatively high among the employees of CNLG. Affective commitment recorded the highest commitment score. All mean scores for job satisfaction and its dimensions ranged from 3.1 to 3.3 and fell into the 2.0 to 3.5 range (Albdour and Altarawneh, 2014), implying that the CNLG employees were moderately satisfied with their job. Extrinsic job satisfaction had the highest mean score (M=3.28, SD = 0.398) followed by intrinsic job satisfaction (M=3.24, SD = 0.406).

Table 2. Descriptive statistics

	N	Min.	Max.	Mean	S.D.
Overall organizational commitment	118	4.36	6.43	5.720	0.470
Affective Commitment	119	3.80	7.00	6.069	0.554
Continuance commitment	118	2.75	6.25	5.589	0.952
Normative Commitment	119	3.00	6.00	5.466	0.776
Overall job satisfaction	115	2.85	3.95	3.239	0.376
Intrinsic job satisfaction	116	2.58	4.00	3.240	0.406
Extrinsic job satisfaction	118	2.83	4.00	3.280	0.398
Working environment	119	2.00	4.00	3.143	0.545

Correlation Analysis and other diagnostic tests

Pearson correlation analysis results involving the two job attitudes and the demographic variables are presented in Table 3. Affective commitment was significantly negatively correlated with continuance commitment ($r = -.37, p < .001$) and also negatively but not significantly correlated with NC ($r = -.17, p > .05$). These were moderate and low correlations, respectively (Cohen 1988). Correlation between continuance commitment and normative commitment was strong, positive and statistically significant ($r = .60, p < .001$).

These results lend support to Cohen's (2014) argument that the three dimensions should be correlated. The results are also consistent with the expectation that when employees are affectionately and emotionally attached to the organization and its mission, they will be less likely to commit as an obligation or in fear of losing the side bets. Similarly, employees who commit as an obligation, are also likely to commit for fear of losing everything they had enjoyed from the organization, which made them feel obligated, hence the positive relationship between normative and continuance commitment. For the linearity assumption, at least two predictors are moderately correlated ($r > |.3|$) with the dependent variables (Pallant 2016), implying support for the assumption. For the no-multicollinearity assumption, the highest correlation is between intrinsic and extrinsic job satisfaction ($r = .762, p < .001$), which is lower than the $r < .9$ cut-off recommended in Pallant (2016), beyond which multicollinearity problem would have been a concern. The collinearity

Table 3. Correlation and Reliability Analysis

	1	2	3	4	5	6	7	8	9	10	11	12
1 OC	(0.72)											
2 AC	.104	(0.78)										
3 CC	.775**	-.373**	(0.78)									
4 NC	.862**	-.172	.602**	(0.80)								
5 OJS	.143	-.362**	.274**	.253**	(0.91)							
6 INJS	.288**	-.466**	.465**	.385**	.958**	(0.85)						
7 EXJS	-.162	-.197*	-.059	-.060	.899**	.762**	(0.85)					
8 WE	.016	.093	-.116	.088	.652**	.491**	.613**	(0.74)				
9 Gen	-.377**	.091	-.359**	-.360**	-.090	-.140	-.055	.205*	–			
10 Age	.395**	.148	.241**	.332**	-.138	-.116	-.284**	.174	-.005	–		
11 Educ.	-.029	-.136	.087	-.032	.102	.127	.088	.068	.031	.009	–	
12 M/S	-.263**	.108	-.109	-.425**	-.342**	-.360**	-.276**	-.114	-.144	.294**	-.024	–
13 W/Exp.	.092	-.198*	.220*	.079	-.217*	-.086	-.353**	-.415**	-.011	.182	.113	-.059

*. $p < 0.05$ level (2-tailed); **. $p < 0.01$ level (2-tailed).

OC = Overall organizational commitment, AC = Affective commitment, CC = Continuance commitment, NC Normative commitment, OJS = overall job satisfaction, INJS = Intrinsic job satisfaction, EXJS = Extrinsic job satisfaction, WE = working environment (sum of working condition and coworker indicators), Gen = gender, Educ. = educational qualification, M/S = Marital status, W/Exp = working experience

These results lend support to Cohen's (2014) argument that the three dimensions should be correlated. The results are also consistent with the expectation that when employees are affectionately and emotionally attached to the organization and its mission, they will be less likely to commit as an obligation or in fear of losing the side bets. Similarly, employees who commit as an obligation, are also likely to commit for fear of losing everything they had enjoyed from the organization, which made them feel obligated, hence the positive relationship between normative and continuance commitment. For the linearity assumption, at least two predictors are moderately correlated ($r > |.3|$) with the dependent variables (Pallant 2016), implying support for the assumption. For the no-multicollinearity assumption, the highest correlation is between intrinsic and extrinsic job satisfaction ($r = .762, p < .001$), which is lower than the $r < .9$ cut-off recommended in Pallant (2016), beyond which multicollinearity problem would have been a concern. The collinearity diagnostic returned variance inflation factors (VIFs) ranging from 1.04 to 3.97, all below the recommended cut-off of $VIF = 5.0$ (Rogerson, 2001; 139).

Against the cut-off points by Mahalanobis distance, Cook's distance, and leverage values, none of the cases had at least two of the values higher than the respective cut-off points for an undue influence of outlier values to be suspected. The Shapiro Wilk's test returned statistics of between .55 and .84, $p < .001$, suggesting a violation of the normality assumption. However, Pallant (2016) indicates that many statistical tests are tolerant of the violation of this assumption when the sample size is reasonably large ($n > 30$). The Breusch-Pagan LM and Koenker techniques (Hayes and Cai, 2007) returned significant statistics ranging from $p < .05$ to $p < .001$ depending on the dependent variable used, indicating a violation of the homoscedasticity assumption. Thus, the study reports heteroscedasticity – robust standard errors as a mitigation of the problem.

Multiple regression analysis results

Four standard multiple regression analysis models based on Equation 1 were run to assess the effect of job satisfaction dimensions on the overall commitment and its dimensions. All models were significant at $p < .001$ and explained about 40 percent ($F(3,110) = 43.24, p < .001$), 35.4 percent ($F(3,110) = 65.43, p < .001$), 58.5 percent ($F(3,110) = 111.67, p < .001$), and 42.58 percent ($F(3,111) = 28.11, p < .001$) of the variance in overall,

affective, continuance and normative commitments, respectively (Table 4).

Intrinsic job satisfaction significantly positively affected the overall organizational commitment ($b = 1.06, t = 10.94, p < .001$), continuance commitment ($b = 2.67, t = 18.18, p < .001$), and normative commitment ($b = 1.86, t = 8.95, p < .001$), but negatively and significantly affected affective commitment ($b = - 1.027, t = - 10.20, p < .001$). Extrinsic job satisfaction significantly and negatively affected overall organizational commitment ($b = - 1.09, t = - 7.74, p < .001$), continuance commitment ($b = - 1.89, t = - 9.99, p < .001$), and normative commitment ($b = - 1.708, t = - 7.46, p < .001$). Its effect on affective commitment was positive but insignificant ($b = 0.18, t = 0.84, p = .403$).

Satisfaction with working environment insignificantly positively affected the overall commitment ($b = .129, t = 1.527, p = .151$) and normative commitment ($b = 0.245, t = 1.820, p = .174$); but significantly positively affected affective commitment ($b = .369, t = 2.66, p = .009$), and significantly negatively affected continuance commitment ($b = - 0.298, t = - 3.51, p < .001$). Comparatively, intrinsic job satisfaction explained more of the variance in affective commitment, ($\beta = - 0.746$), continuance commitment ($\beta = 1.165$), and normative commitment ($\beta = .977$), while extrinsic job satisfaction explained more of the variance in the overall commitment ($\beta = -.937$).

Table 4. Multiple regression analysis results

Variable	OC		AC		CC		NC	
Constant	5.467	***	7.632	***	4.102	***	4.287	***
Intrinsic job satisfaction	1.063	***	-1.027	***	2.671	***	1.860	***
Extrinsic job satisfaction	-1.093	***	0.181		-1.890	***	-1.708	***
Working Environment	0.129		0.369	**	-0.298	***	0.245	
R ²	40		35.4		58.5		42.58	
F	43.24	***	65.43	***	111.67	***	28.11	***

*. $p < .05$; **. $p < .01$; ***. $p < .001$

Notes: coefficients are based on heteroskedasticity-robust standard errors (Hayes and Cai, 2007)

OC = Overall organizational commitment; AC = Affective commitment; CC = Continuance commitment; NC = Normative commitment.

Hierarchical Regression Results

Hierarchical multiple regression (HMRA) was used to assess the ability of the three components of job satisfaction (intrinsic, extrinsic and work environment) to predict the levels of organizational commitment and each of its components after controlling for the influence of the five demographic variables – gender, age, marital status, education, and experience (Table 5).

For the overall organizational commitment, the five demographic variables were entered at Step 1 and explained 50.8% of its variance, $F(5,106) = 21.93, p < .001$. With the three job satisfaction components entered at Step 2, the full model explained 74.4% of the variance in overall commitment, $F(8,103) = 37.42, p < .001$. The three components of job satisfaction explained an additional 24% of the variance in organizational commitment after controlling for gender, age, marital status, education and working experience, $\Delta R^2 = .24, \Delta F(3,103) = 31.59, p < .001$. The intrinsic job satisfaction positively and significantly affected overall commitment ($b = .87, t = 8.62, p < .001$) while extrinsic job satisfaction negatively and significantly affected the overall organizational commitment ($b = -1.03, t = -8.74, p < .001$). Satisfaction with the work environment had a positive but insignificant effect ($b = .05, t = .68, p = .499$). Extrinsic job satisfaction was the most influential predictor (beta = .868) than intrinsic satisfaction (beta = -.748, $p < .001$).

Table 5. Hierarchical regression

Variable	Step 1				Step 2			
	OC	AC	CC	NC	OC	AC	CC	NC
1 Constan t	6.07***	6.11***	5.88***	6.21***	6.59***	8.03***	4.62***	6.61***
2 Gen	-.43***	.12	-.77***	-.72***	-.38***	-.12	-.38**	-.64***
3 Age	.54***	.20	.57**	.88***	.38***	.12	.46**	.60***
4 Educ.	-.034	-.17	.19	-.06	-.03	-.09	.11	-.08
5 M/S	-.46***	.06	-.45**	-1.01***	-.38***	-.17	-.07	-.86***
6 W/Exp.	-.04	-.26*	.29	-.10	-.23***	-.10	-.24	-.34***
7 INJS					.87***	-1.14***	2.73***	1.41***
8 EXJS					-1.03***	.25	-1.87***	-1.62***
9 WE					.05	.35***	-.46**	.15
R ²	.51	.10	.27	.61	.74	0.4	.72	.83
R ² - Change					.24***	.30***	.45***	.22***
Model F	21.93***	2.32*	7.95***	33.4***	31.59***	8.53***	33.59***	62.31***

*. $p < .05$; **. $p < .01$; ***. $p < .001$

Notes:

OC = Overall organizational commitment; AC = Affective commitment; CC = Continuance commitment; NC = Normative commitment. INJS = Intrinsic job satisfaction, EXJS = Extrinsic job satisfaction, WE = working environment (sum of working condition and co-worker indicators), Gen = gender, Educ. = educational qualification, M/S = Marital status, W/Exp. = working experience

The five personal variables entered at Step 1 explained only 10% of the variance in the affective commitment, $F(5,105) = 2.32, p = .048$. When job satisfaction components were entered at Step 2, the model as whole explained 40% of the variance in affective commitment, $F(8,103) = 8.53, p < .001$. The three components of job satisfaction at Step 2 explained an additional 30% of the variance in affective commitment $\Delta R^2 = .30, \Delta F(3,103) = 17.12, p < .001$. Intrinsic job satisfaction had a significant negative effect ($b = -1.14, t = -6.25, p < .001$) while work environment had a significant positive effect on affective commitment ($b = .35, t = 2.75, p = .007$). Extrinsic job satisfaction had positive but insignificant effect ($b = 0.25, t = 1.19, p = .239$). Intrinsic job satisfaction was the most influential factor ($\beta = -.83, p < .001$) than work environment ($\beta = .35, p < .01$). These results imply that extrinsic job satisfaction has a positive but insignificant effect on affective commitment, whereas intrinsic job satisfaction and work environment respectively statistically negatively and positively affected affective commitment beyond the effect of the demographic variables.

For the continuance commitment model, the five demographic variable entered at Step 1 explained only 27.3% of the variance, $F(5,106) = 7.95, p < .001$. When the job satisfaction components were entered at Step 2, the total variance explained by the model as a whole was 72.3 ($F(8,103) = 33.59, p < .001$). The three components of job satisfaction explained an additional 45% of the variance in continuance commitment after controlling for the effects of the demographic variables, $\Delta R^2 = .45, \Delta F(3, 103) = 55.79, p < .001$. Intrinsic job satisfaction positively and significantly affected continuance commitment ($b = 2.73, t = 12.85, p < .001$). Extrinsic job satisfaction ($b = -1.87, t = -7.57, p < .001$) and satisfaction with the work environment ($b = -.46, t = 3.08, p = .003$) had significant negative effect on continuance commitment, with intrinsic job satisfaction having the most influence ($\beta = 1.16, p < .001$), followed by extrinsic satisfaction ($\beta = -.782, p < .001$) and work environment ($b = -.265, p = .003$). These results imply that intrinsic job satisfaction have a

negative effect while both extrinsic job satisfaction and satisfaction with work environment had significant negative effects on continuance commitment beyond the effects of the demographic variables.

For the normative commitment, the five demographic variables entered at Step 1 explained 61.2% of the variance in it, $F(5,106) = 33.44$, $p < .001$. With the components of job satisfaction entered at Step 2, the model as a whole explained 82.9% of the variance in normative commitment ($F(8,103) = 62.31$, $p < .001$). The three components of job satisfaction explained an additional 21.7% of the variance in normative commitment having controlled for the effects of the demographic variables $\Delta R^2 = 21.7\%$, $\Delta F(3,103) = 43.45$, $p < .001$. Intrinsic job satisfaction positively and significantly affected normative commitment ($b = 1.41$, $t = 10.38$, $p < .001$). Extrinsic job satisfaction on the other hand, negatively and significantly affected normative commitment ($b = -1.62$, $t = -10.19$, $p < .001$). However, satisfaction with work environment had a positive but insignificant effect on normative commitment ($b = .15$, $t = 1.59$, $p = .115$), extrinsic job satisfaction having the most influence ($\beta = -.828$, $p < .001$), followed by intrinsic satisfaction ($\beta = .737$, $p < .001$). These results imply that intrinsic job satisfaction had a positive effect while extrinsic job satisfaction had significant negative effects on normative commitment beyond the effects of the demographic variables.

Discussion

The first objective of the study was to estimate and evaluate the level of organizational commitment and job satisfaction among CNLG's employees. The study found that employees were highly committed to the organization, irrespective of how it was measured. The affective commitment was the highest, followed by continuance and normative commitments. The results are consistent with those of Markovits et al. (2010) but contradict those of Gunlu et al. (2010). Despite this inconsistency, the findings are useful for CNLG. The nature of its mission requires employees who are more affectionately and emotionally committed to the organization and its mission. CNLG employees were also found to be moderately satisfied with their job, though more with extrinsic than with intrinsic aspects. Similar inconsistencies were found when compared with Markovits et al. (2010) and Gunlu et al. (2010). However, they show that employees are more satisfied with such aspects as pay and co-worker relations. They may also imply that CNLG is doing its best in having in place rewarding and supportive workers relations.

The finding also shows that affective commitment is negatively related to the continuance and normative commitment. This finding is important as it indicates that employees are highly committed not because of personal gains or the feeling of obligation for what the organization offers them but because of the emotional and affectionate attachment to it and its mission. The more affection they develop, the less continuance and normative commitment they develop.

The second objective was to assess the effect of job satisfaction on employees' organizational commitment. Intrinsic job satisfaction significantly and positively affected organizational commitment and both the continuance and normative commitment, supporting hypotheses H1a,c,d. The effect was negative and significant for affective commitment, failing to support hypotheses H1b. Besides, extrinsic job satisfaction significantly and negatively affected overall and both continuous and normative commitment, the opposite of Hypotheses H2a,c,d but not H2b. Comparing the two, extrinsic job satisfaction was more influential in explaining variance in overall and normative commitment.

On the other hand, intrinsic job satisfaction explained more of the variance in affective commitment and continuance commitment. The relative importance of the predictors changed depending on the dependent variable being used in the regression model. These findings are as mixed as those reported in earlier studies like Gunlu et al. (2010), Markovits et al. (2010), and Miarkolai and Miarkolai (2014). However, they lend support to the observation by Filiana (2016), who argued that the components of job satisfaction affect organizational commitment and its dimensions differently. As for the CNLG, the more the employees are intrinsically satisfied with the job, the more they become committed in terms of side bets and obligations but not affectionately or emotionally. Satisfaction with the working environment (working conditions and co-worker relations) positively and significantly affected affective commitment but significantly negatively affected continuous commitment. Past studies have included the two items in this measure in general (overall) job satisfaction. This study has treated them as a separate predictor and established that the working environment also has a significant effect on both affective and continuance commitment but in the reverse direction. Only hypothesis H3b was supported.

The last objective was to establish the unique contribution of job satisfaction dimensions on organizational commitment and its dimensions after controlling for the influence of the demographic variables of gender, age, education, marital status, and working experience. All except education significantly affected overall commitment as well as the normative commitment. Besides, gender and age also significantly affected continuance commitment. Thus, the study controlled for these effects in the regression estimations. Only the significance of the effect of marital status and working experience on affective and continuance commitment respectively was altered. Still, the significance of the effect of job satisfaction dimensions did not change. The incremental contribution in explaining the variance in overall organizational commitment was 24 percent and varied from 22 to 45 percent, depending on the commitment dimension used. Therefore, hypotheses H4 to H6 were supported.

Conclusions and recommendations

The study is not without limitations. It used a homogeneous sample of employees from a single organization, despite being operational in all geographic districts of the country. Thus, although the results can be generalized across the organization, they cannot be generalized to the Rwandan working population or all special mission organizations in Rwanda. The study also used self-reported ratings by employees, which may lead to common method biased results. Measures to reduce this bias included encouragement of voluntary participation, ensuring anonymity, reporting in aggregate, and giving the respondents an option to bolt out should they feel uncomfortable partaking in the study. The study tested the effect of just one job attitude as a predictor, i.e., job satisfaction. However, in the context of the two theories used, commitment can arise as a reciprocal reaction from employees following the feeling of other job attitudes like perceived organizational support (managerial and supervisory), perceived psychological contract breach, motivation, trust, perceived organizational politics, etc. Consequences of organizational commitment such as turnover intention, performance, etc. need investigation in these contexts; thus, the study recommends further research in these areas as well as using a more inclusive sample in Rwanda to expand our understanding of organizational commitment – its antecedents and consequences.

Despite such limitations, the study made the following contributions: It contributes empirical evidence to the organizational commitment literature from a frontier market – Rwanda. Besides, it adds evidence to the link between job satisfaction and organizational commitment from special mission organizations along the lines of Rai (2012) and Sikorska-Simmons (2005). To these organizations, the commitment of employees is paramount for the attainment of their missions. The findings also add value to the application of the social exchange and psychological contact theories. The study also established a unique contribution of job satisfaction in explaining the variance in organizational commitment adding to the works of Rai (2012) and Markovits et al. (2010). Establishing the effect of satisfaction with the work environment separate from intrinsic and extrinsic job satisfaction is new. Unfortunately, the results are as mixed as those reported in past studies on the two job attitudes. The findings have a practical implication for human resource managers in that to elicit commitment from employees, measures to enhance their job satisfaction are important while leveraging their demographic characteristics. Overall, the study recommends that for CNLD to achieve higher commitment among its employees, management should adopt measures capable of enhancing job satisfaction among them.

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Perceptions and Practices of Heads of Schools' Instructional Leadership in Public Secondary Schools in Biharamulo District, Tanzania

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ABSTRACT

The study aimed at examining the perceptions and practices of heads of schools' instructional leadership in public secondary schools in Biharamulo district, Tanzania. A concurrent triangulation design using a sample of 75 was used. Data were collected using questionnaires for teachers, Focus Group Discussions (FGDs) for heads of schools and interviews for district secondary education officers. The quantitative data from questionnaires was analyzed using descriptive statistics while the qualitative data from interviews and FGDs were analyzed through thematic techniques. The study found that heads of schools perceived instructional leadership in terms of showing right direction about the teaching and learning process, ensuring the presence of teaching and learning resources and enhancing teachers' teaching capacity. The study also found that heads of schools practiced instructional leadership in terms of supervising preparation of schemes of work and lesson plans, providing teaching and learning resources, promoting programme development, and in some occasions visiting teachers in classrooms. Furthermore, the study revealed that heads of schools' instructional leadership is affected by lack of financial support, lack of training, teachers' negligence, and heavy workload. Finally, the study recommends regular in-service trainings to be organized for heads of schools and more research to be carried out to examine the extent to which heads of schools employ instructional leadership practices.

Keywords: *Heads of schools, Instructional leadership, Perceptions, Practices, Tanzania*

INTRODUCTION

While considering quality education being pivotal, the importance of instructional leadership is considered a major ring to run the change and

educational development (Musaazi, 1988). A greater number of scholars agree that instructional leadership is the key to creating an effective teaching and learning environment (Pustejovsky, Spillane, Heaton & Lewis, 2009; Hallinger & Walker, 2014). That means schools are seen as drivers in the process to change the existing educational productivity to a more desired one. Indeed such change depends mainly on the ability of instructional leaders to analyze existing conditions and plan practical strategies in order to attain future desired goals (Ubben & Larry, 1997). The instructional leadership is defined as an educational leadership that focuses on the core responsibility of the teaching and learning process (Hallinger & Walker, 2014).

In the United States of America, Doss and Tosh (2019) carried out a qualitative study to establish teacher perceptions of principals and principal self-perceptions toward school leadership. Findings indicated that principals as immediate instructional leaders perceived the instructional leadership role to include framing and communicating school goals and mission, creating shared expectations of high performance, clarifying roles and objectives, and promoting professional development. However, teachers rated principals lower on important leadership practices than when principals rated themselves. The observed mismatch in perceptions creates an information gap which this paper sought to address. Sisman (2016) conducted a study in Turkey on the factors related to instructional leadership perception and effect of instructional leadership on organizational variables using a meta-analysis research methodology. The study revealed that heads of schools were familiar with the concept of instructional leadership.

Onuma (2016) studied the principals' performance of supervision of instructions in secondary schools in Nigeria. The descriptive survey design was used. Only questionnaires used to collect data from a sample of 605 teachers that obtained through a stratified proportionate sampling. The study revealed that heads of schools' instructional leadership practices were classroom visits and observation, instructional aids, instructional programmes as well as monitoring student achievement. However, apart from a lot of generalizations, the study lacks supplements from qualitative elements. Enueme and Egwunyenga (2008) conducted a survey to examine the extent to which heads of schools assist teachers in their classroom instruction and promote professional growth of their teachers. The study findings revealed that Nigerian teachers experienced

high level of instructional leadership as well as classroom instruction assistance by heads of schools. However, Ekyaw (2014) found that heads of schools as immediate instructional leaders in Ethiopia are hindered by challenges such as being overburdened with other tasks, teaching the same credit like other teachers, negligence of teachers to accept recommendations, lack of financial allowances, questionable teacher-supervisor relationship, lack of adequate training and support as well as poor teachers' perceptions toward instructional leadership.

In Tanzanian context, researches by Nguni (2005), Ngirwa (2006), and the World Bank (2010) in the area of instructional leadership indicated that very little attention has been devoted to instructional leadership practices in secondary schools. Manaseh (2016) contends that heads of schools in Tanzania were not familiar with the concept of instructional leadership. This finding contradicts with Sisman (2016) who found that heads of schools were familiar with the concept of instructional leadership. The mismatch of the findings between Manaseh (2016) and Sisman (2016) makes this study necessary. However, Manaseh's (2016) study was too qualitative to allow generalizations. The study hardly revealed reasons for lack of understanding of instructional leadership. The Ministry of Education, Science and Technology (2015) requires all heads of secondary schools to be holders of bachelor degrees assuming that they have adequate skills to run instructional practices. Conversely, Lwaitama and Galabawa (2008) reveal that these heads of schools have inadequate supervisory skills for not being trained in professional disciplines. Commenting on inadequate instructional leadership in secondary schools, Sumra and Rajani (2006) point out that in Tanzania teachers teach using rote techniques- requiring students to copy or take notes on the board, and seldom interact with students in classrooms. This is supported by school inspectors' report in Kagera region (2015) which shows that most teachers failed to prepare pedagogical documents and others prepared lesson plans when school quality assessors were visiting.

Several studies were conducted in other regions in the past to tackle similar issue of instructional leadership (Dhinat, 2015; Manaseh, 2016; Sumra & Rajani, 2006). However, the findings of those studies cannot be generalized to Kagera Region due to social, economic, cultural and political differences between this region and the other regions. In addition, the findings in the cited studies are not generalizable to all regions in Tanzania; including Kagera Region. It should be noted that

very little if not none, is known regarding perceptions and practices of heads of schools' instructional leadership in Kagera Region, particularly in Biharamulo district. Therefore, this study aims to examine perceptions and practices of heads of schools' instructional leadership in public secondary schools in Biharamulo district. Specific objectives of the study were to:

- i) Examine secondary school heads' perceptions toward instructional leadership roles in Biharamulo district.
- ii) Identify different instructional leadership practices employed by heads of secondary schools in Biharamulo district.
- iii) Find out challenges facing secondary school heads' instructional leadership in Biharamulo district.

Findings from this study would contribute to the body of knowledge in the field of educational management and leadership. This study may also provide greater insight for the newly appointed heads of schools and the heads of schools aspiring to become school heads in the future. Furthermore, the findings may create awareness to decision makers, policy makers, and the Ministry of Education, Science and Technology (MoEST) to organize trainings in instructional leadership and management which support capacity building among school heads. In addition, the results of this study might provide further insights on the perceptions of instructional leadership roles, the practices being employed, and the challenges affecting the development of school heads' instructional leadership in districts and local state agencies.

RESEARCH METHODOLOGY

This study employed a concurrent triangulation research design and a mixed methods approach. The target population for the study was 651 respondents consisting of 18 heads of schools, 3 District Secondary Education Officers (DSEOs) and 630 teachers. Systematic random sampling was used to select teacher respondents - every tenth teacher in the alphabetic list of teachers in each school was selected to take part in the study. Responses of teachers complemented the responses from heads of schools. The idea of involving teachers aimed at eliminating possible subjectivity emanating from responses of the heads of schools. The purposive sampling was used to identify DSEOs and heads of schools to take part in the study. School heads were purposively selected based on their administrative and instructional roles. DSEOs were selected due to their involvement in secondary schools' activities. Ethical issues were

observed as authors managed to solicit research clearance from relevant authorities in Biharamulo District. Biharamulo District was selected for the study following reports that teachers in the district were weak and did not prepare well before teaching. (School inspectors' report, 2015). Table 1 presents the sample size of the study.

Table 1 shows that the study involved a sample of 75 respondents. The sample comprised 2 DSEOs, 10 heads of schools, and 63 teachers. The study used questionnaires, interviews, and Focus Group Discussions (FGDs) as main tools of data collection. Questionnaires were administered to sixty-three (63) teachers and comprised items which demanded the respondents to rate expressions using likert scales. Ten (10) heads of schools were subjected to Focus Group Discussions (FGDs) whereas two (2) DSEOs were interviewed. School heads and DSEOs were selected because they were expected to have more significant insights regarding administrative and instructional roles at school level. Both quantitative data and qualitative data were concurrently collected. Quantitative data from questionnaires were analysed using descriptive statistics (percentages, frequencies), while qualitative data from the FGDs and interviews were analysed through thematic techniques. Three major themes – perceptions of instructional leadership role, school heads' instructional leadership practices, and challenges that hinder instructional leadership, guided qualitative data collection. Sub-themes which emanated from main themes were integrated with quantitative findings during interpretation stage.

FINDINGS AND DISCUSSIONS

Heads of Schools' Perceptions toward Instructional Leadership

The first specific objective of this study was to explore the perceptions of heads of secondary schools towards instructional leadership roles in Biharamulo District. Teachers were requested to indicate what they knew regarding the role of heads of schools' instructional leadership. Teachers' responses supplemented in-depth information from heads of schools and DSEOs. Questionnaires with a three-point Likert scale were used to collect quantitative data. Individual teachers were required to respond to a series of statements in the questionnaire by indicating whether they agreed (A), were neutral (N) or disagreed (D) as shown in Table 2.

Table 2: Teachers' Perceptions of Instructional Leadership Role (N=63)

Perceptions of Instructional Leadership Role	Level of Agreement		
	Agree	Neutral	Disagree
Showing right direction about the teaching and learning process	57(90.5%)	2(3.2%)	4(6.3%)
Ensuring the provision of teaching and learning resources	53(74.2%)	2(3.2%)	8(12.6%)
Improving teacher capacity to enhance the teaching and learning process	55(87.3%)	1(1.6%)	7(11.1%)

Field data, 2020

Table 2 indicates that the majority 57 (90.5%) of teachers agreed that the role of heads of schools' instructional leadership is all about showing the right direction about the teaching and learning. This perception places heads of schools in a position of ensuring that the teaching and learning process takes place. This finding concurs with the findings from the study conducted by Doss and Tosh (2019) who point out that heads of schools have a role of creating shared expectations of high performance. Information from FGD with heads of schools indicates that heads of schools devised ample strategies to ensure the improvement of instructional process and student academic achievement. During FGD one head of school had the following to say.

As the head of school, I am supposed to be creative; especially spending time reminding teachers about what they should do to ensure effective teaching and learning. For example, I usually remind teachers in the staffroom that they must use authorized textbooks and reference books to prepare lesson notes. I also emphasize the use of student-centered approach or competency-based approach rather than the traditional teacher-centered approach. (Head of school 2)

The above quote show that heads of schools considered improving instructional delivery one of their instructional leadership roles. In a similar way, Manaseh's (2016) study revealed that heads of schools perceived themselves to be the role models of instructional leadership. That is, the school heads needed to illustrate an unwavering example of instructional leadership in order to improve instruction.

Moreover, Table 2 shows that 53 (74.2%) teachers agreed that the heads of schools' instructional role is to ensure the provision of teaching and learning resources. The teaching and learning resources include but not limited to text books as well as audio and visual aids. This finding corroborates with Manaseh's (2016) findings which indicated that heads of schools have instructional role to ensure the availability of teaching and learning aids in schools. However, Dhinat's (2015) and Mtitu's (2008) studies revealed adverse instructional role where heads of schools failed to provide adequate teaching and learning resources in secondary schools.

Teachers believe that it is the role of school heads to ensure adequate instruction delivery by putting in place necessary teaching and learning aids. The study solicited more information from District Secondary Education Officer on this. During the interview session, a key informant at the district office said.

To the best of my knowledge, I know that there is no instructional leadership without teaching and learning aids...but heads of schools also know very well. No, my side, I usually remind heads of schools to purchase all materials such as wall charts, models, chemicals, and biological specimens to aid the teaching and learning process. (District official 2)

The above quotation shows that the instructional leadership of heads of schools include making available teaching and learning materials. The finding concurs with Sisman (2016) who indicated that the preparation of teaching and learning resources to be one of major components of instructional leadership. In other words, it is the responsibility of heads of schools to ensure that schools have adequate resources to implement the school curriculum.

The rate of curriculum implementation and syllabi coverage in schools more often depend on the extent to which the teaching and learning resources are available and effectively utilized by teachers during teaching. Furthermore, Table 2 shows that majority of teachers 55 (87.3%) perceived that the heads of schools' instructional leadership role is to improve teacher capacity to enhance the teaching and learning process. This finding is in line with the findings from the study conducted by Doss and Tosh (2019) which showed that most of participants

perceived the instructional leadership to be closely associated with teacher professional development. In addition, the results from the FGDs with heads of schools indicated that heads of schools perceived one of their instructional leadership roles is to promote professional development of teachers by improving pedagogic techniques; which in turn, improves instructional delivery. On this, one head of school had this to say.

Honestly speaking, for quality delivery of instruction...teachers are not denied opportunities to attend any available training. This way, the teaching standards of my teachers improved after attending a series of INSET-programmes the Ministry of Education, Science and Technology organized for science and mathematics teachers by. Nowadays, new teaching techniques are used to simplify the teaching and learning process. (Head of school 10)

The findings above indicate that most of heads of schools understand that enhancing capacity building is part of their instructional roles. Also, it was revealed that enhancing teacher capacity is benefits heads of schools. This observation concurs with Lambert (1998) who point out that teacher capacity building improves collaboration in the teaching and learning process. That is to say; instructional leadership builds the capacity of teachers and improves teacher self esteem regarding what was learnt and its application in actual classroom delivery.

Instructional Leadership Practices in Secondary Schools

The second specific objective of the study was to identify secondary school heads' instructional leadership practices in Biharamulo district. Secondary school teachers were requested to rate their agreement regarding the presence of heads of schools' instructional leadership practices. The results are displayed in Table 3.

Table 3: Instructional Leadership Practices in Secondary Schools (N=63)

Instructional Leadership Practices	Level of Agreement		
	Agree	Neutral	Disagree
Supervising preparation of scheme of works and lesson plans	57 (90.5%)	2 (3.2%)	4 (6.3%)
Monitoring the teaching process of all teachers	63 (100%)	0 (0.0%)	0 (0.0%)
Setting and communicating instructional goals	55 (87.3%)	1 (1.6%)	7 (11.1%)

Field data, 2020

As shown in Table 3, a great number 57(90.5%) of teachers agreed that supervising the preparation of schemes of work and lesson plans is one of heads of schools' instructional leadership practices in secondary schools. This implies that most of school heads paid attention on the School Management Tool Kit - the guide provided to heads of secondary schools. This guide requires heads of schools to ensure that teachers prepare all necessary pedagogical documents including lesson plans and schemes of work (MoEST, 2015). Similarly, Musungu and Nasongo's (2008) findings indicate that heads of schools' instructional leadership practices include regular checking of lesson plans, schemes of work as well as records of work covered. However, Swai and Ndidde (2006) found that 14 out of 26 heads of schools had signed without paying attention to the content or accuracy of the plans or schemes of work. To this end, researchers employed FGD with heads of schools to further solicit deep information on the extent to which heads of schools inspected schemes of work and lesson plans. Results from the FGD indicate that heads of schools supervised the preparation of lesson plans and schemes of work and they encouraged teachers to prepare comprehensive lesson plans and schemes of work. One of the heads of schools said the following.

In my school, I have been more serious in reminding teachers to prepare lesson plans than ever before. Though some of the teachers view the preparation of lesson plans for each lesson to be a difficult, repetitive and tiresome task... a tedious and boring task but there is no option...teachers must obey and comply. (Head of school 7)

The findings indicate that there is improvement in supervising the preparation of schemes of work and lesson plans. However, school inspectors' report in Kagera region (2015) found that majority of heads of schools poorly supervised teachers to deliver and as a result a number of teachers failed to prepare pedagogical documents when inspectors visited schools. Weak preparation of lesson plans and schemes of work render the loss of instructional time and traditional teaching methodologies. However, heads of schools that successfully implement policies that limit interruptions of classroom learning time can increase allocated learning time, and potentially, student achievement (Stallings, 1980 cited in Hallinger & Murphy, 1985). Therefore, it is the responsibility of heads of schools; being the fulcrum of all school activities, to ensure that teachers prepare schemes of work and lesson plans before actual teaching takes place in classrooms.

Moreover, findings show that all teachers 63 (100%) agreed that monitoring the teaching process of all teachers is one of school heads' instructional leadership practices. This finding corroborates with Enueme and Egwunyenga (2008) who revealed that heads of schools monitored the teaching ability of all teachers and assisted them in their classroom instruction. That is, both veteran and novice teachers were often monitored by heads of schools. This is supported by MoEST (2015) that the school head should supervise the teaching process of all teachers as well as monitoring school and class attendance of teachers. Researchers went further soliciting deep information from FGD on whether or not instructional delivery was well monitored in schools. Results indicate that in most cases there is inadequate monitoring of teachers' teaching ability when teaching in classrooms. One head of school narrated the following.

Being honest...throughout my administrative responsibilities...I have never visited teachers in classrooms to observe the way they teach. Instead, I always pass along corridors to check whether teachers enter classrooms according to the timetable. That way, teachers are usually left on their own in classrooms. I think, it is my role as the head of school to ensure that the instruction is well delivered through paying informal visits to classrooms in order to observe the way teachers teach. (Head of school 3)

The above quotation implies that heads of schools inadequately pay attention on how teachers teach in classrooms. To the contrary, Enueme and Egwunyenga (2008) found that teachers experienced high level of instructional leadership as well as classroom instruction assistance by heads of schools. This is in line with Louis, Leithwood, Wahlstrom and Anderson (2010) who found that effective heads of schools who made more frequent and spontaneous observations of classroom instruction could provide direct and immediate feedback to improve their teachers' work performance.

That is, teachers' teaching techniques are improved as the head of school invests in classroom visits and observations. Researchers gathered further deep information by using interview method with the District Secondary Education Officer (DSEO). Results from the interview with the DSEO reveal that heads of schools had clear understanding about the importance of monitoring teachers' teaching process including paying classroom visits and observations in schools. For instance, a key informant at the district education office remarked the following.

Very often, heads of schools are asked to monitor teachers' classroom attendance and the teaching and learning process. Heads of schools need to pay more classroom visits to see the methodology used by teachers when teaching students. However, they seem to have forgotten this responsibility...I will remind them in the next meeting of all secondary school heads. (District official 2)

The above show that heads of schools should be reminded about monitoring teachers' teaching and instructional delivery as well. The necessity of monitoring teachers through school heads' informal classroom visits and observation is also observed by Lashway (2003) who contends that heads of schools are expected to be able to recognize whether or not lessons are aligned with the standards-based curriculum, develop assessments that are consistent with standards, and be able to determine if students' work meeting set academic standards.

Furthermore, heads of schools mentioned the provision of instructional teaching and learning resources to be among instructional leadership practices heads of schools employed in secondary schools. For instance, one of heads of schools said the following during FGD.

Frankly speaking...there is no teaching and learning process in the absence of relevant teaching and learning materials. As the head of school, I must ensure the availability of necessary teaching and learning resources for the delivery of quality instruction. However, a monthly disbursed fund from the central government is too small to purchase textbooks, reference books and other necessary teaching and learning aids such as biological specimens, models, wall charts and chemical reagents. (Head of school 2)

The above shows that the heads of school's purchase teaching and learning materials in small quantities due to inadequate financial support from the central government. This finding, however, contradicts with that of Onuma (2016) which indicated that heads of schools provided teachers with various instructional resources including visual as well as audio-visual teaching and learning aids. The Organization for Economic Cooperation and Development (OECD) describing the education policy outlook in 2015 in member countries argued that resources needed to be invested in the best possible ways in order to bring about knowledge and skills which promote growth and development (OECD, 2015). However, Mtitu (2016) found that Tanzanian community secondary school teachers experienced limited supply of both instructional facilities and resources.

In other words, heads of schools as instructional leaders need adequate financial support from the government for purchasing all necessary teaching and learning resources to aid the teaching and learning process.

FGDs indicate that promoting instructional development programmes is another instructional leadership practice the heads of schools must undertake. One head of school had the following to say about promoting instructional development.

What I know is that the word instruction is all about the teaching and learning process. To ensure teachers teach properly, I must do whatever it takes to allow them to attend professional development programmes organized at the district and regional levels. I think this is another strategy that equips teachers to be competent in teaching subjects at the schools.
(Head of school 9)

The illustration above concurs with the study by Onuma (2016) who found that the heads of schools ensured the provision of instructional development programmes in schools. In other words, the study reveal that the heads of schools allowed teachers to be involved in instructional development programmes such as collaborative planning, Teacher Development and Management Strategy (TDMS) and other organized in-service training. For instance, UNICEF (2000) suggested that for the betterment of teacher's heads of schools should allow teachers' dialogue and reflections with colleagues, peer and supervisor observations and reviewing journals all of which are effective ways for teachers to advance their knowledge. In an attempt to get deep information on the extent to which heads of schools promote instructional development programmes, researchers interviewed District Secondary Education Officer (DSEO). Results from interviews indicated that school heads usually allow teachers to attend workshops, seminars and other in-service training at the district and regional levels as one DSEO said.

I have seen a very good number of teachers attending TDMS and seminars; this means that heads of schools allow these teachers to attend. TDMS and seminars have made most of our teachers improve their methodology and academic performance of the students. (District official 2)

It is clear from the above response that heads of schools allow and encourage teachers to attend in-service trainings when opportunities arise. The seminars help to improve the ability of teachers to teach effectively.

At school level, heads of schools need to be creative to come up with a number of instructional development programmes such as peer coaching, teachers' dialogue and reflections as well as encouraging teachers to read capacity building journals (UNICEF, 2000). Well designed instructional development programmes result into improved teachers' teaching ability together with improved teachers' teaching techniques. This, in turn, improves the instruction delivery and teachers' work performance.

Table 3 indicates that most teachers 55 (87.3%) agreed that setting and communicating instructional goals is another instructional leadership practice carried out by heads of schools. This finding corroborates with Sisman (2016) who revealed that the first instructional leadership practice by heads of schools is to identify school vision, mission and, school goals. Using the FGD, heads of schools gave deep information regarding the extent to which heads of schools as instructional leaders set and communicate instructional goals. Results from FGD indicate that heads of schools usually disseminate preset instructional goals to teachers during staff meetings. For instance, one head of school had the following to say.

As the head of school, I always consider every staff meeting the golden chance to tell staff members what should be done...insisting that teachers should implement competence-based curriculum. I have also been inviting teachers' cooperation even when planning school annual budget before being presented to the school board. Also, I usually remind all heads of departments to prepare their respective departmental requirements so as to ensure smooth running of teaching and learning process. (Head of school 1)

The above indicates that heads of schools are cooperative in secondary schools to an extent of sharing with other teachers all preset goals which need to be achieved by staff members. In other words, communicating instructional goals makes teachers aware of what they are supposed to do. This finding is supported by Jones and Egley (2006) who contend that teachers who are supported by their school heads in a more collaborative way communicate their instructional goals better; thus, producing higher student outcomes than school heads who are more traditional in their leadership style. Thus, communicating instructional goals as a practice, leaves teachers with an understanding of what is to be done for effective instructional delivery.

Challenges Facing School Heads' Instructional Leadership

The third objective was to find out challenges facing secondary school heads' instructional leadership in Biharamulo District. Teachers were requested to rate their agreement regarding the challenges that hinder heads of schools from practicing instructional leadership in secondary schools. The results are displayed in Table 4.

Table 4: Challenges Facing School Heads' Instructional Leadership (N=63)

Challenges Facing Instructional Leadership	Level of Agreement		
	Agree	Neutral	Disagree
Lack of financial support	60 (95.2%)	1 (1.6%)	2 (3.2%)
Heavy workload	63 (100%)	0 (0.0%)	0 (0.0%)
Teachers' negligence	55 (87.3%)	1 (1.6%)	7 (11.1%)
Lack of training on instructional Leadership	50 (79.4%)	3 (4.8%)	10 (15.8%)

Field data, 2020

Results in Table 4 indicate that most teachers 60 (95.2%) agreed that the major challenge hindering the implementation of instructional leadership practices is the lack of financial support in schools. That is to say that heads of schools receive inadequate financial support from the government to implement school curricular. In the same vein, Ekyaw (2014) found that lack of financial support hindered the implementation of instructional leadership practices. It should be noted that the implementation of instructional leadership practices has cost implication on the overall school budget; and that, the implementation is impossible with meager funds. Ekyaw (2014) also found that lack of financial allowances hindered school heads from carrying out their duties concerning instructional leadership practices. However, starting from 2016, the financial allowance of Tshs. 250,000/= has been disbursed to heads of schools on monthly basis in Tanzania. Using interviews with key informants at the District Education Office, the study obtained information on whether or not the financial allowance extended to heads of schools helped implement instructional leadership practices. The results from the interviews indicate that financial allowance remitted to schools aimed at supplementing salaries of heads of schools and not otherwise. Commenting on this finding, one key informant at DEO said the following,

It is true that nowadays the government has added financial allowances to salaries of heads of schools. However, the allowance has nothing to do with the implementation of instructional leadership practices...what I know is that heads of schools cannot use it for purchasing instructional requirements in schools rather they use such amount to cater for the needs of their families (District Education Officer 1).

The above reveal that the so called administrative financial allowances were not meant to be used to improve the implementation of instructional leadership practices. Therefore, the government needs to address the issue at hand by providing adequate funds for heads of schools to easily purchase school instructional requirements including the teaching and learning materials.

Moreover, results in Table 4 indicate that majority 55 (87.3%) of teachers agreed that teachers' negligence hinders the smooth implementation of instructional practices in schools. This finding concurs with Ng'oma and Simatwa (2013) who found that negligence of duty had adverse impact on teachers' curriculum delivery. In addition, Ekyaw (2014) found that school heads' instructional leadership was hindered by the negligence of teachers to accept directives and recommendations. In the same vein, Makokha (2015) found that teachers' negative attitude hindered the implementation of instructional leadership practices in schools. That is to say teachers' negative attitude and negligence to implement the desired instructional leadership practices portray conflicting relationship between heads of schools and teachers. This relationship between school heads and teachers leads to the lack of common understanding. In turn, heads of schools fail to implement instructional leadership practices in schools. To solicit deep information concerning teachers' negligence, researchers conducted interviews and FGD with the District Secondary Education Officer (DSEO) and heads of schools respectively. Results from the interview and FGDs revealed that teachers seldom follow heads of school's directives. Heads of schools reported that teachers were ignored directives from the heads of schools; and this, leads to poor delivery of the instructions. In other words, efforts of heads of schools to implement effective instructional leadership practices are hardly implementable in the presence of teachers who are negligent. One head of school said the following.

In my school, I usually urge teachers to observe their responsibilities as teachers. For example, I usually call upon teachers to prepare teaching

notes, schemes of work, lesson plans, to compensate lost periods, and fill subject log books as soon as they complete every topic. Most teachers respond positively with some sort of delays whereas few of them totally ignore my directives. When you peruse some of the personal files of some teachers you will see reprimand letters issued to negligent teachers. (Head of school 5)

The teachers' failure to implement agreed instructional goals and school heads' instructions hinders effective implementation of instructional leadership. For adequate instruction delivery, teachers need to comply to instructions and directives given by heads of schools.

Table 4 shows that heavy workload was agreed by all teachers 63 (100%) to be among the factors that hinders heads of schools' instructional leadership practices. This finding concurs with Ekyaw (2014) who pointed out that poor implementation of instructional leadership practices was due to the fact that heads of schools were overburdened with many other tasks. In the same vein, results from the interview session with the District Education Officer (DSEO) indicate that the heads of schools did not effectively implement the instructional leadership practices due to a pile of administrative tasks and regular meetings with their seniors. Commenting on this finding, the key informant from the District Education Office said:

Nowadays, the government emphasize on hard working than ever before. This has made me to conduct various meetings with heads of schools. These meetings are done so as to communicate important administrative activities to be well supervised. It is likely that these meetings and administrative tasks have made most of school heads too busy to supervise the instruction leadership practices in secondary schools. (District official 2)

The above quotation implies that the heads of schools seldom implement fully instructional leadership practices due to overloads. This line of thinking concurs with Dhinat's (2015) findings which revealed that heads of schools had difficulty to supervise instruction because of being overburdened with administrative activities. . This finding is also in line with Carron & Chau (1996) which showed that heads of schools are always overloaded with tasks ranging from personal to administrative ones. School heads, therefore, need to balance the range of administrative tasks and instructional leadership practices for effective supervision.

Nevertheless, the results in Table 4 indicate that a good number 50 (79.4%) of teachers point out the lack of training on instructional leadership to be one of the factors that hinder the implementation of instructional leadership practices. This finding concurs with Ekyaw's (2014) findings which revealed that the lack of adequate training remains a challenge facing school heads' instructional leadership. This implies that heads of schools lack professional skills to guide instructional leadership practices. According to Sisman (2016), heads of schools as immediate instructional leaders need to have necessary skills for identifying and defining the school visions, missions and goals; building consensus about school goals; providing the necessary resources for teaching; coordination, management, control and evaluation of teaching and curriculum; monitoring, evaluating and developing the staff; creating close relationship and cooperation between staff; ensuring regular teaching and learning climate; enabling the support from society and environment; and being a role model and teaching source. Therefore, the instructional leadership training for school heads is of greater importance in schools. That is, heads of schools need to be equipped with requisite skills for them to adequately supervise the instruction in their respective schools. However, some of the heads of schools consider lack of training an excuse for not making a change. (Leithwood, Harris & Hopkins, 2008).

CONCLUSION AND RECOMMENDATIONS

This study has pointed out that heads of schools perceive instructional leadership in terms of showing right direction regarding the teaching and learning process, ensuring the availability of teaching and learning resources including the teaching staff, and improving teachers' teaching capacity. This means that the heads of schools must have vision and work to develop high expectations, develop relationships with teachers, be supportive, and enable teachers to effectively teach students. The study has also revealed that effective teaching and learning process is made possible when heads of schools devise a number of instructional practices such as supervising preparation of schemes of work and lesson plans, monitoring the teaching process, setting and communicating instructional goals; maintaining visibility and classroom visits, and organizing in-service trainings for teacher professional development. It can as well be observed that heads of schools seldom visit teachers in classrooms to know what teachers exactly do when in classrooms. Moreover, school heads are often faced with challenging issues such as resistance to instructional leadership in schools, lack of financial support, teachers'

negligence, heavy workload, and lack of instructional leadership trainings for school heads.

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Does Homework type Affect Pupils' Homework Management? Experience from Standard Five Pupils in Dar es Salaam, Tanzania

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ABSTRACT

The aim of this study was to examine whether homework type may have influence on pupils' development of various Homework Management Strategies (HMS) for effective management of the homework assigned. 154 standard five pupils selected from two Public Primary Schools in Ubungo, Dar es Salaam were assigned into either of the two homework types namely, Interactive homework Assignment (IHA) and Non-Interactive Homework Assignments (Non-IHA). The homework management strategies include: (a) ability to set an appropriate work environment, (b) managing time, (c) handling distraction, (d) monitoring motivation, and (e) controlling negative emotions arising while doing the homework. A Homework Management Strategies (HMS) scale by Xu and Corno (2003) was adapted and used to solicit information on Homework Management Strategies from the pupils. Compared with Non-Interactive Homework assignments, pupils in IHA reported more frequently working to manage their workspace, budget time, handle distraction, monitor motivation, and control emotion while doing homework. This suggests a need to encourage the use of IHA in our public primary schools so as to enhance the use of the five HMS and consequently improve pupils' learning.

Keywords: *Homework Management Strategies, Self-regulation, Interactive Homework, Assignments*

INTRODUCTION

Homework has been identified as one of the means for Continuous academic Assessment (CA) of school learners in several educational settings in the world (Epstein, 2013). On one side, literature focusing on effective schools indicates that homework has significant roles in contributing towards learners' academic progress and terminal achievement (Cooper, Robinson, & Patall, 2006; Ramdass & Zimmerman, 2011; Van Voorhis, 2011). On the other side, homework is known to be

one of the academic assessment tools that can improve learners' self-regulatory behaviors such as motivation to study, self-efficacy, learning goal setting, and learning time management. These factors are considered important and critical for successful learning (Grodner & Rupp, 2013; Ramdass & Zimmerman, 2011).

Besides it being useful and meaningful in promoting learning, homework is reported to be useful and effective only when it is effectively used and managed to achieve the expected results (Carr 2013). When it is ineffectively managed, homework becomes a challenge which may result in other behaviours such as learners' general fatigue (Cooper, 2001), interference of learners' time with friends, family and peers (Trautwein, Ludtke, & Kastens, 2006) and can be a de-motivation to the learning process (Bennett & Kalish, 2006). It is worth noting that ineffective homework management can devalue the usefulness of homework as an effective learning and assessment tool and mechanism (Carr, 2013).

In considering the need for effective homework management, the Corno's model on volitional control and some other studies (Xu, 2004, 2005, 2008b, 2008c; Xu & Corno, 2003, 2006) have examined a range of Homework Management Strategies (HMS) that learners should possess in order to improve their homework management. They include ability to arrange the environment, manage time, monitoring motivation, control negative emotions and avoid various distractions. However, these studies did not investigate whether the use of homework management strategies was influenced by the type of homework assigned to the learners.

The present study has linked type of homework assigned to a range of homework management strategies. This line of research is important, as student academic achievement may be related to the use of certain homework management strategies in particular (Zimmerman & Kitsantas, 2005; Zimmerman & Martinez-Pons, 1990). In addition, there is a need to examine the influence of homework type on homework management, so as to suggest the type of homework that teachers may use in schools to develop learners' various skills useful for their academic achievement.

The two types of homework assignments assessed in this study included the Interactive Homework Assignment (IHA) and the Non-Interactive Homework Assignments (Non-IHA). Interactive homework assignments

are those that promote and enhance parent-child interaction while practicing skills learned in school (Battle-Bailey, 2003). In IHA there was an open dialogue between and among teachers, students and parents/guardian. Teachers instructed the learners on how the assignment was to be done, and also informed the parents about the homework provided for them to effectively monitor the tasks at home.

Non-interactive homework assignments were the tasks which were managed and completed by the pupils with no support from their parents. The Non-IHA comprised the same tasks as the IHA but no invitations, no prompts, and no explanations were provided to parents about the homework. In general, with IHA no communication between the school and home about the homework assigned was initiated.

Related Literature

The present investigation was informed by two lines of related literature: (a) literature that points to the need for Homework Management Strategies on pupils' learning, and (b) literature that develop a linkage between the type of homework assigned and the development of homework management strategies for effective learning.

A need for Homework Management Strategies to pupils' learning

Since homework is essential part of student's lives, managing it is an important skill that learners need to have. Due to their ages, young learners remain unfocused and have not yet acquired good study skills that can assist them in managing the homework processes (Howard, 2015). Steinberg (2011) states that young learners have minimal abilities to pay attention to tasks assigned and this leads to increased rate of homework incompleteness and low understanding of the materials compared to the condition of older learners. As a result, young learners are often unable to manage their time, to arrange the environment for homework and even to control such distractions as TV and radios which may be loudly on during homework time.

On top of that, young learners are not often self-directed when compared to adult learners and in such a case, they might not know what to do, how to do it and when to do homework (David, & Hossam, 2013). Generally, since homework is mostly to be done after school hours such distractions as extra-curricular activities at home and poor learning environment arise when a child wants to do homework and this affects the learner's

homework completion and consequently becomes a victim of poor academic performance (Xu, 2013).

Again, the currently globalized world puts most of the people and especially the youths under too much pressure and tension due to socio-economic changes affecting families and societies in general (Mishra, 2012). These changes bring lots of stress and anxiety which affect the emotional states of pupils in learning. In most times the learners are emotionally weak due to changes in the environment.

That emotional weakness can have a significant impact on both the physical and mental health of pupils which significantly correlates with the learning process (Namrata, 1992, quoted in Mishra, 2012). Therefore, a need is rife to create an emotion-free environment for learners so that they can effectively engage in homework. This can be done through the use of IHA where both parents and teachers can play their roles for learners to remain emotionally stable as they grow in their educational careers. Thus, because of the lack of the ability for self-actualization and direction compounded with poor self-regulation skills (Axelrod et al., 2009), young learners by all means need guidance and assistance from both teachers and parents on how to manage homework using the HMS.

In support of this assertion and observation, Xu (2013) lists five major challenges of homework that learners encounter outside school hours. These include inability to arrange a conducive environment at home to do homework, inability to manage the time available for out of school activities, inability to handle distractions to learning, and inability to cope with negative emotions. Such learners need tailor-made mechanisms to monitor and evaluate their learning programmes by linking their activities at school as well as at home for enhanced academic progress and achievement.

Homework type and Homework Management Strategies

Different types of homework may affect the development of HMS differently. Several studies have found that homework assignments that encourage participation and assistance from parents cultivate positive learning behaviours (Van Voorhis, 2003; Xu, 2004; Silinskas & Kikas, 2011). These types of homework assignments are commonly known as Interactive Homework Assignments (IHA). These are types of assignments that encourage the participation of the parents in their

children's homework. The proponents of these homework assignments maintain that parental involvement in pupil's educational development significantly increases learners' motivation and achievement in schools (Epstein, 2013; Xu, Benson, Mudrey-Camino & Steiner, 2010). Xu, (2005) comments that homework assignments designed to support direct interaction between learners and parents are efficient and powerful as parents help their children with time management, control of distractions, upholding motivation, controlling emotions and increasing learners' academic achievement.

On the one hand, IHAs have been proved to improve learners' study skills, to support independent learning and to promote the development of positive attitudes towards learning (Zimmerman & Kitsantas, 2005). On the other hand, IHA is also found to be challenging yet interesting in developing learners' behaviour self-regulation such as self-efficacy, self-reflection, time management and gratification, all of which are of paramount importance in promoting a learner's academic achievement (De Jager 2014; Ramdass & Zimmerman, 2011).

Besides the evidences of the effectiveness of IHA in the literature discussed, yet in Tanzania the traditional homework assignments continues to be used in Public Primary Schools are claimed to be Non-IHA. These are claimed to limit the development of the HMS which are effective in improving study skills and achievement in the learning process. This study therefore aimed at introducing the Interactive Homework Assignment in PPS to replace the traditional homework assignments which are non-IHA and assess their effectiveness in enhancing the use of HMS in learning.

METHOD

Research Approach and Design

This intervention study was conducted for a period of 8 weeks. The study employed quantitative research approach with quasi experimental design in order to allow the researcher to select a group of participants for treatment and a control group, something which could be difficult to do in other research approaches (Johnson & Christensen, 2012). Therefore, during the study the treatment phase of research was conducted such that one group of the pupils participated in the Interactive Homework Assignment where the homework was made interactive and allowed parents to participate in their children's homework. The other group was a

control group continued with the traditional homework assignments which are non-Interactive.

Participants

Participants were 154 standard five pupils in two schools conveniently selected from Ubungo Municipality, Dar es Salaam region. Among them 84 participated in the treatment condition and 70 in the Control condition. Parents were also participated in the treatment group so as to assist and guide their children with homework. Two English language teachers were also included as the homework coaches who were to design an Interactive homework and make sure that pupils take them home and return them on time.

Instruments

The Homework Management Strategies Scale (Xu & Corno, 2003) was adapted and used to record pupils' Homework Management strategies before and after the intervention. The scale consisted of 22 items related to all the five Subscales of HMS; planning and arranging the homework environment (e.g., "find a quiet place"), managing time (e.g., "set priorities and planning ahead"), handling distraction (e.g., "stopping homework to send or receive messages"), monitoring motivation (e.g., "finding ways to make homework more interesting"), and controlling emotions (e.g., "calming oneself down"). The possible responses for each item were *never* (scored 1), *rarely* (scored 2), *sometimes* (scored 3), *often* (scored 4), and *Always* (scored 5).

Also, an Interactive Homework guide was developed and used to train the parents on their involvement for one week before the intervention. Also English language homework was prepared by a teacher each week and sent home by a child on a weekly basis.

Validity and Reliability of the Instruments

Since the scale for measuring HMS was adapted, content validity of the research instruments was achieved through deletion of some concepts which seemed to be irrelevant to the context and an addition of some few ones which were more relevant in meeting the objectives of the study. The reliability of the research instruments was determined through a pilot study conducted in six primary schools.

The test-re-test method was used where the same questionnaires were administered twice to the same pupils of the same school within an interval of two weeks during a pilot study. Any item reported to be unclear was corrected before the actual study. Calculation of Cronbach's alpha coefficient (α) for each study variable was done with data collected from the pilot study where $\alpha=0.84$ depicts high reliability.

DATA ANALYSIS

In order to assess the effects of the two homework types (IHA and Non-IHA) on pupils' homework management, the Multivariate analysis of variance (MANOVA) was done.

However, prior to conducting the MANOVA analysis, a series of Pearson Correlations were performed between all the Dependent Variables (DV) in order to test the MANOVA assumption that there would be at least a moderate correlation between all the DVs. See table 1.0.

Table 1.0: Inter-correlations between Homework Management Strategies (DV)

Study Variables	1	2	3	4	5
1. Pp_ Environment					
2. Pp Time mgt	.681***				
3. Pp_ Motivation	.759***	.717***			
4.Pp_Handle distraction	-.579***	-.516***	-.652***		
5. Pp_ emotion	.781***	.720***	.842***	-.754***	

Note. * $p < .001$; Pp=Pupils; N=208; Pp=Pupils;mgt=Management;**

Furthermore, separate univariate tests were performed using an Analysis of variance (ANOVA) to compare the effects of Homework type (IHA vs. Non-IHA) on the five subscales of Homework Management Strategies. See table 1.1.

Table 1.1: Group Means and Standard Deviations for the Five Subscales of HMS

H/W_type	HOMEWORK MANAGEMENT STRATEGIES (HMS)				
	Env.Mgt	T_Mgt	Motivation	Distraction	Emotion
IHA	3.06 (1.21)	2.97 (1.13)	3.07(1.17)	2.74(1.06)	3.10(1.45)
NON-IHA	2.46(.65)	2.47(.70)	2.16(.48)	4.03(.41)	1.66(.36)
<i>F</i> =	17.52***	12.64***	42.86***	106.79***	76.42***
η^2 =	.077	.060	.178	.350	.278

*** $p < .001$; H/W=Homework; Env.Mgt= Environmental Management; T_Mgt=Time Management

FINDINGS

Table 1.0, shows a meaningful correlation amongst all of the DVs, suggesting appropriateness for the MANOVA analysis. Thus, after establishing that there was a correlation between the Dependent Variables, One- way MANOVA was used to test a hypothesis that there would be no statistically significant differential effect of independent grouping Variable (H/W type (1=Non-IHA; 2= IHA)) on the series of Dependent Variables (HMS). Results indicated a $P < .001$; Wilks' Lambda= (.574), $F(5, 194) = 28.77$, $p = .000$; partial $\eta^2 = .43$. This means that, pupils' ability to use HMS for homework management significantly depended on the type of Homework assigned. Approximately 57.4% of multivariate variance of the Dependent Variables (use of HMS) is associated with Homework type (IHA or Non-IHA).

Furthermore, results in table 1.1. show a statistically significant effects of Homework type on all five Dependent Variables, namely, arranging the environment [$F(1,198) = 17.52$, $p < .001$, partial $\eta^2 = .077$], managing time [$F(1,198) = 12.64$, $p < .001$, partial $\eta^2 = .060$], monitoring motivation [$F(1,198) = 42.86$, $p < .001$, partial $\eta^2 = .178$], handling distraction [$F(1,198) = 106.79$, $p < .001$, partial $\eta^2 = .350$], and controlling emotion [$F(1, 198) = 76.42$, $p < .001$, partial $\eta^2 = .278$].

DISCUSSION

The study findings indicate that IHA brought significant effects to the learners' ability to homework management. Compared Means and Standard Deviations between pupils in IHA and pupils in non-IHA pupils, IHA pupils reported more frequently working to arrange the environment, manage time, handle distractions, monitor motivation, and control their own emotions during homework sessions than pupils in non-IHA. This can be said that the more homework is interactively designed, the more it enhances pupils' ability to manage the homework and consequently perform well. This can be associated with several aspects included in the intervention and specifically the quality of the Interactive homework including the following ones; the ability to actively involve all the stakeholders i.e. the teachers, parents and pupils by developing an awareness on their roles in the homework process.

Unlike IHA, traditional homework assignments which are non-IHA do not give opportunity for involvement of parents in supporting the learners with homework. Through Non-IHA, learners are left alone in struggling with the learning without or with less support from their families. IHA exposes learners to supports from their parents and teachers. Through the support from their parents and teachers they are guided, coached and controlled on various HMS and learning strategies. Well designed homework like IHA becomes a tool for training learners on several strategies for homework management and skills that enhance their ability on how to study, how to work diligently and persistently, and how to delay gratification (Bempechat, 2004).

Again, by using IHA in the present study, teachers were taught and encouraged to design homework tasks which are purposely, interested and are of appropriate level of difficulties. These kinds of homework tasks help learners by motivating them and developing their interests towards the works assigned. This is in line with the idea of Beutlich (2008) who suggested a need for the teachers to modify the kind of homework they assign regularly to their learners.

It is reported that poorly designed homework are ineffective in motivating learners to participate in the learning process, but when homework are well designed like the IHA learners' motivational aspects to do the homework assigned is enhanced. The study is also in line with Bembenutty (2011, Carr (2013), Van Voohris (2001) and Vatterott (2010). According to Bembenutty (2011), homework activities which are effectively and appropriately set play a great role in teaching the learners various strategies for handling the homework like self-regulation and self-efficacy beliefs, goal setting, time management, managing the environment, and ability to maintain attention which are considered to be very helpful in the learning process.

Unlike IHA, a typical traditional homework mostly used in our schools involves questions repeated from a class content taught the same day provide no or little opportunity for the learners to learn and develop various HMS (Coutts, 2004). Specifically in Tanzania, it is evidenced that the home environments are not conducive enough for extra learning after school hours. Most of the time Tanzanian pupils get distracted at home by various home chores which hinder them from effective learning.

Through IHA, pupils are taught on how to manage these kinds of environment and handle various distractions arising during homework. On top of that, besides self training that they get, even their parents are trained on how to help them prepare conducive home learning environments. Parents are also trained on how to assist their pupils manage time effectively by setting a weekly timetable that should be followed accordingly. This is in line with Xu (2005) who opines that adult- monitoring of the homework was significantly associated with the learners' ability to manage time effectively during the homework process.

Through this study's finding, we get to know that if we want pupils to develop various skills for homework management and learning, there is a need to involve their parents. This situation can also be associated with the theoretical perspectives raised in the Epstein's model, where the success of the learner is affected by various practical issues happening at the school and home. In general, this study's finding can be interpreted in light of the context of the today's globalized world which is too demanding and the parents get to be very busy allowing minimal time to provide support in their pupils' learning (Swap, 1993).

Again, in the context of Tanzania in general where most of the parents lack knowledge and skills on how to be involved; what they need is to be reminded by the teachers and other necessary organs on the importance of their involvement and being trained on how to be involved so that pupils are not left alone during the homework sessions. Pupils do better when they are assisted by parents and teachers. They need to be followed, guided and monitored for better success. But for parents to be involved effectively they need training and now and then follow up due to their busy timetable and lack of skills.

Practical implications

The present study revealed that, the more homework is interactively designed, the more it helps pupils to develop homework management strategies and to improve their homework management and effective engagement in the tasks assigned and vice versa. In general, the study findings have practical implications to teachers, parents and the learners in Tanzania who are not aware of their roles in making homework an effective learning tool. Thus, with this study's findings we get to know that parents and teachers need to work together as core partners in pupils' educational achievement. They both need to play their role in guiding,

motivating and assisting learners to develop strategies for homework management. Teachers should consider elements that will facilitate: parent-child interactions, parent-child interest, Likewise, parents should make sure they are available during the homework time so as to watch out signs of negative emotions to their children and intervene by monitoring them. This is in line with Copper (2001) who reports the need for family support during homework session and that parents, teachers and pupils need to understand the need for collaboration among them during homework process.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations that should be acknowledged. First, the present findings are based on self-reported data. Also, other predictor variables (e.g., Parent's Social economic status, and gender) might have an effect on homework management strategies had they been included. There is also a need to examine the use of homework management strategies across learners of high school levels because their educational aspirations in homework behaviors may be more pronounced at this level (Xu, 2008). Furthermore, another research should further be done to explore the linkages between student academic achievement and homework management strategies. In addition, there is a need to include a larger sample so as to make generalization of the findings possible.

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Utilization of ICT for Quality Assurance in Secondary

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ABSTRACT

The study reported in this paper investigated the perceived potential for utilization of Information and Communication Technology (ICT) for quality assurance practices in secondary schools in Dar es Salaam. The study used survey research design and a total of 56 quality assurers (i.e., 53 school quality assurers and 03 chief school quality assurers) drawn from Dar es Salaam, Ilala, Kinondon and Temeke participated in the study. Structured questionnaires and interview guides were used to collect quantitative and qualitative data which were then analyzed using Statistical Package for Social Sciences (SPSS) and Data Reduction Technique respectively. Findings have revealed that there is a potential for utilization of ICT for quality assurance practices in secondary schools. Findings have shown that between 57.1% to 98.2% of quality assurers have access to computer (83.9% and mobile phones (98.2%). Also, over 50% of the school quality assurers are already utilizing ICT for report writing (66.1%), storage of information (58.9%), to access stored information (53.6%) and to surf educational resources (50%). However, about 40% of the quality assurers lack ICT knowledge of basic computer applications. Appropriate recommendations are suggested based on the findings and discussion.

Keywords: *ICT, PORALG, School & Quality Assurance.*

INTRODUCTION

The utilization of ICTs in secondary education is widely reported in the literature (Ngeze, 2017, Daudi & Nzilano, 2019, Amadi, Mekuri & Aleru, 2015 and Ghavifekri, Kunjappan, Ramasamy & Anthony, 2016). Specifically, evidence indicates that ICTs are utilized in secondary education to enhance not only access to secondary education but also teaching and learning processes (Ngeze, 2017 and Samaila, Dauda, Aliyu & Aliero, 2021). They are also utilized to enhance students' participation

in the learning process, improvement of students' learning and participation in the learning process, improvement of students' learning and enhancement of overall academic outcomes (Udu, 2018).

In order to harness the potentials of ICT in education, Tanzania introduced ICT curriculum in Teachers Training Colleges (TTC) in 2007, as a means to prepare teachers for pedagogical utilization of ICT in secondary education (URT, 2014). Before that, in the year 2005, Tanzania had already introduced Computer Studies (CS) in the school curriculum as one of the subjects that promotes technological and scientific development (Mutarubukwa, 2014).

To-date, already over 1,600 teachers have been trained on the pedagogical utilization of ICT in basic education in Tanzania (URT, 2022). According to Cubrilo, Crevenkovic, Segedinac and Serbia (2016) and Udu (2018), pedagogical utilization of ICT in the classrooms improves students' participation in the learning process leading to the improvement of students' access to reading resources, students' learning and overall academic outcomes in secondary schools.

These developments have brought new challenges in the school quality assurance practices which demands for skilled quality assurers who are competent to utilize ICT effectively in school quality assurance practices (URT, 2014). In this regard, school quality assurers are expected to utilize ICT to monitor and evaluate the implementation of the education policy, assess the education standards, promote school improvement and advise all stakeholders in education accordingly (URT, 2006).

However, ICT utilization in school quality assurance practices in secondary education is an emerging field of study with limited studies in existing literature (Haris, Washizaki & Fukazawa, 2018). According to Haris *et al* (2018), although many studies have examined utilization of ICT in teaching and learning in secondary education, there are only limited studies that specifically report utilization of ICT in school quality assurance practices.

The limited available studies on ICT utilization in school quality assurance practices indicate that ICT has potential in enhancing quality assurance practices in education (Oduma, 2014, Anekwe & Izuchi, 2012), and in making quality assurance practices effective (Omeregbe &

Konyeha, 2020 and Yekini, Adigun & Rufai, 2012). Also, ICT are effective in contributing to quality teaching and learning (Omoregbe and Konyeha, 2020), quality students learning and improvement of students' academic outcomes (Similar et al, 2021, Omoregbe and Konyeha, 2020).

Moreover, studies report several critical factors that are necessary for effective utilization of ICT in school quality assurance practices in schools (Amadi *et al*, 2015; Hillmayr *et al*, 2020; Yusuph *et al*, 2013; Chutter, 2009; Jonathan *et al*, 2016 & Onyegegbu, 2008). One of the critical factors is quality assurers' access to ICTs such as computers, printers, and fax, internet, television, mobile phone, projector and computer programs. According to the Education and Training Policy (URT, 2014), school quality assurance in Tanzania has not been effective as expected due to limited access to ICT facilities by school quality assurers (URT, 2008). According to Samila *et al* (2021), reliable access to ICT is important for school quality assurers to perform their roles, effectively.

Another critical factor is quality assurers' knowledge about ICT which is important for effective utilization of ICT in school quality assurance practices. This is important because it guides quality assurers on what ICT to use, how to use, and when and for what to use (Hillmayr, Ziernwals, Feinhold, Hofer & Reiss, 2020). However, literature indicates that most school quality assurers lack appropriate knowledge of ICT that is needed for them to utilize ICT in school quality assurance (Jonathan & Mlyakado, 2016; Samila *et al*, 2021; Udu, 2018; Kola, 2013 and Hillmayr *et al*, 2020). In the context of sub-Saharan African countries, quality assurers are incompetent and are untrained and are therefore, unable to utilize ICT to monitor and evaluate teaching and learning practices effectively in schools (Haris *et al*, 2018; Amadi *et al*, 2015; Yekini *et al*, 2012; Anekwe & Izuchi, 2012).

Ease of utilization of ICT for school quality assurance is also a critical factor. According to Chuttur (2009) and URT (2011), ease of use of ICT by school quality assurer determines their actual utilization of the ICT in their day-to-day practices such as collecting, compiling, analyzing, interpreting and disseminating education data and information obtained during the quality assurance process. Literature indicates that utilization of ICT in school quality assurance contributes to the improvement of quality of school quality assurance reports and provision of feedback to

teachers, schools and community in general (URT 2006). In England and Wales, the quality assurance findings are published in the internet for the public consumption and feedback to practitioners (Ehren & Visscher, 2008).

The framework in Figure 1 summarizes the critical factors for effective utilization of ICT in school quality assurance practices in secondary schools.

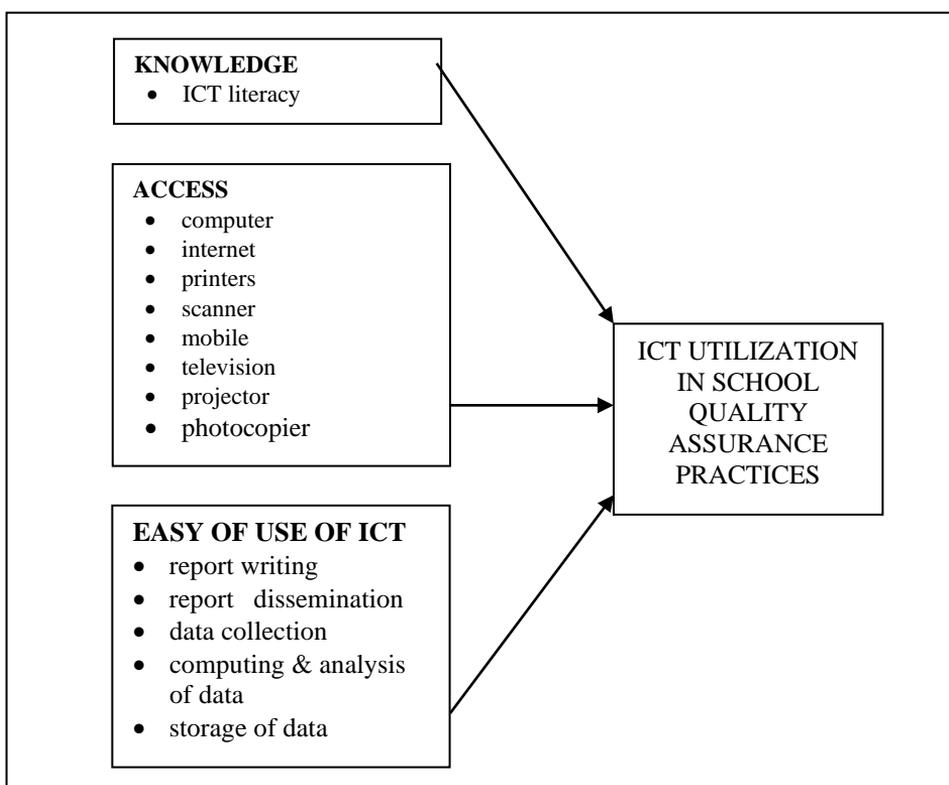


Figure 2: Conceptual framework (based on literature review)

Despite the benefits associated with the utilization of ICT in quality assurance practices in secondary schools, limited studies are reported about ICT utilization in quality assurance practices in the region and Tanzania in particular. Therefore, the current study investigated the perceived potential of utilizing ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania.

The focus of the study reported in this paper was to *investigate the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania*. Specifically, it sought to address the following specific objectives:

1. To assess the kind of ICT facilities that school quality assurers have access to,
2. To assess the level of ICT knowledge that school quality assurers have,
3. To determine ways that ICT is currently utilized by school quality assurers, and
4. To identify strategies for effective utilization of ICT to enhance school quality assurance practices.

The following overall research question was formulated to guide the study: “*what are the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools?*”. In order to address this overall research question, the following sub-research questions were formulated:

1. What kinds of ICT facilities do school quality assurers have access to?
2. What level of ICT knowledge do school quality assurers have?
3. In which ways are ICT currently utilized in the school quality assurance practices?
4. What strategies should be used for effective utilization of ICT to enhance school quality assurance practices?

RESEARCH METHODOLOGY

Sample and Sampling Techniques

A total of 56 quality assurers drawn from Dar es Salaam (15), Ilala (13), Kinondoni (15) and Temeke (13) participated in the study. As indicated in Table 1, sample comprised of Chief Quality Assurers of school (03) and School Quality Assurers (53).

Table 1: Sample of the study

Zone/District	Chief Quality Assurers of Schools (CQA)	School Quality Assurers (SQA)	Total
Dar es Salaam	01	14	15
Ilala	01	12	13
Kinondoni	-	15	15
Temeke	01	12	13
Total	03	53	56

The study used random sampling technique to draw school quality assurers to participate in the study. Random sampling technique gives each in the population an equal probability of getting into the sample (Cohen, Manion and Keith, 2001). Purposive technique was also used to draw the sample of Chief Quality Assurers of school. According to Cohen, Manion and Keith (2001), purposive sampling technique basis on the researcher's judgment and the purpose of the study. Therefore, Chief Quality Assurers of schools were purposely included into the sample basing on the fact that they are the authority in their respective offices and are the ones to provide important and reliable information on the utilization of ICT to enhance school quality assurance.

Instruments for Data Collection and Analysis

The study used the following instruments for data collection: Structured Questionnaires for School Quality Assurers and Interview Guide for School Quality Assurers to collect quantitative and qualitative data to address the research questions. Combining both quantitative and qualitative data enabled to gain the benefits of both techniques and to reduce the drawbacks in order to obtain a comprehensive understanding of the opportunities and challenges of ICT utilization for enhancing school quality assurance.

SPSS was then used to analyze quantitative data whereby frequencies, percentages and analysis of variance (ANOVA) were computed. On the other hand, data reduction technique was used to analyse the qualitative data where main clusters were identified and reported supported by specific quotations.

FINDINGS

School Quality Assurers' Access to ICT Facilities

The status of school quality assurers' access to ICT facilities was investigated during the research. Findings in Table 2 show that majority of school quality assurers have access to most of ICT facilities (57.1%-98.2%).

Table 2: School quality assurers’ access to ICT facilities

ICT Facilities	Responses (N=56)	
	Freq	%
Computer	47	83.9%
Internet	38	67.9%
Videotapes	24	42.9%
Audiotapes	24	42.9%
DVDs	32	57.1%
CDs	36	64.3%
Ipad	13	23.2%
Radio	53	94.6%
Mobile phones	55	98.2%
Television	54	96.4%
Projectors	14	25.0%

Specifically, majority of school quality assurers have access to computer (83.9%), internet (67.9%), DVDs (57.1%), video tapes (57.1), CDs (64.3%), radio (94.6%), mobile phones (98.2%) and Television (96.4%). However, quality assurers have limited access to video tapes (42.9%), audio tapes (42.9%), Ipad (23.2%) and projectors (25.0%).

Comparing quality assurers’ access to ICT facilities across zones, findings in Table 3 show that quality assurers in Dar es Salaam zone have more access to ICT facilities followed by Temeke, Ilala and Kinondoni. However, analysis from ANOVA in Table 3 indicates that the difference is statistically not significant ($p>0.05$).

Table 3: Comparison of school quality assurers’ access to ICT facilities

ICT Facilities	Response (N=56)								ANOVA Value
	D’Salaam (n=15)		Ilala (n=13)		Kinondoni (n=15)		Temeke (n=13)		
	Freq	%	Freq	%	Freq	%	Freq	%	
Computer	14	93.3	10	76.9	12	80.0	11	84.6	$F_{(55)}=0.521, P>0.05$
Internet	12	80.0	10	76.9	9	60.0	7	53.8	$F_{(55)}=1.05, P>0.05$
Videotapes	6	40.0	6	46.2	8	53.3	4	30.8	$F_{(55)}=0.495, P>0.05$
Audiotapes	6	40.0	6	46.2	8	53.3	4	30.8	$F_{(55)}=0.495, P>0.05$
DVDs	9	60.0	9	69.2	9	60.0	5	38.5	$F_{(54)}=0.969, P>0.05$
CDs	10	66.7	10	76.9	9	60.0	7	53.8	$F_{(54)}=0.625, P>0.05$
Ipad	3	20.0	4	30.8	2	13.3	4	30.8	$F_{(55)}=0.556, P>0.05$
Radio	14	93.3	13	100.0	14	93.3	12	92.3	$F_{(55)}=0.308, P>0.05$
Mobile phones	15	100.0	13	100.0	14	93.3	13	100.0	$F_{(55)}=0.906, P>0.05$
Television	14	93.3	13	100.0	14	93.3	13	100.0	$F_{(52)}=0.575, P>0.05$
Projectors	7	46.7	3	23.1	2	13.3	2	15.4	$F_{(55)}=1.892, P>0.05$

Furthermore, findings in Table 4 show that Over 60% of school quality assurers' access internet facilities in their offices (60.7%) and at home (76.8%). Only 35.7% of all the studied school quality assurers access internet at the internet cafes.

Table 4: Places were school quality assurers access ICT facilities

Places	Responses (N=56)		
	N	Frequency	%
Office	55	34	60.7
Home	55	43	76.8
Internet Café	56	20	35.7

Findings from observation indicated that in all offices, School Quality Assurers share computer facilities at the following ratios: 1:22 (Kinondoni), 1:10 (Temeke) and 1:9 (Ilala). Moreover, the computer sharing ratio at Dar es Salaam zone office was found to be 1:5.

School Quality Assurers' ICT Knowledge

School quality assurers' ICT knowledge was also investigated during the study. Findings in Table 5 show that all school quality assurers lack ICT knowledge (1.8%-33.9%). Also, findings indicate that, majority of quality assurers cannot use word excel and PowerPoint presentation programs. Quality assurers cannot read and send emails or send documents as attachments and they cannot use internet to search educational resources.

Table 5: School quality assurers' ICT knowledge

Knowledge Areas	Responses (N=56)	
	Freq	%
I can use word program	13	23.2
I can use excel program	1	1.8
I can use PowerPoint presentation	2	3.6
I can read and send emails	17	30.4
I can send document as an attachment	9	16.1
I can use internet to find education resources	19	33.9

Easy of use of ICT School in Quality Assurance Practices

Furthermore, the study also explored the current uses, and easy of using the ICTs to enhance the school quality assurance practices. Findings in Table 6 indicate that generally, more than 50% of school quality assurers find it easy to utilize some ICT in different ways in their current practices particularly in relation to report writing (66.1%), storage of information

(58.9%), access to stored information (53.6%) and surfing of educational resources (50%).

Table 6: Uses of ICT to enhance current school quality assurance practices

Uses of ICT in quality assurance practices	Responses (N=56)	
	Frequency	%
Data collection	17	30.4
Data analysis	18	32.1
Classroom observations	8	14.3
Report writing	37	66.1
Dissemination of report through email	11	19.6
Storage of information	33	58.9
Access of stored information.	30	53.6
Surf educational resources	28	50.0
Advising education stakeholders through website	5	8.9
Conducting seminars	17	30.4

However, findings in Table 6 indicate further that more than half of school quality assurers do not utilize ICT for: data collection (69.6%), data analysis (67.9%), classroom observations (85.7%), dissemination of report (80.4%), advising education stakeholders through website (91.1%) and conducting seminars (69.6%).

Strategies for Effective Utilization of ICT to Enhance School Quality Assurance Practices

Opinions from Chief School Quality Assurers and School Quality Assurers regarding strategies to be used for effective utilization of ICT in school quality assurance were also explored. Analysis of responses from interviews determined a number of strategies, clustered in the following three major categories: (i) regular professional development programmes, (ii) improvement of school quality assurers' access to ICT, and (iii) availability of computer rooms in zones and district offices.

Regarding professional development programmes, school quality assurers were of the opinion that the MoEST and other stakeholders should provide tailor made professional development programmes for school quality assurers on how to utilize different aspects of ICT such as word, excel, and power point programmes effectively, and how to attach documents to emails. This is evident in the following utterances commonly raised by majority of the school quality assurers;

We should be assisted to have regular in-service programmes to learn computer skills and internet in order to enhance our ICT knowledge and improve our practices.

In addition, findings from interviews indicated that the school quality assurer's department (QAD) under UNICEF was at the preliminary stage of piloting the programme known as Quality Assurance Management Information System (QAMIS) in seven districts in Tanzania. It was suggested that *“the programme should be implemented and strengthened and school quality assurers be provided with adequate knowledge in order to manage the programme”*.

In terms of access to ICT facilities, most school quality assurers suggested that the government and relevant stakeholders should increase school quality assurers' access to ICT by supplying more computers, Ipads, projectors and internet connection as evidenced in the following quotation;

Every school quality assurer at all zonal and district offices should be provided with ICT facilities. Also, school quality assurers should be encouraged to procure Ipad or laptop computers for their personal use. To make school quality assurers utilize ICT effectively in their practices, they should be assisted to have fund so as to be able to buy computers and projectors.

In addition, school quality assurers suggested that there should be a separate computer room for school quality assurers in order for them to improve their practices. This is justified by the following utterances from school quality assurers;

We need to have at least a computer room which can be accessed by all all of us and to be used for activities that require computers. There is need to also establish ICT department at each school quality assurance offices in all districts and zones, also IT technicians be recruited to attend to all technical challenges.

DISCUSSION AND CONCLUSIONS

The study reported in this paper investigated the perceived potential for utilization of ICT to enhance school quality assurance practices in secondary schools in the context of Tanzania. Based on the framework of the study in Figure 1, effective utilization of ICT in school quality assurance practices is determined by quality assurers' access to ICTs and

ease of use of the ICTs and ICT knowledge (Chuttur, 2009; Jonathan & Mlyakado, 2016).

Generally, the study has established that, as perceived by school quality assurers, it is feasible to utilize ICT in school quality assurance practices in the context of Tanzania. This is because the study has established that over 80% of school quality assurers have access to ICT such as computer, radio, mobile phones and television. However, over 70% of school quality assurers have limited access to internet and ipad technologies. Also, it has been established that over 60% of the quality assurers have access to internet in their respective offices. According to Nihuka (2019) and Amadi *et al* (2015), reliable access to ICT such as computer and mobile phone is among the critical conditions for successful utilization of ICT in education.

Also, the study has established that over 50% of the quality assurers are currently utilizing some ICT in their practices. Specifically, quality assurers find it easy to use ICT in the following day-to-day practices; writing, storage of information, access to stored information and for surfing of reading resources. However, only limited quality assurers utilize ICT for data collection and analysis, classroom observation and dissemination of reports. According to Yekini *et al*, (2012) effective utilization of ICT promotes quality in quality assurance practices leading to quality teaching and learning processes in schools. Moreover, ICT utilization in quality assurance practices improves quality of quality assurance reports produced and quality of stored information (Anekwe & Izuchi, 2012).

However, the study has established that only less than 40% of the quality assurers have ICT knowledge particularly on basic computer applications such as the use of Microsoft office package which includes word, excel PowerPoint slides etc. They also lack ICT knowledge on how to use email, search for resources and uploading of documents in the email.

According to Jomathan and Petro (2016), lack of ICT knowledge is a common challenge across sub-Saharan Africa because only a few quality assurers have been fully trained to utilize ICT in school quality assurance practices. This finding corroborates to those reported in Samaila *et al* (2021), Jonathan and Mlyakado (2016) and Kihzoza, Zlotnikova, Bada & Kelegele, 2016). According to Hillmayr *et al* (2020), ICT knowledge is

important because it guides quality assurers on what ICT to use, how to use, and when and for what to use. Therefore, lack of ICT may have negative effects in school quality assurance practices, supervision and the provision of education in general.

It is concluded that for ICT to be effectively utilized to enhance school quality assurance practices, there is need for providing regular professional development programmes for quality assurers. This is because findings of the study have indicated that only 40% of the quality assurers have ICT knowledge. According to Samaila et (2021) and Udu (2018), regular professional development programmes are effective in acquainting with, and training of the quality assurers on how to effectively utilize ICT to enhance school quality assurance practices.

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Overview of TVET Institutional Capacity in Addressing Dynamic Labour Market: The Case of Tanzania and Selected Two Asian Tiger Nations

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ABSTRACT

In most developed countries, technical and vocational education and training (TVET) system has been considered to be among the key players for industrial growth through production of competent and skilled labour forces. However, TVET system in Tanzania has not been able to produce graduates who meet satisfactorily the skill demand of industries. The study examined the TVET institutional' capacity in addressing dynamic labour market. The study used a combination of instruments including questionnaires, semi-structured interviews, and observations to collect data from Tanzania and two Asian Tiger Nations, Singapore and the Republic of Korea. A total of 219 respondents were selected using simple random, stratified, and purposive sampling techniques. In summary, the study found that while conditions are very friendly in the two Asian Tiger Nations, Tanzania's TVET system is facing the short- supply of technically skilled workforce. The study has revealed further that among other factors influencing the effectiveness of TVET system in Tanzania are inadequate and poor teaching and learning infrastructure; outdated TVET curricula, teaching staff who not only lack practical experience but also lack the ability to interpret and apply labour market data and information. In ensuring that TVET system optimally contributes to economic development in Tanzania, lessons to be learnt from the two Asian Tiger Nations include establishing and strengthening strong partnerships among TVET institutions and industries and continuously monitoring of the relevance of TVET learning packages and curricula in line with current needs of industries.

Keywords: *Technical and Vocational Education and Training (TVET), Dynamic Labour Market, Curricula and Learning Packages (LPs), Teaching and Learning infrastructure, Industries*

INTRODUCTION

Shortage of skilled labour force is considered one of long outstanding problems facing many industrial sectors across the globe (Mutuku, 2017; Morris and Fessehaie, 2014). In fact, according to Seng (2012) the problem becomes very serious when technical and vocational competencies are inadequate. For instance, Siddiqui (2018) reported in the recent past that the Small and Medium Enterprises [SMEs] in India are struggling to find adequate skilled labour force. The problem is attributed to prevailing skill mismatch between what is provided by Technical and Vocational Education (TVET) institutions and the SME's demand, resulting in the shortage of most needed human capital.

The skill mismatch is mainly contributed to by dynamic technology that result in new demands for skills in enterprises and business environments. In response to these changes, various countries have been working on improving their education and training systems to fill technical skills and knowledge gaps in order to facilitate a competitive economy globally (URT, 2010). According to Redecker, Wihstutz and Mwinuka (2000), one of the notable interventions of this kind is the establishment and integration of TVET system into their education system.

TVET system is considered as one of the key education and training systems that generate competent and skilled labour forces for driving socio-economic, technological, and innovation development. In fact, TVET system inherently contributes to transformation of various sectors of the economy (Young, 2012; Chae and Chung, 2009). Likewise, TVET significantly contributes in increasing productivity in various industries and reduce massive unemployment (URT, 2010). The contribution of TVET system to socio-economic development can be seen in terms of meeting the labour force needs and demands of various industries.

However, for this to happen, TVET curricula (learning packages) should not only seek to equip trainees with occupational skills and attitudes for seeking employment, but also with entrepreneurial capabilities for turning their occupational skills into feasible, viable and sustainable industrial entities (Shikalepo, 2019). It is therefore imperative that there must exist strong linkages among TVET institutions, business environment, and investors to foster competitive business that enhance the development of countries regardless of their geographical locations (OECD, 2010; URT, 2010; Watson, 1994).

Some of the best success stories involving the role of TVET system have happened in two Asian Tiger Nations, Singapore and Republic of Korea. Studies indicate (Yew, 2000; OECD, 2011; Chang-Won, 2011, UNESCO-UNEVOC, 2018) that the two countries have managed to transform their economies with the help of TVET system. Available literature shows that the Government of the Republic of Korea has adopted and integrated TVET system to enhance the quality of its technical labour force.

Historically, such remarkable TVET initiatives and programmes can be traced back to years between 1960s and 1990s, Young (2012) where the demand for labour force with technical and vocational skills was high. This indicates that TVET system has been a key driving force for technological and innovation development as well as socio-economic transformation of the Republic of Korea (Young, 2012; Chae *et al.* 2009). The transformation has been linked to TVET's ability to balance workforce supply to demand in the country to ensure that the technical and vocational skills in demand are filled by increasing the pool of instructors and teachers with technical and vocational skills.

Similarly, since 1960s, there has been efforts to expedite and expand TVET system to meet technical and labour needs of new emerging industries in Singapore. This was associated with the increasing pace of industrialization and competitive business. For example, the labour-intensive economy (1960s-1970s) and the capital-intensive economy (1980s-1990s) were two important phases of the implementation, development, and promotion of TVET system. TVET contributed to the development of Singapore's competitive industrial economy by supplying high-quality human capital to facilitate the development and utilization of advanced technological facilities (OECD, 2010).

On the other hand, TVET initiatives in Tanzania have a long history that can be traced back to the year 1940 (long before independence). This includes establishment of trade and technical schools and colleges such as technical colleges (DIT, MUST, ATC); focal development colleges (FDCs), Post Primary Technical Centres (PPTCs), etc., to offer technical and vocational training. The main objective was to produce technicians, artisans and other semi - skilled workers for farming and livestock keeping enterprises found in rural communities (Schadler, 1968; URT, 1995; Kahindi, 1996; Pfander and Gold, 2000; Sishe, 2008).

Later the Government enacted VET Act of 1974, VET Act No.1 of 1994 and the TET Act of 1997 with the principle aim of establishing VETA and NACTE authorities for strengthening and promoting VET and TET systems, respectively, in the country (URT, VET Act: 1974; VET Act: 1994 and TET Act: 1997). Thereafter, the formal TVET system was established in Tanzania, offered through two distinct sub-systems, namely vocational education and training (VET) under the administration of Vocational Education and Training Authority (VETA) and technical education and training (TET) under the administration of the National Council for Technical Education (NACTE) [(UNESCO, 2016)].

Notwithstanding the efforts made by the Tanzanian government to integrate the TVET system into its education system, hence improve access to technology, there are still complaints about TVET system being unable to produce graduates who meet satisfactorily the skill demands of many enterprises (URT, 1995, 2010; Morris and Fessehaie, 2014; Mutuku, 2017). In other words, the Tanzanian TVET system has not been able to empower industries to adapt to the changes happening technologically and orchestrate advancements that would see the economy grow. This situation suggests that there are bottlenecks in the Tanzania's TVET system. Considering the impact of TVET system on the country's economy, the need to improve it so it gets to its real potential is apparent. Therefore, in this paper, the study was initiated to examine TVET institutional capacity in addressing dynamic labour market in Tanzania in comparison with the two selected Asian Tiger Nations.

METHODOLOGY

Research Design

The study employed a mixed research design. Specifically, the study used descriptive and exploratory-cross-sectional designs. The former focused on examining factors influencing the effectiveness of TVET institutions in addressing dynamic labour market, whereas the latter focused on determining if the countries under study are up to the task of supporting the processes of equipping learners with technological skills demanded by the market. As such, the combination of two designs was necessary to gain deeper insights on the capacities of TVET institutions particularly in looking at the state of teaching infrastructure of same institutions. Generally, the mixed research design allowed for the integration of both qualitative and quantitative approaches in carrying out this study. According to Creswell (2008), when quantitative and qualitative data are

together, they provide a better understanding of a research problem than either type by itself.

Areas of the Study

This study was carried out in the United Republic of Tanzania, the Republic of Korea, and Singapore. In Tanzania, the study was conducted in Dar es Salaam, and Morogoro regions. Dar es Salaam region cover five administrative districts namely: Ilala, Kinondoni, Ubungo, Kigamboni and Temeke. Morogoro region has seven administrative districts namely: Morogoro Urban, Morogoro Rural, Gairo, Kilombero, Kilosa, Mvomero and Ulanga (NBS, 2014). In Dar es Salaam region, the study was carried out in four districts namely: Ilala, Kinondoni, Temeke and Ubungo while in Morogoro region the study was carried out in two districts namely: Morogoro Urban and Kilosa.

The study involved twelve Vocational Education and Training (VET) centres and eight Technical Education and Training (TET) institutions. Out of these, twelve VET centres and six TET institutions are located in Dar es Salaam region whereas, two TET institutions are located in Morogoro region, as one of the regions with more agriculturally based TVET institutions compared to other regions. Besides TVET institutions, the study also involved medium size industries and companies, government agencies, association of employers, informal workplaces as well as Small and Medium Enterprises (SMEs). The Republic of Korea and Singapore were picked for this study following their success in using TVET system to transform their economies.

In the Republic of Korea, the study involved three vocational training centres and one polytechnic college of which, all were located in the city of Seoul, whereas the Korea Tech University was located in the Chung Num Province about 100km away from the city of Seoul. In Singapore, the study involved Institutes for Technical Education (ITE) that include ITE College Central, ITE College East, and ITE College West.

Study Population and Sample

The total population of trainees, students, tutors and vocational teachers from the three selected countries was 3,300 out of which, 2,160 were from the United Republic of Tanzania; 620 from the Republic of Korea and 520 were from Singapore. Selection of respondents for this study based on, a multistage approach, which applied both probability and non-probability techniques. To start with, 28 institutions were selected to be

involved in the study by stratifying them based on their location and types. From these institutions, the study dealt with four (4) categories of respondents namely: trainees (43); students (69), vocational teachers (22); tutors (31).

Simple random sampling technique was used to select a sample of 165 respondents, which is 5% of (3,300) the target population (Cohen, Manion and Morrison, 2003; Lund research Ltd, 2012; Hayes, 2014). In addition to that, fifty-four (54) respondents were purposively selected to represent various TVET stakeholders, namely: Principals and Rectors (28) from TVET institutions out of which, twenty (20) were selected from Tanzania, five (5) from the Republic of Korea and three (3) from Singapore. Other stakeholders from Tanzania were selected from medium industries and companies (8); Government Agencies (10); Executive Secretaries from Association of Employers (2); as well as Informal Sector Operators & SMEs (6).

In short, for the purposive sampling technique that involved 54 respondents who were interviewed, forty-six (46) were from Tanzania, five (5) from the Republic of Korea and three (3) from Singapore. Therefore, the study involved the total of 219 participants (see Table1).

Table 1: Summary of respondents selected in the study by different categories

S/N	Category of Respondents	Tanzania	Rep. of Korea	Singapore	Total	Percentage (%)
1.	Trainees	43	0	0	43	19.6
2.	Students	29	20	20	69	31.5
3.	Vocational Teachers	22	0	0	22	10.0
4.	Tutors	14	11	6	31	14.2
	Sub – Total	108	31	26	165	75.3
5.	Principals & Rectors and Presidents of Polytechnic I & Korea TECH	20	5	3	28	12.8
6.	Medium size Industries and Companies	8	-	-	8	3.7
7.	TVET Experts from Government Agencies	10	-	-	10	4.6
9.	Associations of Employers	2	-	-	2	0.9
11.	Informal Sector Operators and SMEs	6	-	-	6	2.7
	Sub – Total	46	5	3	54	24.7
	Grand Total	154	36	29	219	100

Source: Field Data (2015-2016)

Data Collection Methods

Primary data was collected by employing surveys (semi-structured interviews and questionnaire) and observation. In general, quantitative data was collected from 165 respondents using questionnaires with both open and close-ended questions to enhance validity and reliability of the data to be collected. Qualitative data was collected from 54 respondents using semi-structured interviews (Table 1). Observations complemented these methods. The primary data collected was complemented by secondary data through a documentary review method from various sources such as Emerald, Google Scholar, and JSTOR.

In addition, data given on most of the reports from the websites of various universities, polytechnics, colleges and TVET centres located in the countries under study was accessed. Others included relevant books retrieved from online sources as well as past theses and dissertations.

Data Analysis

The collected data and information were coded, edited, classified and itemized before being entered into the Statistical Product for Service Solutions (IBM SPSS) version (22) for analysis. On the other hand, thematic analysis was used to analyse qualitative data. The results of the analysis have been presented using tables, graphs, and charts. Where qualitative responses were seen very informative, they were used to support the results presented. All scores of trainees, students, vocational teachers and tutors were converted to percentages to generate meaningful comparisons and facilitate interpretation of the results.

FINDINGS AND DISCUSSION

Response Rate

Table 2 shows a total of 165 questionnaires that were administered to 108, 31, and 26 respondents from Tanzania, Republic of Korea and Singapore, respectively. The questionnaires with both closed and open-ended questions were administered. Generally, all the questionnaires were completed and returned successfully, giving a 100% response rate. The data collection tools used in each country corresponded with the numbers of respondents targeted in each of them. Table 2 shows the composition of respondents based on countries where the study was carried out.

Table 2: Respondents by Country

Category of Respondents (n=165)	Tanzania	Republic of Korea	Singapore	Total
Trainees	43	0	0	43
Students	29	20	20	69
Vocational Teachers	22	0	0	22
Tutors	14	11	6	31
Sub – Total	108 (65.5%)	31 (18.8%)	26 (15.8%)	165 (100%)

Source: Field Data (2015-2016)

It can be observed from Table 2 that majority of respondents (65.5%) were from Tanzania. This was due to the sizes of the target populations found in the studied countries at the time of the study. Apart from that, the fact that the response rate was 100% ensured that the composition of respondents is as it is. Overall, the composition represents optimum representations of the target populations in the three individual countries where the study was carried out.

Status of Teaching and Learning Infrastructure

Learners from all the countries were asked to indicate if they found the teaching and learning infrastructure to be adequate or not. The results are shown in Table 3.

Table 3: Adequacy of Teaching and Learning Infrastructure in Studied Countries

Country	Infrastructure and Resources	Adequacy of Infrastructure & Resources	
		Adequate	Inadequate
Tanzania (n = 72)	Classrooms	15 (20.8%)	57 (79.2%)
	Workshops	18 (25.0%)	54 (75.0%)
	Workshop machines	10 (13.9%)	62 (86.1%)
	ICT facilities	19 (26.4%)	53 (73.6%)
	Learning materials	15 (20.8%)	57 (79.2%)
	Teaching staff	20(27.8%)	52 (72.2%)
	Laboratories	6(8.3%)	66 (91.7%)
	Equipment	11(15.3%)	61(84.7%)
South Korea (n = 20)	Classrooms	20(100%)	0(0%)
	Workshops	20(100%)	0(0%)
	Workshop machines	20(100%)	0(0%)
	ICT facilities	20(100%)	0(0%)
	Learning materials	19(95%)	1(5%)
	Teaching staff	20(100%)	0(0%)
	Laboratories	19(95%)	1(5%)
	Equipment	20(100%)	0(0%)

Country	Infrastructure and Resources	Adequacy of Infrastructure & Resources	
		Adequate	Inadequate
Singapore (n = 20)	Classrooms	20(100%)	0(0%)
	Workshops	20(100%)	0(0%)
	Workshop machines	20(100%)	0(0%)
	ICT facilities	20(100%)	0(0%)
	Learning materials	20(100%)	0(0%)
	Teaching staff	19(95%)	1(5%)
	Laboratories	19(95%)	1(5%)
	Equipment	20(100%)	0(5%)

Source: Field Data (2015-2016)

The results in Table 3 show variations in terms of the adequacy of teaching and learning infrastructure among the three countries involved in the study. While majority of respondents from Tanzania found the infrastructure to be inadequate, almost all respondents from the two Asian Tiger Nations found their infrastructure sufficient and up-to-date. The modernity of teaching infrastructure in the Asian Tiger Nations was confirmed through observations as part of this study. Plate 1 shows technology found at one of the ITE colleges involved in the study.



Plate 1: An Automatic Machine in a Mechatronics Workshop in Singapore

Source: ITE College Central – “*College of Creativity and Innovation*” (2016)

Specifically, while 100% of respondents from Singapore and the Republic of Korea considered their classrooms, workshops, workshop machines, Information and Communication Technology (ICT) facilities, and related teaching and learning equipment to be adequate; only 20.8%, 25%, 13.9%, 26.4%, and 15.3% of the respondents in Tanzania found them adequate (in the same order). Similarly, while learning materials, teaching staff, and laboratories were considered enough by majority of the respondents in the Republic of Korea and Singapore, only 20.8%, 27.8%, and 8.3% of the respondents in Tanzania considered them sufficient in their institutions, respectively.

The inadequacy of these facilities was confirmed through interviews with principals of public and private TVET institutions and training centres in Tanzania. Elaborating on this state, the principal from one of the TET institutions in Tanzania shared the following:

At our institution, training facilities are insufficient and outdated. This state forces us to place our students under industrial attachment for a period of not less than ten weeks per year. This is done only to help our students get the skills we cannot sufficiently provide to them.

In addition to stating that the infrastructures were inadequate, the interviewees also revealed that the available workshop machinery, equipment, and other tools were aged and outdated (for example, see Plate 2), hence making them more insufficient. In confirming the aging status of the infrastructure, the principal from one of the VET centres in Tanzania described the status at his centre as follows:

This institution was equipped the last time 30 years ago. Workshops machinery, equipment, and tools are too aged and outdated to match the current industries' technological demands. This is partly contributed by the absence of a Public Private Partnership (PPP) instrument which has not yet fully established by the Government.



Plate 2: Semi-automatic machine in an Electrical Workshop at one of the VET Centres in Tanzania

Source: Dar es Salaam Regional Vocational Training and Service Centre (2015)

The results demonstrate clearly that TVET institutions in Tanzania have inadequate learning and teaching infrastructure while those in the two Asian Tiger Nations have sufficient infrastructure. This could be one of the reasons why most of the TVET institutions in Tanzania are not performing well (VETA, 2012). The findings corroborate those of Ayonmike (2014) who stated that the challenge of implementing TVET curriculum includes inadequate and obsolete infrastructure and equipment.

In the same note, the results further show that the limited available infrastructure in Tanzania is too aged, out-dated and is in poor state, the situation which is partly contributed by the absence of a Public Private Partnership (PPP) instrument, which has not yet fully established by the government. For instance, new investments in physical infrastructure development using PPP basis are low in Tanzania (URT, 2009). As a result, the development of infrastructure in TVET institutions in the country is likely to solely be a government's responsibility.

As such, some benefits such as improved facilities through industry donations and teacher/tutor's knowledge and skills improvement are

almost impossible in that regard (Raihan, 2014). This implies that there is poor linkage between TVET institutions and industries in Tanzania. Accordingly, this is a bottleneck for TVET institutions in Tanzania to contribute to socio-economic development of the country in the same way it has done to the two Asian Tiger Nations (URT, 2009, 2010; Morris and Fessehaie, 2014; Mutuku, 2017).

This implies further that poor or inadequate teaching and learning infrastructure in TVET institutions could also significantly affect the teaching and learning environment leading to production of incompetent graduates required by the labour market.

Relevance of TVET Learning Packages

Tutors and vocational teachers of the Tanzania’s TVET institutions were also asked to state how they felt about the relevancy of learning packages in relation to the skills needed by learners to perform well at workplaces. The findings on this aspect of the study are presented on Figure 1:

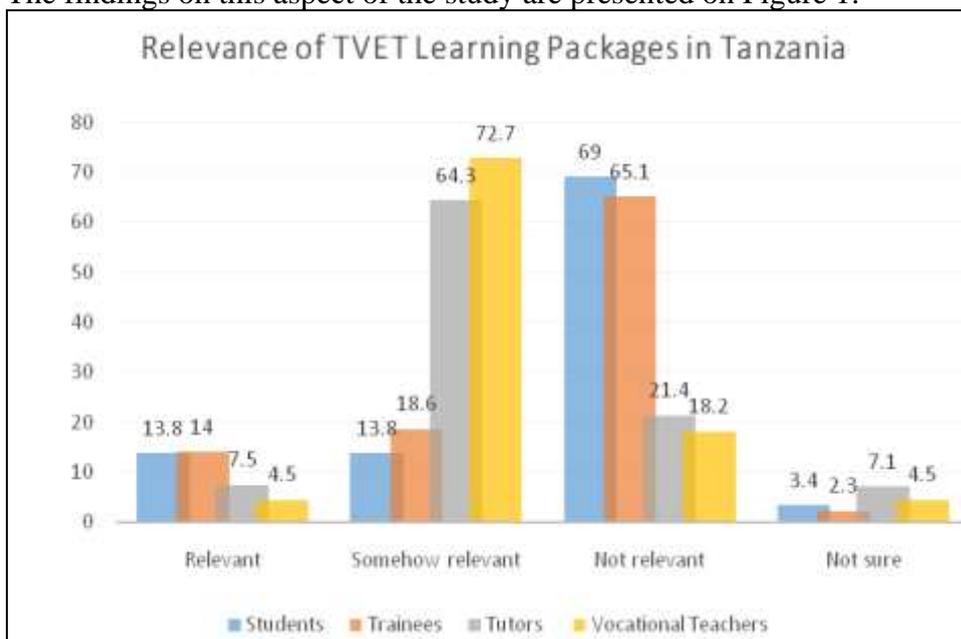


Figure 1: Relevance of TVET Learning Packages (Tutors: n=14; Vocational Teachers: n=22; Trainees: n=43; Students: n=29)

Source: Field Data (2015-2016)

The results in Figure 1 show that majority of tutors (64.3%) and vocational teachers (72.7%) found their LPs somehow relevant to technological skill demands in the labour market compared with 21.4% and 18.2%, respectively, who found the LPs to be irrelevant. Furthermore, the findings show that 7.1% of tutors and 4.5% of vocational teachers were not sure of the relevance of the LPs while only 7.5% of tutors and 4.5% of vocational teachers found them relevant to technological skill demands in the labour market.

In contrast, the result disclosed that majority of students and trainees (69.0% and 65.1%) found courses offered by their respective TVET institutions/centres not relevant to the labour market demands in Tanzania. In fact, only 13.8% of students and 18.6% of trainees found the courses somehow relevant while an insignificant number of respondents [(13.8%) students and (14.0%) trainees] found the courses relevant to labour market demands.

The implication is that the learning packages used to train learners in Tanzania are not relevant to the needs available in the labour market. This is one of the factors likely to impede TVET institutions from producing the calibre of graduates who can support the economic development of a nation. The results is supported by previous literature (Mutuku, 2017; Morris and Fessehaie, 2014; URT, 2010, 1995) which stated failure of TVET institutions in the country to produce graduates who meet skill demands of workplaces. Moreover, the results is supported through the responses of the tutors and vocational teachers whose comments relate to each other hence indicate no significant difference (Fig. 1).

Poor matching of learning packages to industrial skill and knowledge demands has been partly attributed to lack of collaboration between TVET institutions and industries (VETA, 2012). As a result, industries are left in need of human resources and most likely forced to hire expatriates who cost more. This agrees with Choy and Haukka (2018) who pointed out in their report that in most regions of the world, TVET is founded on partnerships between governments, industry and TVET institutions. Apart from loose collaboration between TVET institutions and the industrial sector, irrelevance of TVET LPs in Tanzania has been associated with rapid technological changes that outpace the development and review of TVET institutions' curricula and LPs (Mutuku, 2017;

Morris and Fessehaie, 2014). This make majority of teaching staff and learners to have the feeling that LPs and curricula are not attuned to prepare students and trainees for current labour market skill demands.

The comments are supported by the remarks from one of the key respondents during an interview session who said:

To tell the truth, technology is changing at a high speed while the learning packages in use do not move at that pace in their adaptation to changes. In other words, there is less flexibility in adaptation.

Tutors and Vocational Teachers’ Participation in Industrial Practical Training

Considering the importance of industrial practical training (IPT) in imparting teaching staff and learners with practical skills, tutors and vocational teachers were asked of their participation in such training. Table 4 shows the results on this:

Table 4: Tutors and Vocational Teachers’ Participation in Industrial Practical Training

Participation	South Korea n=11		Singapore n=6		Tutors n=14		Tanzania Vocational teachers n=22	
	Freq	%	Freq	%	Freq	%	Freq	%
Participating	9	81.8	5	83.3	4	28.6	8	36.4
Not participating	2	18.2	1	16.7	10	71.4	14	63.6
Total	11	100	6	100	14	100.0	22	100.0

Source: Field Data (2015-2016)

The results in Table 4 show that majority of tutors from the Republic of Korea (81.8%) and Singapore (83.3%) said they were involved in IPT while only 28.6% of tutors and 36.4% of vocational teachers in Tanzania got such an opportunity. This implies that only 18.2% and 16.7% of teaching staff from the Republic of Korea and Singapore, respectively and majority of tutors (71.4%) and vocational teachers (63.6%) from Tanzania do not go through IPT. Alternatively, data collected from interviews indicated that the situation in Table 4 has been associated with inappropriate field attachment, poor interaction between TVET staff and experts from industries, absence of an Industrial Practical Training Policy to foster participation in IPT, and shortage of budget to facilitate IPT. On the same note, investors have been reported to accept a limited number of students and TVET staff for IPT. These findings suggest limited involvement of teaching staff in practical training which severely affects the ability of TVET institutions to produce quality graduates in Tanzania.

The implication is that opportunities to participate in Industrial Practical Training are narrow for TVET teaching staff in Tanzania resulted into limited opportunities for translating theoretical knowledge into practical skills. The implication is further affirmed by Mutuku (2017), who asserted that TVET instructors in Tanzania lack the necessary skills to carry out their tasks effectively.

These findings were further supported through data collected from interviews which revealed that in Tanzania most industries are privately owned; meaning that the government has no say regarding IPT decisions of such entities due to absence of an Industrial Practical Training Policy which ensures acceptance of students and trainees as well as tutors and vocational teachers in industries. Apart from that TVET institutions in Tanzania has not made it mandatory for tutors and vocational teachers to attend Industrial Practical Training in their relevant fields. Accordingly, incubation, traineeship and internship opportunities are also very limited in the country that, in turn, limit students, trainees, tutors and vocational teachers' opportunities to smoothly acquire practical knowledge.

Noting from the findings in Table 4 and data collected from interviews, findings indicated that Tanzania is lagging behind South Korea and Singapore when it comes to teaching staff taking part in Industrial Practical Training. For instance, in Singapore, the government partners with foreign governments to enhance industrial practical training. The government has adopted foreign teaching systems and developed a unique "Teaching Factory" concept to prepare "work ready" skilled workforce (ITEES, 2020). Similarly, data collected from interviews revealed that, the Republic of Korea adopted the "Factory Learning System" (FL System) which is a unique college operation system that seeks to innovate TVET colleges in response to the changes in the employment/labour market and educational environment. The aim of this is to reinforce industry-TVET collaboration and escape from the traditional theory-based classroom format. The implication is that access to such opportunities is limited in Tanzania when compared to the two other countries.

Capacity of Teaching Staff to Interpret and Apply Labour Market Information

Notwithstanding the importance of industrial practical experience to teaching staff in TVET institutions, this study also sought to explore awareness of the teaching staff to the labour market demands. TVET

teaching staff were requested to indicate their ability to interpret and apply labour market information. This ability is vital in TVET systems as it forms the basis for coming up with information for the development of TVET learning packages and or curricula that address the needs of the labour market. The respondent provided the following information summarized in Figure 2.

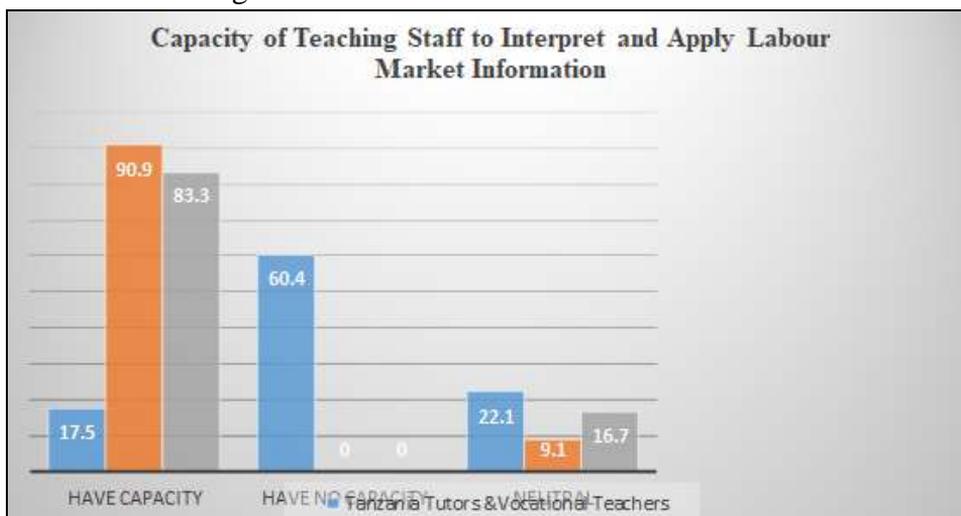


Figure 2: Capacity of Teaching Staff to Interpret and Apply Labour Market Information (Tanzania: Tutors n=14; Vocational Teachers: n=22; Rep. of Korea: Tutors n=11; and Singapore: Tutors n=6)

Source: Field Data (2015-2016)

It can be revealed from Figure 2 that majority (90.9%; 83.3%) of tutors from TVET institutions in the Republic of Korea and Singapore, respectively, expressed their ability to interpret and apply labour market information in their training, only 17.5% of the teaching staff members (tutors and vocational teachers) in Tanzania indicated that capability. The results show further that majority (60.4%) of the teaching staff in Tanzania indicated the inability to interpret and apply the labour market information, while 22.1% remained neutral.

The inability to interpret and apply labour market information in TVET systems makes the TVET institutions to have incompetent teaching staff and undermines the effectiveness of the system and capacity of the institutions to produce competent graduates required in the dynamic

labour market. One of the key interviewees from one of the TET institutions in Tanzania provided the following remarks:

The institute holds consultative meetings with stakeholders from industries to learn about their technological needs. Otherwise, the analysis, interpretation and application of the labour market data is done by a trained group of staff of the institute who come up with actual market needs.

The implication is that, the quality of LPs and, or curriculum would arguably be considered the strongest factor for any TVET institution to produce quality graduates. Hence, it is practically impossible to have good results from any training that uses poorly developed LP or curriculum. As a matter of fact, the inputs brought forward during the development and review of LPs and, or curriculum determines the results of such processes, and that is where teaching staff members come in. Teaching staff with the ability to interpret and put into application labour market information will bring quality inputs for LPs (Middleton *et al.*, 1993).

Unfortunately, while teaching staff members in the Republic of Korea and Singapore can interpret and apply labour market information in their TVET system, majority of their counterparts in Tanzania cannot. Based on these results, it can be stated that the VET and TET institutions in Tanzania have limited capacity to interpret and apply labour market information. This is because of centralization of this activity to the regulators (i.e. VETA and NACTE) and therefore alienating individual institutions in the process.

Other Factors Influencing the Effectiveness of TVET Institutions to Address Dynamic Labour Market

The study also investigated other factors that slow down TVET institutions' efforts to address dynamic labour market. The respondents in this case were heads of TVET institutions, experts from medium and heavy industries and companies as well as TVET experts from government agencies. They also included executive secretaries from employers' associations, as well as informal sector operators and SMEs. The responses obtained were processed thematically giving the results summarized in Table 5:

Table 5: Other Factors Influencing the Effectiveness of TVET Institutions to Address Dynamic Labour Market

Factors influencing the effectiveness of TVET institutions (n =54)	Tanzania Stakeholders n=46		Republic of Korea Stakeholders n=5		Singapore Stakeholders n=3	
	Freq	%	Freq	%	Freq	%
Slow adoption of technologies and innovation systems among the TVET institutions	43	93.5	0	0.0	0	0.0
TVET regulations and policies are not friendly to industry' participation in different TVET programmes and activities	43	93.5	0	0.00	0	0.00
Private industries unwillingness to accept tutors/vocational teachers for IPT	42	91.3	1	20.0	1	33.3
Weak involvement of stakeholders from industries in designing and reviewing TVET learning packages and, or curricula	40	86.9	0	0.00	0	0.00
Absence of a well-established system for stakeholders from industries to express their technological skill needs	39	83.0	0	0.00	0	0.00
Weak communication mechanism at national level for creation of competent labour force as one among national future plans	38	82.6	0	0.00	0	0.00
Limited opportunities for TVET institutions and their stakeholders from industries to participate in national policy formulation.	38	82.6	0	0.00	0	0.00
Absence of joint forum between TVET institutions and industries	34	73.9	0	0.00	1	33.3
Research institutions are not well aligned with TVET institutions on innovation and research matters and industrialization development	34	73.9	0	0.00	0	0.00
Research conducted by LPs and, or curricula developers is limited and not based on data and information from viable sources	32	69.6	0	0.00	1	33.3

Source: Field Data (2015-2016)

The results in Table 5 show that majority 43 (93.5%) of stakeholders from Tanzania indicated that slow adoption of new technologies and innovation systems among TVET Institutions negatively affects them in addressing dynamic labour market, and that TVET regulations and policies are not friendly to industry' participation in different TVET programmes and activities. In contrast, stakeholders in Republic of Korea and Singapore did not indicate these challenges. Similarly, while 42 (91.3%) of respondents in Tanzania reported that private industries are unwilling to accept tutors and vocational teachers for IPT, only 1 (33.3%) of stakeholders from Singapore and 1 (20.0%) from Republic of Korea said so.

Such experience was observed by one of the key stakeholders from Tanzania who said:

Most industries in Tanzania are privately owned, which means that the government has no shares in those industries. As such industry owners are free to decide on matters to do with IPT. This tendency limits the opportunities for tutors and vocational teachers to attain practical skills. Worse still, a policy to foster the participation in Industry Practical Training is not in place.

On the same note, another stakeholder from Tanzania added that:

Tutors and, or vocational teachers do not actively and effectively interact with experts from industries and from work places. Skills and knowledge are not exchanged between the TVET institutions and consumers of TVET outputs and products. This undermines the process of gaining experience and practical knowledge.

Furthermore, the results show that 40 (86.9%) stakeholders from Tanzania cited the weak involvement of stakeholders from industries in designing and reviewing TVET learning packages and or, curricula while no any stakeholder in the two other countries cited it. On top of that, 39 (83.0%) stakeholders from Tanzania mentioned absence of a well-established system for stakeholders from industries to express their technological skill needs, while no stakeholder in the two other countries mentioned it. During an interview session, one key stakeholder stated that:

The absence of a well-established system through which the demand side can express skills needs is a challenge facing our TVET system. This increases the mismatch of efforts made by TVET institutions to fill skill gaps and the actual industries' skill needs. This is so because information

on labour market and kinds of new technologies available is not communicated effectively.

The findings indicate further those 38 (82.6%) respondents mention weak communication mechanism at national level for creation of competent labour force as one among national future plans. The same number of stakeholders from Tanzania cited those limited opportunities for TVET institutions and their stakeholders from industries to participate in national policy and plans formulations as a factor that deters TVET's positive contribution to the development of competent labour force in Tanzania. On this, one of the key stakeholders argued that:

In Tanzania, there is a weak mechanism for communicating big and future national plans (in terms of new investments) at national level. This adversely affects future plans for the creation of competent labour force for future national investments. This limits TVET institutions' opportunities to effectively participate in national policy and plans formulations.

Besides that, 34 (73.9%) stakeholders from Tanzania cited the absence of a clear joint forum for TVET institutions and their stakeholders from industries as a problem, while on the other hand only 1 (33.3%) of the stakeholder from Singapore cited it.

This factor was also noted by one of the key stakeholders during interview sessions, who said:

There is no joint forum for TVET Institutions and stakeholders from the industry. This is one of the factors limiting the effectiveness of TVET institutions in satisfying labour markets and industries' technological skills needs. This is why most learning packages are not appropriately promoted and provided. For example, industries in Tanzania have not yet established sector Councils' representatives that can represent them during meetings/workshops or in committees developing or reviewing learning packages. Consequently, industries do not know exactly their prevailing challenges and at the same time TVET institutions cannot just imagine them. These Councils remain non-functional although their establishment is mandated by law.

The same number 34 (73.9%) of stakeholders in Tanzania indicated that research institutions' targets are not well aligned with TVET institutions shared focus on industrialization initiatives. Moreover, the results further show that 32 (69.6%) stakeholders in Tanzania said the research

conducted by LPs and, or curricula developers is so limited and not based on data and information from viable sources, while only 1 (33.3%) stakeholder in Singapore indicated this factor.

On this, one key stakeholder in Tanzania informed that:

Research conducted by LPs designers and reviewers is so limited and does not cover wide areas and large proportion of stakeholders. Worse still, researches on new technologies deployed by industries are hardly to be found. This is associated with the limited research funding opportunities in TVET institutions.

The implication is that TVET institutions in Tanzania are not immune to various limiting factors. Other factors, which influence the effectiveness of TVET institutions to address dynamic labour market, were revealed by majority (93.5%) of respondents through interviews who confirmed that there is a tendency of being slow in adoption of technologies and innovation systems among the TVET institutions. This means that TVET institutions are not effectively innovating and introducing new technologies for the consumption of local industries, resulting in poor contributions to building and strengthening labour market capacities that are essential for local economic development (Hoffecker, 2018).

The impact of these technologies is to prepare the workforce to benefit from the same hence minimize the risks (United Nations, 2021). Others (91.3%) confirmed that most of privately owned industries are unwilling to accept tutors and vocational teachers for IPT which limits the opportunities for tutors and vocational teachers to attain practical skills. The envisaged reason relies on the absence of a national policy to enforce participation of industry in Industry Practical Training. On the other hand, stakeholders (83.0%) from Tanzania were concerned of the absence of a well-established system for stakeholders from industries to express their technological skill needs.

This shows that there is lack of avenues through which TVET institutions and industries can exchange their ideas and experiences. This tendency inhibits the existence of viable linkages between TVET institutions and industries, which in turn deter TVET institutions to address properly the dynamic labour market. More stakeholders (73.9%) interviewed confirmed that research institutions in the country are not well aligned with TVET institutions on innovations and research matters and industrialization development, hence have different focus towards such

undertakings. This implies that collaboration between both parties is not well structured which is one of the main barriers to the development of new skills and solutions that are responsive to specific demands (VETA, 2012).

Lesser number of stakeholders (69.6%) cited on research activities conducted by LPs and, or curricula developers that are limited and not based on data and information from viable sources. This implies that limited research opportunities associated with TVET institutions and their stakeholders from industries deter the effectiveness of TVET institutions to address the dynamic labour market. This has a negative impact as for instance, experts in hospitality industry in Tanzania always come from our neighboring country-Kenya because they are smart in predicting the market trend for tomorrow through research (Murungu, 2018).

Based on these data there are several factors that undermine the effectiveness of TVET institutions to address dynamic labour market in Tanzania. However, these factors appear to be only prominent in Tanzania hence practically explaining the difference in the effectiveness of TVET system in these three countries to address dynamic labour market.

CONCLUSIONS

Status of Teaching and Learning Infrastructure

The findings of the study revealed that teaching and learning infrastructure not only is out-dated and in poor state but also is in short supply among TVET institutions in Tanzania. This is due to TVET institutions' inability to acquire and install new facilities in their workshops to enhance the acquisition of skills and knowledge among learners. In contrast, the findings show that the situation in two Asian Tiger nations have been noted to have modern and sufficient infrastructure of this nature (Table 3). Overall, TVET institutions are insufficiently linked with industries in Tanzania as one of the factors that contribute to poor state of infrastructure, hence the development of infrastructure in TVET institutions in the country is likely to solely be a government's responsibility.

Relevance of TVET Learning Packages and/or Curricula

The findings of the study found that, majority of students and trainees (69.0% and 65.1%) found courses offered by their respective TVET

institutions/centres not relevant to labour market skill in demand. Conversely, majority of tutors (64.3%) and vocational teachers (72.7%) found courses offered somehow relevant. According to the study, TVET institutions in Tanzania have not been able to address dynamic labour market because of poor TVET LPs and, or curricula. This has been connected to various factors. However, all of them can be summed up under poor linkage of TVET institutions and industries.

On the whole, the failure of TVET institutions to produce quality graduates in Tanzania, is significantly associated with the usage of LPs and, or curricula that do not address dynamic labour market.

Tutors and Vocational Teachers' Participation in Industrial Practical Training

The findings of the study found that, tutors and vocational teachers' participation in IPT is ineffective (28.6%, 36.4%) in Tanzania (Table 4.0). Conversely, the findings further show that majority (81.8%, 83.3%) of tutors in Republic of Korea and Singapore (Table 4.0) indicated to have been attending Industrial Practical Practice frequently. As such, the challenge TVET institutions faces regarding finding IPT placements for learners partly explains the poor quality of graduates. Moreover, the absence of an Industrial Practical Training (IPT) policy appeared to imperil the acceptance of students and trainee as well as tutors and vocational teachers in industries. Furthermore, TVET institutions in Tanzania has not made it mandatory for tutors and vocational teachers to attend Industrial Practical Training in their relevant fields. Yet alone, opportunities such as incubation, traineeship and internship are also very limited in the country hence the inherent incompetence among students, trainees, tutors and vocational teachers. Overall, lack of a national IPT Policy and poor linkage of TVET institutions and industries in Tanzania are partly to blame for this problem.

Capacity of Teaching Staff to Interpret and Apply Labour Market Information

The findings of the study found that, while academic staff members (90.9% and 83.3%) in Republic of Korea and Singapore have ability to analyse, interpret and apply labour market information, majority (60.4%) of those in Tanzania do not have it. However, data collection is not a responsibility left to individual TVET institution in Tanzania but the same

is done by a trained group of staff of the individual institution who come up with actual needs of the labour market. On the whole, once teaching staff from TVET institutions in Tanzania are availed with the same opportunity as it is being done in the two Asian Tiger Nations, the improvement of LPs and, or curriculum would be obvious.

RECOMMENDATIONS

Based on the findings and conclusions, the study recommends that in order to improve TVET institutions' capacity to address the dynamic labour market in Tanzania, it is recommended to take positive actions that will include improvement of teaching and learning infrastructure; making exposure to practical training mandatory for all teaching staff members; ensuring technologies used for teaching reflect those that are in use in industries/enterprises where TVET graduates are going to be employed; and improve the capacity of teaching staff members starting from the data collection stage up to application of labour market information, so as to improve development and review of LPs and, or curricula.

Additionally, it is recommended to establish a national IPT Policy that requires industry to participate fully in IPT training of teaching staff and students.

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Agencification and Minorization in Tanzania: A Case of Registration Insolvency and Trusteeship Agency (RITA)

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ABSTRACT

This study explores the impact of the creation of executive agencies on minorities in Tanzania. Using the Registration Insolvency and Trusteeship Agency (RITA) as a unit of analysis, the study highlights the role institutions play in reshaping societal dynamics particularly in reformed institutions that serve as agents for distributing opportunities to various societal groups. Specifically, the study carried out a critical analysis of RITA and found that despite the agency's concerted efforts towards providing services to the wider community, its structure and funding have inadvertently resulted in unequal provision of services to different groups contrary to its mandate. The study, therefore, emphasises the need to monitor and scrutinise on continual basis the existing, reformed and newly-created institutions as well as mechanisms put in place to minimise the effects of structural marginalisation, which contribute to the minorization of certain groups in society.

Keywords: *Executive Agencies, Minority, Minorization, Marginalisation, and RITA*

INTRODUCTION

Introduction and Background to the Study

Executive agencies have become an integral part of the public sector in Tanzania. The creation of semi-autonomous organisations in the 1990s, which operate at the arm's length of the government in carrying out public tasks, have increasingly become a dominant feature of public administration in the country. The creation of these institutions was meant to modernise the public sector, making it more accountable to the public. Scholars and practitioners alike promoted executive agencies as an effective solution to getting rid of inefficiencies, corruption, rent-seeking

tendencies, and all kinds of behaviours that made the public sector less productive than the private sector.

Executive agencies known as quasi-autonomous non-governmental organisations (quangos) in the United Kingdom (UK) are an integral part of the major reforms that new public management policy reforms ushered in during the late 1970s and early 1980s. The first practitioners of these reforms emerged in the United Kingdom “under Prime Minister Margaret Thatcher and in the municipal governments in [the] USA” (Gruening, 2001, p.2). Other countries such as Australia, Canada, New Zealand and Sweden subsequently followed (Bouckaert & Pollit, 2011). These reforms quickly spread to other parts of the world and developing countries were not spared. The New Public Management (NPM) agenda was carried and implemented by developing countries due to a number of internal and external factors.

Internally, many of the developing countries, especially in Africa, had problems that adversely affected the performance of the public sector. The public sector was riddled with inefficiencies related to corruption and dysfunctional state machinery. Moreover, bureaucratic tendencies related to poor performance due to red tape became a source of public discontent and, hence, an urgent need for a change of direction towards managerial reforms that were not only ‘new’ to the continent but also fashionable. Externally, donor countries and affiliated institutions, specifically the World Bank (WB) and the International Monetary Fund (IMF), exerted pressure on developing countries to reform their public sectors, which at the time were labelled bloated and grossly inefficient, “the negative consequences of its expansion led to dissatisfaction about its size and effectiveness in the 1980s” (Dzimhiri, 2008).

NPM reforms were implemented in different forms and models in Africa. The reforms ranged from outsourcing public services to private institutions, privatisation, retrenchment of public employees, the formation of executive agencies, and other related organisations. In the UK, different models were implemented, namely the efficiency drive model, whose objectives was to make the public sector more business-like; the downsizing and decentralization model, whose focus was on disaggregation, organisational flexibility, and downsizing; the management of change model, which aimed to integrate bottom-up and top-down approaches to change; and the public service orientation to

change model, which placed a greater emphasis on service quality (Ferlie et al., 1996, cit. in Olowu, 2002, p.4).

According to Olowu (2002), downsizing is the most important universal attribute of public sector reforms using NPM strategies in Organisation for Economic Co-operation and (OECD) countries. In African countries, privatisation of government enterprises dominated the first phase of the reforms subsequently, retrenchment of public employees took prominence. Other NPM reforms included outsourcing embraced, albeit to a lesser extent. From the end of the 1990s onwards, the creation of executive agencies became a new norm in many African countries. The first executive agencies were the independent revenue collection authorities in Zambia and South Africa (Olowu, 2002).

Agencies emerged as necessary tools for unbundling bureaucracy to facilitate the creation of more flexible, performance-oriented public organisations (Pollit et al., 2001 in Caulfield, 2002, p. 211). Agencies in many countries operate at arm's length from their parent ministries and "possess some financial independence and are often funded by charges imposed on service users" (United Republic of Tanzania [URT], 2005). To make them more effective and efficient, agencies that fall under the NPM category get a certain level of autonomy to perform specified tasks of government entities that could have otherwise have been performed within their parent ministries by a specific department (Caulfield, 2002).

Review of Executive Agencies in Tanzania

Agencies are non-departmental public bodies (Christensen & Laegreid, 2005, p. 5) tasked with performing specific tasks with some degree of autonomy. The creation of such agencies in Tanzania was in conformity with the public sector reforms that took place from the 1980s onwards (Sulle, 2014). The creation and formation of executive agencies was linked to a wider movement associated with the NPM doctrine that started to dominate the public sector in many African countries including Tanzania in the 1980s. The movement promoted market-based principles in management of public sector (Moynihan in Sulle, 2014, p. 124)

In 1997, Tanzania enacted an Act of parliament to formalise the establishment of executive agencies or semi-autonomous public institutions in the country (URT, 1997). The Executive Agency Act stipulates that the minister shall establish an agency aimed to improve

service delivery, create conducive environment for efficient and effective management, improve the quality of services hitherto offered under the government department and, in the long run, have the capacity to continue evolving and improving the quality of services offered (URT, 1997).

In fact, the formation of executive agencies provided an avenue for the government to deliver services through institutions that have the freedom and flexibility to deliver efficiently quality services to the public (Sulle, 2014). Ideally, these agencies were supposed to operate flawless in accordance with their establishment agenda. Yet, corruption, inefficiencies and all kinds of dysfunctions common in government departments were the norm rather than the departure. In consequence, the quality of services offered adversely suffered but that only told a partial story. The poor nature of services they provided, coupled with corruption and all kinds of inefficiencies had negative consequences for those who were already poor or marginalized.

When corruption and inefficiencies reign in the public sector (see, Lufunyo, 2013, p. 7) government departments become “rent-seeking” units which offer services to those who can pay though unintentionally. For the majority and, especially, the poor such a system does not and did not favour them as they did not have resources to pay for the services which by then were “freely offered” as a matter of public policy. Implicitly, the government system marginalised its own citizens by offering services ‘conveniently’ to those who bribed officials or had connections with individuals who occupied positions of power, a tendency also experienced in other parts of the world where old public administration ethos dominated (Robinson, 2015 p.7)

Furthermore, the creation of agencies emerged as part of the solution to reducing and curbing inefficiencies (Robinson, 2015). In this regard, highly centralised hierarchical structures were to be replaced by decentralized institutions with capacity to deliver (Mathiasen, 1999). To reduce expenditure on the part of the government and enable agencies to generate income, they were allowed to charge fees on the services offered. This practice is in conformity with NPM’s much-advocated for tendency of making public institutions business-like and, hence, profit-making or self-sustained institutions (Lapuente & Van de Walle, 2020).

Apparently, the society is not homogeneous thus making it difficult to know whether these fees are appropriate for everybody given the nature of the society which has socio-economic classes of ‘well offs’, ‘poor’ and ‘extremely poor.’ This division is even much more pronounced in developing countries such as Tanzania, where multidimensional poverty is still high, although it has declined from 64 percent in 2010 to 47.4 percent in 2015 and was projected to even further drop to 38.4 percent by 2020/21 and, ultimately, to 29.2 percent by 2025/26 (ESRF, 2017). Also, extreme poverty figures of 2012 show that the proportion of people below the food poverty line in Tanzania Mainland was 9.7 percent (ESRF, 2017).

The public sector is now dominated by executive agencies, which play a major role in the provision of public services. The transformative change relative to before 1997 is significant. By 2012, the number of agencies had reached 36. A few more agencies have since been established such as the Tanzania Rural-Urban Road Agency (TARURA), and the Tanzania Shipping Agencies and Petroleum Upstream Regulatory Authority (PURA). Data from the office of the Treasury Register shows that by 2019 Tanzania had 44 agencies. Implicitly, the government treats these institutions as vital in pushing forward its various development-related agendas.

It is against this background that this study explored the impact of these reforms on minorities in Tanzania, using Registration Insolvency and Trusteeship Agency (RITA) as a case study. RITA was officially launched on 23 June 2006. In fact, it replaced what was the then Administrator Generals Department in Attorney Generals Chambers in the Ministry of Justice and Constitutional Affairs (URT, 2020). The agency enjoys monopoly in the registration of births, marriages, divorces and incorporation of trustees. It also plays an important role in all matters pertaining to receivership and company liquidation (URT, 2020).

Even though many studies have been carried out focusing on a number of issues such as evaluating the performance of executive agencies in different parts of the world (James, 2001), experience of countries such as Pakistan and Tanzania in establishing executive agencies (David & Francis, 2014) and control of state agencies in Tanzania (Sulle, 2014) among others, affirm that very little, if any, has been written on the impact of agencification on minorities in Tanzania and elsewhere

particularly in the developing world's context. This study, therefore, seeks to fill the apparent gap by raising salient issues in this area.

Concepts of Minority and Minoritized

The term 'minority' has many connotations. It may refer to "a group of people who, because of their physical or cultural characteristics, are singled out from others in the society in which they live for different and unequal treatment and who therefore regards themselves as objects of collective discrimination" (Kurokawa, 1970, p.34). Other scholars have identified some characteristics shared by minority groups as identifiability, differential power, differential and pejorative treatment and group awareness (Dworkin & Dworkin 1976, 1976).

Other scholars such as Capotorti (1979) treat minority as a group numerically inferior to the rest of the population of a state, in a non-dominant position, whose members—being nationals of the state—possess ethnic, religious or linguistic characteristics differing from those of the rest of the population and show, if only implicitly, a sense of solidarity, directed towards preserving their culture, traditions, religion or language.

At the centre of this definition is numerical and intrinsic solidarity. However, this might not always be the case. History has shown that there are groups made up of few members but are, nevertheless, powerful economically and politically. The white minority in the then apartheid South Africa, for example, represented a powerful group that controlled almost everything despite their relatively small number compared to the majority of Africans.

Given the many definitions of the minority in a given population, there is a need to operationalise this concept and focus the analysis of this study. The term 'minority' in this study is, therefore, represents the most vulnerable groups in the society regardless of their numerical status. This definition is a broader concept of minority than the classical concept of ethnic, religious, and linguistic minority. For example, women are not a statistical minority because they are centripetal and almost equal in number to men in many societies; sometimes they have a numerical advantage despite being dubbed 'minority'. Nevertheless, they qualify as a 'minority' due to their status as a marginalised group, who in most circumstances have less power and fewer privileges than their men counterparts. Additionally, the terms 'minority' and 'marginalization' are

also used in this study vis-à-vis the concept of minorization in the sense that a given group is not benefiting from the system that is benefiting others (See Burity, 2016). In this case, we look at those systems with structures that unintentionally favour certain groups and marginalise others. The ‘corrosive’ nature of institutions can marginalise certain groups such as women; in essence, they are not made minor rather they are ‘passively’ denied access to resources and opportunities and, hence, are minoritized.

METHODOLOGY

This qualitative study deployed various methods and procedures to collect and analyse information. Numerical and non-numerical data were collected through interviews held with officials from RITA. The study interviewed two RITA officials: A senior administrative officer and one senior official from the marketing and communication department. These officials were chosen purposively due to their positions in the institution, which placed them in a position to provide useful and reliable information related to various activities and functions performed by RITA. Personal experiences of other RITA officials collected informally was complemented by documentary review of official government documents from RITA such as employee register and brochures related to birth registration. To get really experience from the field, the researcher visited few (3 of them) big stores in Dar es Salaam to get additional information about the experience of employees on birth certificates and national IDs. Additionally, information from newspaper articles specifically the *Guardian* and *Daily News* was useful in informing the findings of this study. RITA’s website was also analyzed, especially in collaborating what was deduced from interviews with RITA officials. Finally, the study reviewed documentation of related practices in Kenya, Rwanda and other African countries. In totality, such diverse but complementary sources enriched the study’s findings.

FINDINGS

This section explores the impact of the creation of executive agencies on the minority, with special emphasis on services RITA offered. RITA operates mainly from its headquarters in Dar es Salaam (at the time when this study was being conducted), which is Tanzania’s commercial capital of the country. Looking at the register of employees and interview with officials from the human resources department, RITA has around 202 employees (102 female). Most of these are stationed at the headquarters

and Dodoma office whereas the rest are posted to various districts. In other words, RITA staff are not sufficient in numbers going by their presence in the districts of 170. In many districts, RITA relies on District Administrative Secretaries (DAS) to allocate staff to perform functions such as registration of births, deaths and marriages. These employees are not RITA staff as they belong to district councils hence with other responsibilities. RITA are subsidiary, which makes it hard to perform the agencies' responsibilities effectively.

To provide its services, RITA charges fees for obtaining birth, death, marriage, divorce and adoption certificates. These fees range from 3,000 to 200,000 Tanzanian Shillings (exchange rate about TZS 2400 per US dollar). Birth registration, which is done within 90 days after birth, is charged 3500 Tanzanian Shillings, birth registration of over 90 days but below 10 years is charged 4000 Tanzanian Shillings, whereas late registration of birth of more than 10 years is charged 20,000 Tanzanian Shillings at RITA's headquarters and 10,000 Tanzanian Shillings at the district offices. Fees related to marriage adoption range from 20,000 to 200,000 Tanzanian Shillings².

These rates look reasonable, however, when they are scrutinised and the real situation is analysed for the most of the Tanzanians who live in rural areas—and constitute the majority of the population - cannot afford them due to other costs related to travelling, for example, travel to the district headquarters in some cases can sometimes be more than 100kilometers from his/her residence. These and other costs can be prohibitive in a country where the majority of people spend less than \$2 per day (World Bank, 2015). Of these, about 80 percent (11.3 million) are poor, and among them, 3.5 million are extremely RITA charge seem small on the surface, they are still high for those who are extremely poor (World Bank, 2015).

Even in urban areas the situation is not straight forward. A quick survey of a number of big stores in Dar es Salaam showed employees and specifically cashiers and shop attendants were in danger of losing their jobs because they do not have birth certificates and consequently national Ids. Immigration department has demanded each employee to have

² These numbers were taken from RITA website and may change in the future, see <https://www.rita.go.tz/page.php?pg=85&lang=en>

national ID, most do not and the employer has given them one month to submit. When some of them were asked why they do not have national IDs they said we do not have birth certificates and when interrogated further, bureaucracy and costs involved were named as major stumbling blocks. It should be noted that almost all cashiers and majority of shop attendants are women.

The minorized groups such as women and men who live in rural areas and comprise the biggest number of poor people in the rural areas cannot afford these fees, especially for late registration which is 20,000 Tanzanian Shillings, particularly when other factors such as distance to the district headquarters are inclusive. A study in Dar es Salaam found birth registration in Tanzania to be important but complex, burdensome and costly for both families and health workers (Boggs et al., 2021). If this is the case in Dar es Salaam, the commercial hub of the country with better access to health services what is the situation like in the rural areas?

The situation in the rural areas is actually more worrisome. In the rural areas, the difficulties in accessing birth certificates tend to deny the minorized groups an opportunity to access important services associated with birth certificates, including missing out on acquiring national identification cards, IDs which open a number of avenues in business, mobile phones (i.e. registering a SIM card) and accessing many other services that require a national ID. Thus, the fees charged unintentionally marginalise these minority groups, which are already operating on the margins of the more privileged citizens, for example in urban areas, with higher income.

Furthermore, we asked whether the RITA has a policy or any other arrangement to serve the poor or minorized groups in society. One senior officer said, “The organisation does not have a policy to serve systematically those who are considered poor and cannot afford to pay for the services provided by the organization.” The only initiative that is in place is the one supported by UNICEF, which aims to decentralise the birth registration system to increase the birth certification of under-fives in different regions of the country. Moreover, the government has waived the fee for registration under this programme. These government and UNICEF efforts have helped to improve the certification rate on Tanzania Mainland from less than 13 percent to more than 35 per cent in just over five-and-half years (UNICEF, 2019).

Further interrogation of the data from the 2012 census shows that these efforts have fallen short of making certification universal in the country. The 13 percent of Tanzanians with birth certificates is too small when compared to other African countries, Tanzania lagged behind countries such as Kenya, Rwanda, and Botswana. UN estimations show that only 24 percent of an estimated 2,050,000 births in the country in 2017 were registered and certified (Adair et. al. 2020). Comparatively, most of those who were not registered lived in rural areas or remote settlements (Adair et. al. 2020). This situation is not encouraging, as the government plan is to issue 15,917,602 certificates to Tanzanians by 2025. Based these projections, Tanzania would have 21,508,227 people without birth certificates by 2025 (Robi, A. (2020).) if the situation on the ground remained the same and in the absence of a ground-breaking intervention.

Most of those without birth certificates would be living in rural areas where some about 66.22 percent of Tanzanians live (The World Bank, 2018). And most of indicators of birth registration in rural areas paint a bleak picture. For example, between 2015 and 2016 parental self-reported birth registration ranged from 16 percent in rural areas to 50 percent in urban areas, which represents a huge gap. Such statistics paint a sombre picture of the rural areas where most of the 21,508,227 people who live in the rural areas would be without birth certificates. Moreover, the most vulnerable people in Tanzania are women, with 60 percent of women in Tanzania living in absolute poverty (URT, 2020). This suggests that women who are already vulnerable are the ones mostly affected by RITA's inability to provide certificates to the majority of the Tanzanians.

The problems inherent in the registration of birth for ordinary Tanzanians persist, and require an overhaul of the whole system of birth registration for the new-borns and unregistered adults to resolve this crisis. Major improvement includes strengthening, simplifying and popularisation of the e-service officially known as E-Huduma (URT, 2022). This e-service has the potential of reaching the majority of Tanzanians if the costs are continually reviewed to accommodate the most vulnerable and marginalised groups. This e-service has to be promoted and scaled up regardless of the government's expectation of reducing by 50 percent the number of Tanzanians who do not have birth certificates to 21,508,277 by 2025 (*Daily News*, 2020). Statistically, this 50 percent success would be a huge leap; yet the implication is that another half of the adults would

remain without birth certificates, which has a huge negative consequence on non-certificate of birth holding nationals.

DISCUSSION

Looking at the evidence gathered in the case study and the ensuing analysis, the creation of some of the executive agencies may unintentionally deny an important and substantive segment of the society access to vital services, which many Tanzanians were already experiencing, which amounts to some form of marginalisation. As already pointed out, most of Tanzanians living in rural areas are relatively poor; thus, the introduction of user fees affects negatively their wellbeing since certification is a passport to many opportunities. In terms of gender, women have remained behind men in taking advantage of economic opportunities for a long time. One report indicates that “a greater proportion of women than men (69.9% vs. 64.0%) work in agriculture. Unpaid family helpers constitute 34.5% of those employed in agriculture –there are more than twice as many females as males in this category” (Idris, 2018, p. 3). Under such circumstances user fees can become vehicles of mass marginalisation.

Services such as birth registration are vital to individuals’ and communities’ overall well-being as it opens up access to other opportunities such as education, business, and mobile phone usage. Lack of universal access to such services can promote inequities in service delivery, lead to marginalization of certain groups, and in the case of RITA adversely affect the majority of poor rural women and men, vulnerable children, and many other marginal groups. Issues of distance coupled with user fees are denying the majority of adults, who were not registered and currently need to pay to get registered to access birth certification. User fees in sectors such as health have proven to be prohibitive and largely unpopular (Dullie et al., 2016). A study in Malawi showed that “the removal of user fees was associated with an increase in total attendances of 352 % [213 %, 554 %] with similar increases for malaria diagnoses” (Watson et al., 2016).

As indicated in this study, late registration of more than 10 years requires an individual to pay 20,000 Tanzanian shillings, an amount that many of the adults particularly in the rural areas who were born at a time when registration of new-borns was almost non-existent or luxurious could not afford. As a result, this group finds itself on the margins of society, and

economic conditions do not favour them as they are relatively poor. Lessons from other studies on health and education have proven fees to be a significant barrier to accessing essential services. In one study, an “analysis of 120 documents published by 50 actors in the global health sector between 2005 and 2011 shows that almost no one now supports user fees” (Ridde, 2015) due to their negative effects on equity and accessibility.

For services provided by RITA, birth registration is the most important one, although other registrations for marriage, divorce and adoption registration are also important. In Tanzania, birth registration facilitates access to almost all other economic, health, and education opportunities. It is the first step that helps an individual to have access to opportunities “such as attending a public secondary school, taking the national university entrance exam, joining the military, working in formal sector jobs, opening a bank account, and inheriting property” (Wood, 2019, p.380). Without it one would find it difficult to get a national ID, which guarantees its bearer political and economic rights enjoyed by all citizens. In fact, one cannot even register a mobile phone number without it, which has forced many people to register by proxy—using identification of those who already have them such as spouses, relatives and friends.

CONCLUSION AND RECOMMENDATIONS

Generally, the creation of executive agencies emerged as a solution to almost everything bad associated with bureaucratic inefficiencies in the public sector. Issues of transparency and accountability were to be taken care of, but importantly, the quality-of-service delivery was expected to improve and, consequently, help to improve people’s lives as well as the image of the government to the population. However, and as it is seen in the findings, that has not always been the case specifically when one looks at the findings of this case study. The study investigated the impact of executive agency on minority, with the analysis centring on RITA. It appears that in Tanzania the formation of executive agencies might have been done without a thorough analysis of their impact on different groups in society, particularly the rural poor and other marginalised groups such as women.

As other studies have indicated, established institutions can intentionally or accidentally perpetuate socio-historical injustices or inequalities of certain communities and groups if mechanisms are not in place to enforce

curbs and compliances in those institutions. This study has established that despite the gains accruing from the establishment of RITA, there were structural and institutional arrangements that compounded the plight of the majority of poor women, men and children in both urban and, particularly, rural areas. Various fees charged by RITA coupled with issues related to long distances that escalate the associated costs deny many people access to services contrary to the agency's mission. Consequently, groups in the rural areas and societies, which were historically marginal, were further minoritized.

The study, therefore, highlights the need to rethink the general idea that creating executive agencies would automatically enable governments, especially in developing countries, to offer better quality services to the population than ever before. Thus, reformers must analyse thoroughly the would-be structures and institutional set-ups of new agencies to ensure that such institutions were not inadvertently perpetrators of the same historical and structural injustices that had pushed certain groups and communities to the margins of society, which they were ironically created to combat. The problem stems from the idea that more can be done for less (Osborne & Gaebler, 1992), which should carefully be scrutinised to avoid the creation of institutions that minoritize already marginal groups and communities.

In a context where reforms have become fashionable, it is imperative that government actors and other stakeholders enable the formation of institutions and, in this case, agencies that are inclusive and capable of addressing issues of historical inequalities and marginalisation. In a world where inequalities exist, governments cannot afford to create 'neutral' institutions, which may end up maintaining the status quo or exacerbating the very problem they were set up to solve. Therefore, it is imperative that reformed institutions desist from systemically minoritizing certain groups or societies and push them further into the margins. This study, therefore, recommends old institutions to have a clear framework of undertaking periodic structural audits to review the soundness of the institution to be inclusive.

For the new and reformed institutions, there must be benchmarks to guarantee structures that are not neutral and curb those which perpetuate marginalisation within those institutions or in their external environment. As various scholars have proffered, the focus must now shift from people

and individuals to institutional structures (Powel, 2013), structures that distribute opportunities to various groups and sections of the society. Most of our institutions are merely vehicles that distribute favours to certain groups and inadvertently maintain the status quo. In many circumstances and, as we have found out in this case study, structures unevenly distribute opportunities to different groups in the society and, hence, further entrench marginalisation of the already minoritized groups. The plight of these groups would only be improved if structural marginalisation is continually scrutinised and mechanisms to minimise processes that unwittingly promote marginalisation in various public institutions are instituted, monitored and updated.

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Non Formal Education and Poverty Reduction in Tanzania: A Case Study of Catholic Nuns' Institutions in Kilimanjaro Region

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ABSTRACT

This paper is based on a study that examines how Catholic Nun's institutions (CNIs) use non-formal education (NFE) to reduce poverty in Kilimanjaro Region, Tanzania. The article analyzes how CNIs provide NFE to bring about social development in Kilimanjaro communities. The study employed the theory of Constructivism to ascertain participatory and collaborative methods as principles of teaching youths and adults in CNIs. The study revealed that after attainment of independence in Tanzania, missionary institutions were also obliged to adhere to government's education policy and regulations in their running of educational institutions. Such changes made CNIs form another way of providing non-formal education. Furthermore, due to technological advancement, the changes in teaching methodology ushered in the use of Information and Communication Technology (ICT). This caused CNIs to face lack of qualified and enough teachers. Lack of NFE therefore is the source of missing self-employment and confidence to create new skills for reducing poverty. The study concludes that NFE provided by CNIs in Kilimanjaro communities have been supportive to social development. The study insists that CNIs should upgrade their provision of non-formal education which can bring economic changes and facilitate the achievement of high standards of life in Kilimanjaro and elsewhere.

Keywords: *Roman Catholic Church, Nuns' Institutions, non-formal education, social development and poverty reduction*

INTRODUCTION

Within the Roman Catholic Church (RCC), there are female members who take vows of poverty, chastity as well as obedience in Catholic faith and devote their lives to God. These Religious women are referred to as nuns, who generally view their way of life as a career and calling vocation for serving different people in the communities. Firoj (2012) observes that,

active nuns divide their time between private prayer, communal worship and service work. Each active nuns' congregation has a particular mission, for which it was founded, ranging from educating children and adults, to caring for the sick and doing social activities.

Thus, working for people's needs is a special call for nuns' vocation. Thus, nuns have duties comprised of serving God and people in society. Within such context, provision of education and teaching is a crucial element of CNIs which serve the purpose of motivating millions of people worldwide to cherish learning and bring about social development.

History has shown that, since the arrival of missionaries in Tanzania in the 19th century, most underprivileged societies could get education, non-formal education (NFE) in particular, from CNIs system. This system would not have been possible if not for the generations of dedicated religious female nuns who have been facilitators of teaching to youth and adults (Bjornavold, 2000). CNIs have also strived to provide NFE according to the needs of communities whereby learners have a chance to brace for coping with social-political and economic changes.

At present, NFE is a learning that can mobilize youths, adults and the elderly to join education programmes for social development. Through NFE programmes, individuals learn the use of various techniques anytime, anywhere and throughout their lives. This has led to the transformation of learners, as people become capable of utilizing acquired competences for their livelihood. Such confidence contributes to a more positive attitude (Cusack *et al.*, 2003). More evidence points to learning as a case for health promotion. Results of a survey in the UK of participants aged 40-60, reported the direct benefits of learning as reduced stress, reduced depression, feeling more positive, achieving goals, and more energy. (Cusack *et al.*, 2003). Indeed, lifelong learning has a positive and lasting impact on cognition. As can be seen from the international approaches to lifelong learning, the format or structure of the learning process can be flexible and learning can occur in a variety of formats, not just in a college classroom.

Normally, Catholic schools are committed to the 'critical communication of human culture and the total formation of the individual. They work towards this goal guided by the Christian vision of reality "through which

our cultural heritage acquires its special place in the total vocational life of man” (Hermn, 2000). What we therefore see or should see in Catholic schools is a symbiotic relationship between culture and faith, and faith and life. CNIs are therefore expected to carry out their function of developing the whole person in obedience to the solicitude of the church, and in the awareness that all human values of finding their fulfilment and unity in Christ. The education that is the focus of Catholic schools therefore ‘aims at securing the Supreme Good and changing the attitudes of societies to social development as ways of reducing poverty (Battell,1990).

The epistemological view of the history of provision of NFE in the convents shows that the management, administration and the infrastructure of the convents have been used to provide education to adult and youth. The missionaries mould the system of NFE in the convent through apprenticeship approach, even the people around and nearby the convent were allowed to learn what the nuns use to mushi (2009) comments that, the missionary education program initiated by missionary apart from literacy, freed slaves and spread of Christianity, were elementary teacher training, nursing, clerical work, agriculture and vocation crafts. NFE activities had the impact not only in mission areas but also in the rural areas. The areas around the missions have shown not only quantitative but also qualitative improvement in all spheres of life and guide adult learners on how to reduce poverty.

Currently, about 1.5 million children in Tanzania are nearly missing or dropped out of primary education. Several studies from the ministry of education in Tanzania show that this problem's source is the traditional approaches and culture of some tribes in Tanzania which limit children to attend and finish primary school education. To cater for this group, the government and religious institutions provide NFE to this group (Wenglinsky, 2002) comments that, although the government and religious institution provide NFE, only few studies have focused on how CNIs use NFE programmes to reduce poverty.

Presently the number of primary and secondary schools in Kilimanjaro is so high compared to other regions in Tanzania because the region has a small area while the population is very high. The study has also revealed number of Vocation training centres (VTCs) in Kilimanjaro which are few compared to t formal schools.

METHODOLOGY

Philosophical underpinnings of the study were informed by constructivism research paradigm which stipulates that reality is constructed by participants. Yin (2009) comments that, constructivism is a theoretical view that says all knowledge is generated from human experience as opposed to discovered self-evident knowledge. Yin insisted that constructivism is a view in the philosophy of science which maintains that scientific knowledge is constructed by the scientific community, who seek to measure and construct models of the natural world. Constructivism also assumes that knowledge of the world is constructed by individuals by using their experiences. Constructivism is an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner (Debashis, 2012). Hence, the researcher gathered the views of nuns, parents, education stakeholders, learners and teachers who were in CNIs in order to ascertain reality about how CNIs use NFE to reduce poverty in the communities. Teachers and learners had the chance to analyze their experiences, feelings and knowledge of their world together (Fred, 2010). Therefore, the study used constructivism in order to capture the meanings and operations of CNIs practices as experienced and expressed by participants in this study. Epistemologically, the study intended to gain knowledge from participants. This study proposed to get the experiences and opinions from CNIs participants. The researcher believed that knowledge is the creation between researchers and the researched. The researcher had the intention to know how NFE offered by CNIs in Tanzania can help the youths and adults to gain social development, reduce poverty and improve their lives. Thus, learners from NFE provided by CNIs are supposed to become critical thinkers and get the wide knowledge of transforming their lives (Mlan, 2005). The researcher was interested in finding out what learners do after their study from CNIs and how they are able to apply the knowledge which they gain from CNIs. *Research and design.* The study adopted the *qualitative research approach*. The approach was adopted because it provided the researcher with an opportunity to gain an in-depth understanding and interpretation of the informants' points of view. It could clarify the context which cannot be achieved well with a quantitative method (Ian, 2007). Moreover, the low level of education of the respondents in NIs required research instruments that are interactive, with open-ended questions. The study also used a case study design so as to obtain rich information from the targeted sample (Colin, 2014). The cases were two convents in

Kilimanjaro region. The units of analysis were teachers, students, and heads of institution, mother superiors and the members of CNIs from selected districts.

Area of Study

Three out of seven districts of Kilimanjaro Region were selected. These were Hai, Moshi Municipality and Moshi Rural. These districts had convents offering NFE in nuns' centres which are St. Francis NI from Hai, Eldegold from Moshi Municipality, Imani VTC from Moshi. Two of these CNIs are from the selected districts from congregations of nuns or sisters from Sister of Our Lady of Kilimanjaro and Grail sister. Areas with rural characteristics include St. Francis from Boma District and Mtakuja from Imani VTCs. The last one was from Moshi Urban as indicated in Figure 1.1 are the institutions where sisters used to teach adult learners.

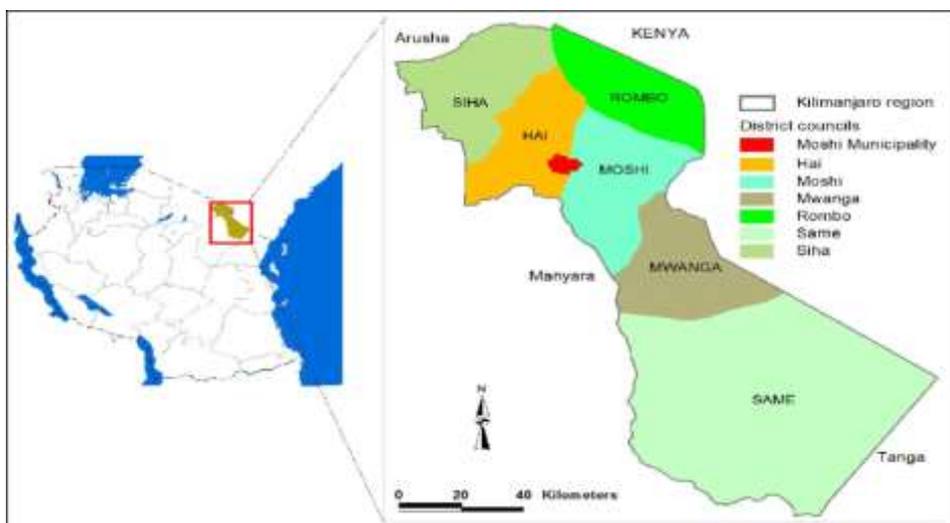


Figure 1: A map showing the area of the study

Source: Kilimanjaro Region Education Officer (2019)

Target Population

A target population is a group of individuals that the researcher intends to conduct research in and draw conclusions from selected area of research work. Examples of target population could be all the people in an organization's local community, everyone in the state, or people living at or below the poverty level within a given community (Greswell, 2012). In this study the target population were participants from selected CNIs

from Kilimanjaro region. The participants were teachers from NIs, learners, heads of CNIs, heads of convent comprising mother superiors, district quality assurers, zonal quality assurers and parents who were closely related to learners. Board members of the institutions were selected and participants from CNIs were also selected. The participants were from three selected CNIs from Moshi rural, Moshi municipality and Hai.

Sample and sampling procedures

The total sample size for this study comprised of 71 participants from three selected CNIs. There were three heads of the convent, three heads of institution, two education officers, 14 teachers include nuns' teachers in CNIs, 14 learners from CNIs, 20 graduate learners and 14 parents. Table 1. shows the Composition of the sample

Table 1: composition of the sample

Districts	Learners Inside NIs.	Learners from outside NIs	Parents	Head of NIs	Mother superiors	Inspectors & DEOs	Number of. Teachers	Total
Hai	5	5	5	1	-	1	5	20
Moshi Municipal	5	5	5	1	1	1	5	23
Moshi Rural	10	5	5	1	1	1	5	28
Total	20	15	15	3	2	3	15	71

Source: Field data - 2019.

Purposive sampling technique was used to select three heads of the convents who were the heads and owners of the selected convents. The researcher had permission letters from mother superiors who were the owners of two institutions to visit the institutions. Fourteen CNI teachers were selected from selected institutions that had information on performance of students and curriculum contents of the institutions. The teachers were teaching NFE programs in CNIs. Seven teachers were selected from selected CNIs. They were required to provide inputs concerning the respective institutions in relation to how teachers teach and encourage learners to study. Fourteen continuing learners from each selected institution were also included. They were required to provide their views regarding content knowledge and pedagogical knowledge they acquire from respective CNIs. These were second year learners because they had advanced further terms of learning compared to other students.

The learners were selected by teachers following the criteria given by the researcher.

Snowball sampling technique was used to select graduate learners to get information on how they used NFE skills after their studies. The researcher used learners who are inside NIs to explain where the graduate learners were working or doing their self employment. Snowball sampling technique was also used select to parents of graduates from CNIs. They were involved in this study to give their opinion on how CNIs use to reduce poverty and the outcome to their children who were graduate learners doing self employment.

District education officers were selected through purposive sampling to provide information concerning CNIs. They were selected on the basis of their positions and responsibility which they had regarding the NFE programmes offered in their districts. Two district education officers, one from Hai District and another one from Moshi Rural District, were purposively selected. The researcher wanted to know how district education officers help to motivate and to implement teaching and learning processes. For example, do district education officers distribute teaching and learning materials such as modern home economics apparatus for teaching and text books or any learning/teaching resources as required?

Purposive sampling was used to select nuns from each convent who are teaching in CNIs. These included sisters who had past experience of management of the CNIs and were now retired teachers. The researcher involved nuns who had background information about nun institutions' programmes and activities so that she could get reliable information about CNIs. Purposive sampling was also used to select experience teacher who had been teaching in one institution at least for 3 years. The total number was 15 teachers from three selected institutions.

Purposive sampling was also used to select heads of convent from CNIs. The head of a convent is known as mother superior who leads the convent and owns all the convent resources including land, houses and financial resources. She is the organizer and leader of the institutions and ought to know about workers and the teaching staff. Therefore, she is the head of the institution and the peak member in CNIs.

Methods of collecting data

Qualitative information on provision of NFE programmes and adult education in CNIs as the strategies of influence social development and reduce poverty. The study used sampling procedures such as purposive sampling, pilot research and snowball sampling technique. The methods of collecting data were interviews, focus group discussion (FGD) and observation. An interview used face to face interview which had both open-ended and close-ended questions. Guide questions were used during the discussions while the observation was guided by a list of issues to be observed and reported together with quotations from respondents. The methods of collecting data were interviews, focus group discussion (FGD) and observation. An interview guides open-ended and close-ended questions. Guiding questions were also used during FGDs while observation was guided by an observation check list.

FINDINGS

The study findings show missionaries used participatory methods and made learners learn by practice. Through interviews, it was revealed that graduated learners insisted on the usefulness of NFE in reforming the learner's style of life. One graduate learner explained that,

The educational institutions support students to learn how to think for themselves and act for the common good. Such studies make learners think and be creative about the purposes of education (Graduate learner from Moshi municipal)

Non-formal education is used to motivate learners to be free and able to create other new skills. Hence the heads of institution in the interview, urged the learners to rethink the challenges regarding diverse aspects of digitalization which is still waiting to be dealt with by adult educators and researchers. One head of insisted that:

NFE is a hope to learners that will inspire them to engage with modern challenges and develop creative answers to many questions that have been raised and that definitely will be raised (Head of CNIs in the Moshi municipality)

More specifically, the findings showed that the selected three CNIs in Kilimanjaro offered adult education programmes which have a specific goal of reducing poverty at the individual level and at the level of the community. The document of life skill for example insisted that:

The role of teachers in VTCs is that of felicitators in the learning process. The document insists teacher to use methods of teaching such as field visits, discussions, demonstration and work in competitions of group work. (VETA revised syllabus for life skills, p. 5, 2013)

Programmes that were offered by these CNIs included carpentry and joinery, electrical installation, masonry and brick laying. These programmes provide important skills and competences by which young people can sustain and improve their livelihood resulting in poverty reduction. During interviews with teachers, one of them explained that;

We have two categories; the first set of programmes help learners to prepare for their future jobs be it employment or self-employment. The second set teaches them the skills of good communication and good ethics which at the end will make them to be good citizens in the community. So, learners must select and learn one programme out of electrical installation, welding and metal fabrication, building and masonry skills, cloth technology, carpentry and joinery, food production and knitting. In our institution's students decide and select which programmes to study (Interviewed one teacher from CNI, 2019).

The study found that there are three problems of learning outcomes that become even more challenging when seen in the light of critical thinking. The first problem is concerned with interpretation as the use of learning outcomes is dependent on advanced but implicit interpretative frameworks. The second is the problem of educational goals that cannot be expressed through learning outcomes, and the third is the risk that learning outcomes may establish a ceiling for student ambitions. It is argued that the example of critical thinking shows the seriousness of the epistemological critique of learning outcomes and how the use of learning outcomes can divert teachers and students' attention away from important goals.

Catholic Church in Africa has made tremendous contributions towards educational development in Africa and in the global South which has been heroically acclaimed as facilitating personal and cooperative development of the people. In this way, the Church is a popular stakeholder in the quest for educational development in Africa and the world at large (Perraton, H. 2000).

Virtually in most parts of Africa, adult institutions at all levels are run by the Church. One of the key actors in this practice of running schools is the religious sisters(nuns), who toil endlessly to keep the Church at the

forefront as an indispensable agent of development (Eze, 2013). One of the heads of CNIs commented that:

Nuns' institutions face the challenges of understanding the needs of different learners from different families who are coming to learn in the institutions. Adult facilitators need to study learners' interests. Therefore, nuns must change their ways of teaching according to the needs of learners. This is a big challenge in CNIs. (Head of one CNI in Mtakuja 22/ 9/ 2019)

CNIs face some challenges based on lack of appropriate education or misuse of skills for the sisters who are challenged to be competent in discharging their duties. In accordance with the achievement of Millennium Development Goals as having been explained (Wikipedia, 2013), a certain amount of pressure is levelled on the sisters who need to be effective and efficient facilitators of adult education as a tool for personal and social change. To address this problem, this paper focused on competence and performance theory to interrogate the sisters' current educational training. Educational development is needed by the sisters towards improving their capability in responding to the demands of mission and service, particularly in terms of institution management and everyday teaching/learning situations and attitudes.

In this regard, the study gained information for this paper from a doctoral research thesis that interrogated 18 sisters from religious sisters' identity construction based on their lived experience of religious life within their religious institutions from the Church Nigerian society (Eze, 2013). Segments of the doctoral thesis interview narrative data which were used as the basis for surfacing the current prospects and challenges of the sisters' teaching experiences and what they need to improve their performance. Based on the findings, one parent who participate in CNIs insisted that:

To make recommendations for educational improvement of CNIs to enable the Church ought to continue providing effective educational services to nuns that could promote human development in our communities and help adult learners to get the global world's skills and knowledge (A parent from the village in Hai district 24/ 9 2019)

CNIs need to study learners' background and prepare the skills which can fulfil and satisfy learners

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DISCUSSION

Missionaries and African Nuns

The study revealed that during the colonial era, missionary nuns in co-operation with African nuns came to work from various parts of Africa to spread Christianity and educate the people by using NFE (Morio, 2000). A set up numerous primary and secondary schools and education centres were used to educate adults and young Africans in rural and urban areas (Madueke, 2014).

However, while formal schooling remains an essential means of providing basic education, NFE provided in Tanzania constitutes an integral part of lifelong learning or continuing education. NFE deals with any organized educational activities outside the established formal education system and is aimed at serving the intended groups (Harma,2009). Although the Tanzanian government recognizes and appreciates the contribution of the nuns in education and health, several drawbacks slow down this motive. These include first, unsuitable curricula and a realization that educational and economic growth and skills of job creation did not emerge directly as a result of educational inputs.

Second, the nationalization of mission schools after independence in an attempt to secularize the institutions to expand educational opportunities to non-Christian students in Tanzania, President Julius Nyerere requested the Maryknoll sisters to start a new post-primary school, which would prepare girls with the education and skills needed to promote development in their rural areas (Maryknoll Sisters, 2000). After independence, Nyerere saw education as a critical strategy to realizing his vision towards a unified nation. He wanted the church to serve all people, Christians and non-believers (Nyerere Centre for Peace Research, 1968). It is, therefore, no wonder that he would challenge the church to

recognize the need for a social revolution (Nyerere, 1974). Churches' role in education was critically weakened when the government in the late 1960s nationalized church schools and institutions. So, nuns insist on the provision of non-formal education as the way to reduce poverty.

Nuns and Provision of NFE in Tanzania

The epistemological view of the history of the provision of NFE in the convents shows that the management and administration of the convent and the infrastructure of the convents used to provide education to adult and youth before the introduction of the system of formal education in Tanzania (Msambure and Rwemamu, 1989). The missionaries mould the system of NFE by use convents (NIs) through an apprenticeship approach. The communities around the convent used to imitate what the nuns do. Mushi (2010) comments that the missionary educational program initiated by the missionary apart from literacy, freed slaves and spread of Christianity were elementary teacher training, nursing, clerical work, agriculture and vocation crafts. NFE activities had an impact not only in mission areas but also in rural areas.

The areas around the missions show not only quantitative but also qualitative improvement in all spheres of life. In this regard, the key areas are citizens who were educated at different levels, health centres and infrastructures in general (Eze et al., 2013). The findings also show that, most of the VTCs are taught by retired teachers and few teachers who had skills in teaching vocational skills. The findings revealed that 37 teachers out of 71 in VTCs from NIs in Kilimanjaro had the teaching experience certificates, but they do not have teaching methodology qualifications. The study proved that there are few teachers from teachers' colleges in Tanzania who had the methodology of teaching the VTCs subjects. So, it is not easy to get enough teachers for CNIs.

Even in this regard, it is only geared towards employment and not just the person's integral formation. A good academic result or certificate is needed to get a good employment or work in a good organization. This situation has given rise to a culture of cheating and other forms of examination misconduct (Hart, 2006). So, NIs used to provide NFE (AE) geared to self-employment with the confidence of what learners earn after studies. Non-formal education can influence learner to study very hard although the government considers private adult institutions as a kind of old external curriculum for learners. Under enrolment of learners in

Catholic schools as the private institutions depend on funds from the fees which make institutions management to survive, and as the popular saying goes, 'the higher the number of students, the higher the revenue'. Many schools then, tend toward accepting too many students so that they can get the necessary revenue to be able to provide for the needs of the school.

Many secondary learners had the intention to go for higher education at university. They regard vocation studies as for those who failed in form four or six examinations. So, there are few students in private institutions and particular NIs because this is an attitude of thinking. Lack of accurate organization is another area of the challenge facing CNIs. Most Catholic institutions are caught between functioning as public organizations which are under 'private' organizations controlled by the Church hierarchy and at the same time under the government organization. The situation is often resolved, favouring control by the Church. While this has its advantages, which we cannot examine in this paper, it should be stated that excessive centralization sometimes hinders creativity. The Catholic institutions of the twenty-first century need the motivation of the relationship between the government institutions and the communities' needs.

Lack of Information and Communication Technology (ICT)

Lack of some teaching material in CNIs including modern technologies like enough computers is also a problem. With the rate of advances in media and information technology, adapting their benefits into the educational field has brought many changes, notably in the mode of delivery and equipping students to become actively involved in their learning. Unfortunately, the application of ICT in many Catholic institutions' teaching and learning process is still poor. Various reasons have been adduced, ranging from the high cost of equipment to the view that computer education in Tanzania today is enrichment programmes and not a required subject and sometimes it is still not one of the subjects that students are required to sit for during the terminal examinations and last national examinations. As an improvement programme, learners may pursue it only for those who are interested (Biesta, 2016). In advanced countries where technology has become the way of life, teachers have also discovered the importance of the World Wide Web. Through the Web, students are no longer isolated learners; they can easily connect to the network and tap into the collective knowledge of millions of people and from diverse fields. In essence, according to Cohen and Marion

(2007), lack of information and communication technology (ICT) to adult learners is lack of knowledge in our modern time.

CONCLUSION

Responses to this challenge of provide NFE in nuns institutions reveal that the relationship between the CNIs and the parents can face and solve several challenges so the management of CNIs had the chance to create the relationship between the parents and NIs. Parent's responsibility is a preparation for life of their children and Catholic parents are obliged to provide a Catholic education for their children and bearing in mind the unequal distribution of wealth in the nation. Head of institutions including mother superiors need to find ways of motivating teachers and learners for outstanding performance. Catholic schools and institutions must improve the ways of motivating members of their institutions in terms of salary packages to match the government scale.

Also, the church must invest more in vocation training centres since the goal of true education is the person's holistic development. Opportunities must be provided for individualized learning who had the interest in learning or otherwise many students will be left behind or assumed into the mass of average that are promoted every year. The only way to attract more students to the VTCs institutions is to add value to the available traditional services. Today, CNIs have included some several extra-curricular activities in their curriculum, in so doing they are giving and adding motivation to many parents to choose CNIs.

RECOMMENDATIONS

NFE programmes in CNIs can bring and create a great sense of dignity and self-esteem among country members, enhancing respect of others, building the ability to take control of one's life and generating a desire to participate in the social development. On the basis of the research findings and conclusions the following recommendations are made.

Recommendations for action

The study reveals that, in Kilimanjaro region the head of institutions can have parent's day where they are called for fund raiser which they use to help poor students. So, parental educational attainment has long-term influences on student educational attainment. CNIs should be designed in such a way that teaching and learning can motivate youths and adults to learn many vocation skills. The programmes of teaching and preparing

teachers should be implemented by the management of CNIs with relationship with government authority (VETA) in order to form outstanding and committed teachers and competent teachers. NFE through CNIs should encouraged youths and adults by arranging short seminars for deferent groups of people to attend on their time of holidays (Hermn, 2000). In our modern time CNIs ought to enhance the provision of NFE programmes as part of lifelong learning. CNIs must address the most relevant topics on the subject including; continuous learning as it relates to technological, economic and social changes. Above all the Catholic institutions or religious institutions should build education centres for spiritual and social activities. Throughout the CNIs nuns can engage several groups to study and arrange topics that will help participants improve their lifestyles. and cope with globalization problems (Baur, 2001).

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Components of Teachers' Pedagogical Content Knowledge Associated with Children's Acquisition of Kiswahili Pre-reading Skills in Rural Tanzania

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ABSTRACT

This study examined the components of teachers' pedagogical content knowledge associated with children's acquisition of Kiswahili pre-reading skills in high and low performing rural public schools, Tanzania. Stratified random sampling and purposive sampling were used to obtain 175 participants. Questionnaire, observation, semi-structured interview, documentary review, and tests were the methods employed for data collection. An independent sample t-test and thematic analyses were employed. Results indicated that teachers possessed moderate knowledge of Kiswahili pre-reading skills content but they had low pedagogical knowledge and knowledge of children's thinking around Kiswahili pre-reading skills. Teachers limited pedagogical content knowledge was mainly associated with inadequate training in pre-primary education among others. Thus, teachers limited pedagogical content knowledge of Kiswahili pre-reading skills was associated with children's low acquisition of Kiswahili pre-reading skills. To maximize children's learning outcomes, acquisition of Kiswahili pre-reading skills in particular, comprehensive pre-service and in-service training should be guaranteed to obtain qualified teachers to teach in pre-primary schools. School quality assurance monitoring mechanisms should be strengthened and they should visit pre-primary classes and monitor Kiswahili pre-reading skills teaching process so as to improve children's acquisition of the skills.

Keywords: Teachers' pedagogical content knowledge, literacy skills, pre-reading skills, acquisition, pre-primary schools

INTRODUCTION

Children's acquisition of reading skills remains one of the fundamental skills towards children's academic success, social and economic outcomes (Fortune, Kelly & Fhionnlaioich, 2014; Shukia, 2014; Tanzania Institute of Education [TIE] 2016). However, children's acquisition of reading skills, pre-reading skills in particular has remained low especially in rural schools in different countries including Tanzania (Reardon, Valentino, & Shores, 2012; Piper, Schroeder & Trudell, 2016). Similarly, a study conducted by Dolean et al (2019), found that children in Roma had lower levels and slower growth of early reading skills than their peers. It means that minority children living in rural contexts and in poverty contexts are more prone to low reading acquisition.

In Tanzania, regional and district disparities in reading skills among children found in urban and rural contexts exist (Ngorosho, 2011; Rawle, 2015; Kafle & Jollife, 2015; Ndijuye & Rao, 2019). For instance, the national reading assessment study conducted in Tanzania revealed that pre-primary and primary school children were not mastering basic reading skills (Ndijuye, 2020; Research Triangle Institute [RTI] International, 2014). Another study found that only 12 percent of Grade 2 pupils were able to meet the oral reading fluency benchmark of 50 correct words per minute in Kiswahili (RTI International, 2017). Marwa (2014) revealed that eight percent of Grade 2 pupils could not read with comprehension in Kiswahili. A study conducted by Anney and Mmasa (2016) revealed that about 39 percent of primary school pupils in the studied schools were unable to read letters, 37.9 percent could not read simple words, 42.3 percent were unable to read a sentence, and 59.8 percent could not read or do comprehension tasks. Likewise, (Uwezo, 2015) revealed that children from rural schools perform lower in Kiswahili basic reading skills in different tests than children from urban areas. The existing trend indicate that children learning to read in divergent rural schools, high performing and low performing schools still experience serious reading problems in Kiswahili literacy skills among others.

Despite the existing condition of inability to read among children, available studies acknowledge that the learning environment especially presence of knowledgeable teachers is one of the critical factors towards children's reading success (Alatalo, 2016; Anney & Mmasa, 2016; Olasehinde-Williams, Yahaya, & Owolabi, 2018). It means that, for children's successful acquisition of reading skills at the foundational

level, teachers among others should possess relevant pedagogical content knowledge around the subject matter in order to offer relevant instructions for successful children's reading acquisition.

Shulman defines pedagogical content knowledge (PCK) as knowledge beyond the knowledge of the subject matter *per se* to the dimension of subject matter knowledge for teaching (Shulman, 1986). Teachers' pedagogical content knowledge integrates the knowledge of content and pedagogy into most understandable instructional practice to enable learners to achieve the intended learning objectives (Faisal, 2015). It is made up of various components such as teachers' knowledge of the subject matter to be learned or taught, pedagogical strategies, methods and processes, and teachers' knowledge of children's thinking including errors and difficulties faced by the around the subject content (Mahmoodi-Shahrehabaki, 2017; Novianti & Febrialismanto, 2020).

Extant literature supports that it is teachers' pedagogical content knowledge among other instructional aspects, which significantly contributes to children's learning, including learning of pre-reading skills (Gess-Newsome & Carlson, 2013; Peng, 2013). Similar studies inform that teachers should possess knowledge of the content they teach for successful learning outcomes, including learning of reading skills (Alatalo, 2016; Hammond, 2015; Olfos, Goldrine, & Estrella, 2014). Likewise, teachers should possess effective pedagogical knowledge for effective instructional practices (Olasehinde-Williams et al., 2018). Keller, Neumann and Fischer (2017) argue that teachers possessing pedagogical content knowledge are able to anticipate learners' difficulties and adaptively respond when learners encounter learning problems. A study conducted by Yusof and Zakaria (2015) found that teachers' knowledge of learners has far-reaching implications for knowledge acquisition and pedagogy. It means that teachers' knowledge of errors, mistakes or questions the learner encounters in learning a specific content may facilitate efficient strategies of problem-solving. Teachers' knowledge of learners' thinking strategies can help them refine children's understanding. Informing the current study, Vygotsky's assertion from his Socio-cultural theory stipulates that a child learns well when she or he interacts with someone who is more knowledgeable than the self (Lynch, 2010; Vygotsky, 1978). In this regard, children need the help of a more knowledgeable person who scaffolds the new ideas by assisting the children in completing the task. Therefore, teachers must possess

knowledge of various components of teachers' pedagogical content knowledge to assist children acquire Kiswahili pre-reading skills.

However, significant number of existing literatures inform that teachers' lack of effective pedagogical content knowledge is associated with poor instructional practices resulting to poor learning outcomes (Arrow et al, 2015; Chapoo et al, 2014; Oh & Kim, 2013). Similarly, Zhang (2015) found that teachers' lack of pedagogical content knowledge hinders children's learning at classroom level. The study found that language teachers in the school prepare inadequately when teaching reading lessons in class and also possess inadequate knowledge on how to teach phonemic awareness skills in class (Mohammed & Amponsah, 2018). Significant number of studies acknowledge that low family socio-economic factors, lack of facilities and resources, the dominance of mother tongue, and inadequate qualified teachers remain as barriers to children's reading acquisition among others in rural contexts (Anney & Mmasa, 2016; Sa'ad & Uman, 2014; UKEssays, 2018).

The contribution of teachers' pedagogical content knowledge to children learning, acquisition of pre-reading skills in particular, is documented. However, less is still known about the way various components of teachers' pedagogical content knowledge are associated with children's learning of Kiswahili pre-reading skills in rural contexts found in Tanzania. Therefore, the current study was aimed to examine the three components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills associated with children's acquisition of Kiswahili pre-reading skills in some selected high performing schools (HPS) and low performing public school (LPS) in rural Tanzania. The study was guided by the following questions: What Kiswahili pre-reading skills knowledge do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools?; What pedagogical knowledge around Kiswahili pre-reading skills do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools ?; What knowledge of children's thinking around Kiswahili pre-reading skills do teachers possess and how the knowledge is associated with children's learning of Kiswahili pre-reading skills in high and low performing schools?

MATERIALS AND METHODS

Design

Concurrent triangulation mixed method design was employed and helped researchers to examine teachers' pedagogical content knowledge as well as exploring their diverse opinions and views concerning the phenomenon under study.

Study Sample

Stratified random sampling was employed in the selection of children while teachers were purposively sampled for the virtue of their positions. Teachers possessed rich information related to their level of pedagogical content knowledge and children's acquisition of Kiswahili pre-reading skills. In total, there were 175 participants, 155 children, and 20 teachers. Participants' demographic characteristics are presented in Table 1.

Table 1: Demographic Characteristics of the Participants (N=175)

Participants	Variables	Items	Frequency	Percentage
Children	Gender	Male	77	49.7
		Female	78	50.3
	Age (years)	Below 5	5	3.2
		5	75	46.5
		5 and above	78	50.3
Teachers	Gender	Male	4	20.0
		Female	16	80.0
	Age (years)	20-29	8	40.0
		30-39	1	5.0
		40-49	4	20.0
		50-59	7	35.0
		Education level	Grade III A certificate	1
		Diploma certificate	19	95.0
	Pre-primary teaching qualification	With pre-primary teaching qualification	1	5.0
		Without pre-primary teaching qualification	19	95.0
	In-service training attendance	Once	16	80.0
		Twice	1	5.0
		Non	3	15.0

Data collection methods

Documentary review guide

The guide was used to study teachers' knowledge of preparation of lesson plans of Kiswahili pre-reading skills. Analysis of the lesson plans was aimed to generate data on teachers' ability to plan and implement various

aspects of teachers' pedagogical knowledge. Specifically, teaching and learning methods, materials, and assessment techniques were examined. *Classroom Observation Checklist.*

The tool was used to assess each observed teacher's use of instructional methods, materials, and activities in terms of identifying and correcting children's Kiswahili pre-reading errors and difficulties. A rubric of five levels (1=Not evident at all, 2=Not evident, 3=Neutral, 4= Evident, 5=Evident at high level) with 18 items was used. Twenty classroom observations were conducted, one observation for each teacher. Likewise, each classroom learning environment was observed in terms of availability, use, relevance and amount pre-reading teaching and learning materials.

Questionnaire

The tool was employed to assess teachers' pedagogical content knowledge as related to children's acquisition of Kiswahili pre-reading skills. A 4-point Likert scale type (1= Not knowledgeable, 2= Moderately knowledgeable, 3= Knowledgeable 4= Completely knowledgeable) with 12 items to get their total scores around teacher content knowledge and knowledge of learner's sub-components of pedagogical content knowledge. The questionnaire was self-administered by the researcher. Self-administration of the questionnaire ensured that each teacher responds to questionnaire items independently without external assistance and the researcher was able to collect all questionnaires as this reduced the chance of missing the information. The instruments' Cronbach's reliability was .958 which was considered excellent.

Semi-structured interview guide

The tool was used with teachers to get their views and meanings related to phenomena under the study. The interviews were conducted in school premises and they lasted for 30-45 minutes. They were voice recorded and the researcher wrote some notice in a notebook.

Children's Kiswahili pre-reading skills assessment tests

This tool was divided into two main sections: children demographic characteristics such as age and sex, and testing items. The testing items were further subdivided into three sub-tests: phonemic awareness, letter knowledge, and vocabulary knowledge. The total number of items were 24, and were scored as: Correct, Incorrect and I don't know. The test was

administered by the first author in a quiet place around the school premises. The instrument's Cronbach's reliability was .970 which was considered excellent.

Data analysis

Statistical Package for Social Sciences (SPSS) version 21 software was used to perform descriptive analysis of the items in the study instruments. Thus, frequency and percentage of the study instruments was calculated. On the other hand, an independent sample t-test was employed to assess if there was any significant difference in teachers' PCK of Kiswahili pre-readings skills in high and low performing schools under study. For qualitative data analysis, the transcripts were imported in the project folder created in NVivo version 12 for qualitative and non-structured data. Nodes were deductively created from research questions, the theoretical framework and the previous literature but the data were approached inductively. Coding was done and a list of nodes from each transcript was created. Moreover, framework matrices were run and so source materials were summarized along the established nodes. The findings were presented and interpreted in a simple and straightforward way with rich descriptions supported by representative verbatim quotations from the interviews.

Ethical issues and considerations

Ethical clearance was obtained from the University of Dar es Salaam where the two authors were attached. To reach to the selected schools, research permits from Mwanza and Mara Regional Administrative Secretaries (RAS) and Misungwi and Musoma District Administrative Secretaries (DAS) were obtained. Finally, the first author had to consult school authorities to obtain teachers' consent to include children in the study. Teachers provided children's consent to be included in the study because the law recognises them as children's secondary caregivers to parents. Confidentiality was observed by assigning pseudonyms to participants, and unauthorised person had no access to the collected data.

RESULTS

This segment presents the findings of the study, presented largely by looking at the research questions.

Kiswahili Pre-reading Skills Pedagogical Content Knowledge Components Possessed by Teachers in High and Low Performing Schools

Findings in Table 2 and Table 3 present descriptive scores of the components of teachers' pedagogical content knowledge associated with their children's acquisition of Kiswahili pre-reading skills in high and low performing rural public schools. Findings in Table 2 present scores of observed components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills from high and low performing rural public pre-primary schools.

Table 2: Scores of Observed Components of Teachers' Pedagogical Content Knowledge of Kiswahili pre-reading skills (N=20)

Items	School Categories	Responses									
		Not evident at all		Not Evident		Neutral		Evident		Evident at high level	
		F	%	f	%	f	%	f	%	f	%
Teacher uses observation method during Kiswahili pre-reading skill lesson	HPS	10	11.1	10	11.1	10	11.1	50	55.6	10	11.1
	LPS	30	27.3	30	27.3	10	9.1	40	36.4		
Teacher uses examples to teach children Kiswahili pre-reading skills	HPS	10	11.1					50	55.6	30	33.3
	LPS	30	27.3	10	9.1	30	27.3	40	36.4		
Teacher uses songs to teach children pre-reading skills	HPS	10	11.1			10	11.1	60	66.7	10	11.1
	LPS	30	27.3			10	9.1	60	54.5	10	9.1
Teacher uses plays to teach children pre-reading skills	HPS	10	11.1	30	33.3			30	33.3	20	22.2
	LPS	30	27.3	30	27.3	20	18.2	30	27.3		
Teacher uses questions and answers in teaching children Kiswahili pre-reading skills	HPS	20	22.2					50	55.6	20	22.2
	LPS	10	9.1			20	18.2	70	63.6	10	9.1
Teacher assists children to pronounce sounds of alphabet letters	HPS	10	11.1					50	55.6	30	33.3
	LPS	40	36.4	30	27.3			40	36.4		
Teacher provides children time to name alphabet letters	HPS	20	22.2					60	66.7	10	11.1
	LPS	20	18.2	30	27.3			50	45.5	10	9.1
Teacher provides children time to name pictures	HPS	20	22.2	20	22.2	10	11.1	20	22.2	20	22.2
	LPS	40	36.4	40	36.4			30	27.3		
Teacher provides children time to sing alphabet songs	HPS	20	22.2	10	11.1	10	11.1	30	33.3	20	22.2
	LPS	40	36.4	20	18.2			40	36.4	10	9.1
Teacher explains pre-reading skills by giving examples	HPS		11.1	10				60	66.7	20	22.2
	LPS	40	36.4	30	27.3	20	18.2	20	18.2		
Teacher identifies pre-reading errors done by children	HPS	40	44.4	10	11.1	10	11.1	20	22.2	10	11.1
	LPS	50	45.5	30	27.3			20	18.2	10	9.1
Teacher immediately corrects pronunciation errors done by children	HPS	40	44.4	10	11.1			30	33.3	10	11.1
	LPS	40	36.4	30	27.3			40	36.4		

Items	School Categories	Responses									
		Not evident at all		Not Evident		Neutral		Evident		Evident at high level	
		F	%	f	%	f	%	f	%	f	%
Teacher immediately corrects letter naming errors done by children	HPS	50	55.6	20	22.2			20	22.2		
	LPS	40	36.4	20	18.2			50	45.5		
Teacher helps children facing sound pronunciation difficulties in pre-reading lesson	HPS	40	44.4	10	11.1			40	44.4		
	LPS	60	54.5	20	18.2			30	27.3		
Teacher helps children facing letter naming difficulties	HPS	50	55.6	10	11.1	30	33.3				
	LPS	50	45.5	20	18.2			30	27.3	10	9.1
Teacher helps children facing picture naming difficulties	HPS	20	22.2	10	11.1			50	55.6	10	11.1
	LPS	70	63.6	20	18.2			10	9.1	10	9.1
Teacher gives feedback to children during pre-reading lesson	HPS	30	33.3	30	33.3	30	33.3				
	LPS	70	63.6	30	27.3			10	9.1		

Findings in Table 2 signal that teachers from high and low performing schools did not differ much in terms of teachers' knowledge of Kiswahili pre-reading skills pedagogical knowledge. The teachers used observation methods, examples, questions and answers to help children pronounce and name alphabet sounds and letters, giving children time to sing alphabet songs and be able to teach by examples almost in similar number. For example, only 50(55.6%) teachers from high performing schools unlike 70(63.6) teachers from low performing were able to use questions and answers teaching methods while teaching Kiswahili pre-reading skills to children. In other words, most of the teachers from high performing schools had low knowledge of employing the questions and answers teaching methods related to Kiswahili pre-reading skills than their counterparts. Similarly, more than 50 percent of the teachers in both school categories lacked knowledge of children's thinking pertaining to Kiswahili pre-reading skills. As a result, they failed to *identify pre-reading errors and difficulties which children faced while learning Kiswahili pre-reading skills* and they did not *correct or help children when they faced pre-reading difficulties*. It means that many teachers in both school categories were unable to help children facing sound, letter, and picture naming difficulties as they were observed during the Kiswahili pre-reading skills lessons.

Findings in Table 3 present scores of reported components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills from high and low performing rural public pre-primary schools.

Table 3: Scores of Reported Components of Teachers' Pedagogical Content Knowledge of Kiswahili Pre-reading Skills (N=20)

Items	School Categories	Responses							
		Not Knowledgeable		Moderately Knowledgeable		Knowledgeable		Highly Knowledgeable	
		f	%	f	%	f	%	f	%
I know all major pre-reading topics	HPS			20	22.2	50	55.6		
	LPS	2	1.8	29	26.4	79	71.8	20	22.2
I know how pre-reading concepts are related	HPS			30	33.3	50	55.6	10	11.1
	LPS	10	9.1	20	18.2	80	72.7		
I know teaching and learning materials appropriate for pre-reading lessons	HPS					70	77.8	20	22.2
	LPS			30	27.3	60	54.5	20	18.2
I know how to assess children's pre-reading performance in classroom in terms of sound pronunciations, letter, and picture naming	HPS					50	55.6	40	44.4
	LPS			30	27.3	60	54.5	20	18.2
I can explain PRS while teaching to increase children's understanding of the concepts	HPS					70	77.8	20	22.2
	LPS	10	9.1	20	18.2	70	63.6	10	9.1
I can begin pre-reading lesson with different activities to motivate children during PRS lessons	HPS			10	11.1	50	55.6	30	33.3
	LPS	10	9.1	10	9.1	60	54.5	30	27.3
I can select and use appropriate PRS teaching and learning methods	HPS					40	44.4	50	55.6
	LPS			10	9.1	90	81.8	10	9.1
I prepare lessons plans by considering the important points of pre-reading topics	HPS			10	11.1	70	77.8	10	11.1
	LPS			20	18.2	70	63.6	20	18.2
I can effectively use reinforcers and punishments during pre-reading lessons	HPS	10	11.1	20	22.2	40	44.4	20	22.2
	LPS			70	63.6	30	27.3	10	9.1
I know possible difficulties or misconceptions that children might have in PRS lessons	HPS			10	11.1	50	55.6	30	33.3
	LPS			30	27.3	50	45.5	30	27.3
I know how to diagnose or notice children's pre-reading difficulties and misconceptions while teaching a new pre-reading topic	HPS			10	11.1	40	44.4	40	44.4
	LPS			30	27.3	70	63.6	10	9.1
I can eliminate or meet children's pre-reading difficulties and misconceptions during the teaching of pre-reading topics	HPS					60	66.7	30	33.3
	LPS			10	9.1	80	72.7	20	18.2

Findings in Table 3 shows more than 40 percent of teachers from high and low performing schools had knowledge of Kiswahili pre-reading skills around its content, pedagogy, and children's thinking. It means that above 40 percent of the teachers studied from both school categories rated themselves that they were *Knowledgeable*, meaning that they had pedagogical content knowledge of Kiswahili pre-reading skills. It implies that more than half of the teachers studied in both school categories had pedagogical content knowledge of Kiswahili pre-reading skills. It means that teachers from both school categories were neither *Highly Knowledgeable* nor *Not Knowledgeable*, instead they were *Knowledgeable* of Kiswahili pre-reading skills. This suggests that there were teachers from both school categories who possessed low to moderate pedagogical content knowledge of Kiswahili pre-reading skills. An independent sample t-test confirmed that there was no statistically significant difference for teachers from high performing schools ($M=106.67$, $SD = 20.12$), and teachers from low performing schools ($M=92.45$, $SD = 19.07$); $t(19) = 1.618$, $p < .05$ (two tailed) in teacher performance in pedagogical content knowledge of Kiswahili pre-reading skills. It means that teacher performance in pedagogical content knowledge of Kiswahili pre-reading skills had no significant association with children's acquisition of Kiswahili pre-reading skills in both school categories.

Table 4 presents the findings of pedagogical content knowledge elements along their sub-elements possessed by the teachers. Each of the components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills is elaborated further below the table.

Table 4: Components of Teachers' Pedagogical Content Knowledge of Kiswahili Pre-reading Skills Associated with Children's Acquisition of Kiswahili Pre-reading Skills (N=20)

Components of teachers' pedagogical content knowledge	Sub-components of teachers' pedagogical content knowledge	Level of possession
Content knowledge	Topics	High
	Topic relationships	High
Pedagogical knowledge	Teaching and learning methods	Moderate
	Teaching and learning materials	Moderate
	Assessment knowledge and techniques	Moderate
Knowledge of children's thinking	Errors and difficulties	Low
	Ways of eliminating errors and difficulties	Low

Teachers' Content Knowledge of Kiswahili Pre-reading Skills

The findings revealed that teachers had high knowledge of Kiswahili pre-reading skills content in terms of the topics constituting Kiswahili pre-reading skills such as phonemic awareness, letter and vocabulary knowledge and knowledge of the way the topics are related.

Knowledge of Kiswahili pre-reading skills topics: Teachers in both school categories were able to mention the content forming Kiswahili pre-reading skills such as vowels, consonants, words and names of pictures. Teachers' ability to outline the content of Kiswahili pre-reading skills indicated that they possessed the knowledge of the subject matter. During interviews, one of the teachers said:

Children should be taught letter names, how to identify various words and pronounce them, how to create words by looking at pictures as well as creating words from letter figures and be able to write them. Also, they should be taught how to identify an object and name it (Interview, Teacher MR, High performing school).

Knowledge of the relationships among Kiswahili pre-reading skills: More than 55 percent of the teachers from high performing schools and more than 70 percent of teachers from low performing schools were able to explain relationships existing among the components of Kiswahili pre-reading skills. There were teachers in both school categories who said that the components of Kiswahili pre-reading skills such as pronunciation of letter sounds, naming of alphabet letters and naming of various pictures are related because they are the basic components of any reading skills. However, there were less than 10 percent of teachers from low performing schools who were unable to describe the relationship existing among Kiswahili pre-reading skills. One teacher said: "Vowel sounds are related with consonants because they are the ones which help a child to form syllables. "Vowel sounds are the main sounds, so children must understand them first then consonants to form words." (Interview, Teacher CH, Low performing school).

Teachers' Pedagogical Knowledge of Kiswahili Pre-reading Skills

The findings revealed that teachers' pedagogical knowledge varied along pedagogical aspects such as teaching and learning methods, materials and assessment knowledge and techniques.

Teachers' knowledge of Kiswahili pre-reading skills teaching and learning methods: More than 50% of teachers in the studies schools used

questions and answers teaching methods besides songs, plays and role plays. They were unable to use the other methods consistently due to lack of training related to teaching in pre-primary schools. Teachers lacked knowledge of Kiswahili pre-reading skills teaching and learning methods, materials and assessment techniques. A few teachers from both school categories admitted that they had employed songs while teaching the skills to children. Also, less than 30% of teachers admitted that they used plays while teaching children to read. Some teachers were able to tell the importance of each method. One of the teachers said:

...when teaching this class, I use songs because when they sing, they remember. Singing keeps memory. I just use the pictures of letters and some cards as you can see. In fact, I use cards and pictures. Also, I assess one by one to identify those who understand and those who do not by asking them some questions. (Interview, Teacher MC, High performing school).

Although teachers knew the methods, they minimally used them while teaching children to learn to read Kiswahili pre-reading skills. Teachers' limited application of this knowledge was reflected in children's low acquisition of the skills.

Teachers' knowledge of Kiswahili pre-reading skills teaching and learning materials: the findings indicate that more than 50% of teachers possessed this knowledge. They knew the materials relevant for teaching and learning of Kiswahili pre-reading skills, yet, majority of these teachers were not using the materials. They did not use the materials because in majority of the schools, the materials were not available. Some schools had insufficient number of the materials to accommodate the number of children enrolled in such schools. Similarly, many schools had no sufficient fund that would enable the teachers to buy some materials. Moreover, majority of the schools had no specific pre-primary classrooms to keep the materials for future use. Teachers mentioned further that they really knew that they were supposed to prepare the materials and use them. However, they had limited knowledge of preparing relevant Kiswahili pre-reading materials. Teachers' lack of such knowledge was attributed to irrelevant training concerning with teaching in pre-primary classes. Teachers admitted that they rarely participated in seminars that would equip them with some knowledge of preparing and using the materials making these children acquire the skills. One of the teachers said:

I think charts, pictures, real objects, and charts of alphabets are some of the materials that should be available and be used to make children learn Kiswahili PRS. In my school, materials such as cards and charts are available and they appropriate as you can see the cards and charts of alphabet letters, they are hanged on walls, and I do use them in learning corners. However, the materials are not sufficient because we do not have fund, specifically allocated for buying such materials (Interview, Teacher LN, High performing school).

Teachers' Kiswahili pre-reading skills assessment knowledge and techniques: Assessment of Kiswahili pre-reading skills done by the teachers was mainly formative using questions and answers. It was also general that individualized. The teachers did not use individual assessment due to presence of large classes and lack of assessment knowledge of pre-primary class. This condition lowered their teaching morale as well. On the other hand, teachers employed various assessment techniques such as questions and answers, assessment forms and observation. Despite the teacher's knowledge of assessment techniques, they had limited application of the knowledge to enable children acquire Kiswahili pre-reading skills. Teachers' lack of assessment knowledge was attributed to lack of professional development training. Lack of the training made teachers less competent in assessing children's learning of Kiswahili pre-reading skills.

Teachers' knowledge of children's thinking around Kiswahili pre-reading skills

Teachers' knowledge of children's thinking was explored along their knowledge of pre-reading errors made by children's while learning to read Kiswahili phonemes, letters and pictures and knowledge of difficulties they experienced while learning such skills. It means that, teachers' knowledge of identifying and correcting such errors and difficulties was explored.

Teachers' knowledge of Kiswahili pre-reading skills errors and difficulties: The observed teachers were generally unable to identify and correct children who experienced letter and picture naming difficulties. As a result, majority of the children taught by the teachers were not corrected and helped with the preconceived ideas and difficulties in the lessons. For example, when children named letters d as b, or o as zero (0), most of the observed teachers proceeded by selecting another child to give an answer to the same question. Likewise, some children failed to

name correctly sounds such as /l/ pronounced as /r/, /g/ pronounced as /e/, and /e/ was pronounced as number 6. However, the teacher accused children of not being aware of the sounds despite having taught them several times. The observed teachers' inability may be associated with their lack of knowledge of the sources of children's learning errors and difficulties or lack of knowledge of the methods of correcting them.

Teachers' knowledge of ways of eliminating Kiswahili pre-reading skills errors and difficulties: More than 40 percent of the teachers from both school categories were unable to explain how they could identify and correct pre-reading difficulties. The teachers were unable to explain why the children learning to read failed to pronounce initial sounds for some Kiswahili words such as /p/ in *pipa* for *drum*, /l/ in *lala* for *sleep*, and name letters like *g*, *b*, *d*, and *h*. However, the teachers attributed children's reading difficulties to children's poor school attendance and the effects of mother-tongue interference. One of the teachers said:

Children face difficulties in pronouncing and identifying almost all the vowel sounds. They mix or confuse them, for example, a—e, u—a. Only o, is easily identified and pronounced by the children. Another difficult they face is to identify or differentiate some letters.... For instance, many children face difficulties in differentiating letters b and p, m and w, d and b. I try my best to help them... but they fail because they do not come to school regularly (Interview, Teacher LC, High performing school).

DISCUSSIONS

This segment discusses the study's findings in accordance with the study questions. Majority of the teachers were knowledgeable of most components of pedagogical content knowledge of Kiswahili pre-reading skills. However, some teachers in both school categories had mixed views about the Kiswahili pre-reading skills subject matter showing that not all the teachers had high knowledge of Kiswahili pre-reading content. The teachers experienced limited professional development training. As a result, some teachers had limited knowledge of the relationships existing among the components of Kiswahili pre-reading skills. Arrow et al. (2015) argues that one of the causes of low knowledge among teachers is poor professional development. It means that, the learner can learn some skills better if he or she is guided by a knowledgeable person (Vygotsky, 1978). These findings are critical because children's learning is largely dependent on the knowledge of the teacher around the subject matter. However, if the teachers possess limited knowledge of the subject matter,

children taught by such teacher are less likely to acquire these requisite basic and essential skills.

Teachers were unable to plan and use methods frequently and appropriately. Teachers' limited knowledge of instructional methods was due to limited specialised training in pre-primary education issues. Shukia (2014) supports the current findings that teachers' lack of pedagogical knowledge limits their ability to engage children learning to read Kiswahili in playful reading activities. Oh and Kim (2013) support that teachers may fail to employ appropriate teaching methods to enhance students' learning due to lack of pedagogical content knowledge.

Many teachers did not use relevant materials while teaching children Kiswahili pre-reading skills resulting to children's low acquisition of the skills. Teachers' inability to prepare and use the materials was due to lack of training. In contrast, Zhang (2015) argues that if teachers are knowledgeable in the best teaching strategies and materials can work best to promote higher-level thinking regarding specific learners' needs and subject content. There was lack of the teaching materials in schools as a result teachers did not manage to use them while teaching. Anney and Mmasa (2016) support that inadequate teaching resources in pre-primary school streams found in rural contexts hinders children's learning of various literacy skills. This implies that, teachers can effectively teach children pre-reading skills when they are knowledgeable of preparing and using appropriate teaching and learning materials.

Most of the teachers in both school categories did not plan and use assessment techniques as stipulated in pre-primary school syllabus. Teachers had limited application of assessment knowledge due to lack of comprehensive pre-service training and effective professional development trainings. As a result, the teachers faced low knowledge of assessing large classes of children learning to read Kiswahili pre-reading skills. Chapoo et al. (2014) support the current findings that lack of teachers' pedagogical content knowledge leads to teachers' inability to design appropriate instructional and assessment activities that has a significant impact on their instructional practices and children's learning. On the other hand, Peng (2013) argues that teachers should possess knowledge of instructional strategies, which refer to knowledge of evaluation, judging, and deciding on the instructional strategies applicable for pre-reading teaching for them to support children's learning outcomes.

Teachers in both school categories were unable to explain how they could identify and correct pre-reading difficulties encountered by children while teaching Kiswahili pre-reading skills. Children's learning level may be lowered by lack of teachers' scaffolding, positive feedback in particular (Vygotsky, 1978). However, when teachers understand young children's prior knowledge, it serves as a starting point for lesson planning and scaffolding (Zhang, 2015). The findings inform that, if teachers possess inadequate knowledge of children's prior knowledge, they can hardly identify and correct such errors and so making children to learn the skills easily.

CONCLUSIONS AND RECOMMENDATIONS

The components of teachers' pedagogical content knowledge of Kiswahili pre-reading skills in both school categories ranged from high, moderate to low levels. A few teachers had high knowledge of the content of Kiswahili pre-reading skills. Some teachers had moderate pedagogical knowledge of Kiswahili pre-reading skills. Majority of teachers had low knowledge of children's thinking around Kiswahili pre-reading skills. Teachers' lack of training in pre-primary education issues was one of the main limiting factors. Thus, teachers' lack of pedagogical content knowledge of Kiswahili pre-reading skills was associated with children's low acquisition of Kiswahili pre-reading skills in both school categories under study. The study recommends that the Ministry of Education Science and Technology [MoEST] should develop a comprehensive policy on pre-primary education. The policy should define among others the qualifications of a pre-primary school teacher to facilitate employment of teachers with relevant pre-primary education qualifications. The ministry should ensure on-going professional development courses for pre-primary school teachers. Teachers' training should help in equipping them with relevant pedagogical content knowledge of Kiswahili pre-reading skills. Also, it should strengthen monitoring mechanisms to ensure that teachers who are teaching the skills possess relevant knowledge of Kiswahili pre-reading skills among other. Presence of teachers' monitoring mechanisms will help improve children's learning outcomes in pre-primary classes.

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CONFLICT OF INTEREST

The authors declare that there is no any conflict of interest related to this article.

Resources Management and Human-Wildlife Conflicts in Ngorongoro Tanzania

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ABSTRACT

The study aimed to establish the status of human-wildlife conflicts over resources in the Ngorongoro Conservation Area in Tanzania. The study used a questionnaire and guiding questions to collect data. The data were analysed using descriptive statistical analysis and content analysis approaches. The findings indicate that Human-Wildlife Conflict (HWC) persists in the NCA. Wild animals exposed to harassment exhibited aggressive behaviors compared to others, and wild animals prowling at night predated all NCA-related domestic animals. Competition over resources between human beings, livestock, and wild animals causes HWC in the NCA. In minimizing HWC, the villagers constructed strong fences around bomas and introduced zoning for grazing in some areas suitable for wild animals. The study concludes that the NCA must continue providing conservation knowledge to the natives, promoting livestock predation compensation schemes, advocating building bomas using solid fences, and employing participatory treatment of WHC-related cases. The study recommends that natives in the NCA area take precautions to avoid grazing their livestock in areas with a high degree of predation. In addition, relevant authorities should address rabid cases in the NCA.

Keywords: *Human-Wildlife Conflict, Ngorongoro Conservation Area, livestock predation, mitigation measures*

INTRODUCTION

Conflicts between wildlife and people, particularly those sharing the same ecosystem and those in immediate surroundings of the protected areas, are a common global phenomenon (Shemwetta and Kideghesho, 2000).

These conflicts occur when there is either a need or behaviour of wildlife to negatively impact human livelihoods or, conversely, when humans pursue goals that negatively impact wildlife needs (Stanley *et al.*, 2014). For example, in Africa, human-wildlife conflicts tend to be rife in areas where large herds of big mammals such as elephants and lions roam in marginal rangelands and protected areas (Matindi *et al.*, 2015). As a result, conflicts between people and wildlife currently rank among the main threats to conservation efforts in Africa (Stanley *et al.*, 2014).

In Tanzania, wildlife resources constitute a unique natural heritage and resources with significant national and global importance (NINA Report, 2005). However, the costs inflicted by wildlife conservation on people and the human problems constraining the wildlife sector in Tanzania have made human-wildlife conflicts one of the significant challenges demanding the attention of conservationists (Shemwetta and Kideghesho, 2000). Since 1959, the NCA was designated a conservation area to provide multiple land-use areas for residents, migratory wildlife, and the natives. Initially, pastoralists wandered traditionally throughout the NCA, with their livestock sharing the same ecosystem with wild animals. Although human beings and livestock populations did not endanger the coexistence between human activities and wildlife conservation, they caused minimal human-wildlife conflict.

However, things have since changed. There has been a rapid increase in the human population in the Ngorongoro Conservation Area since 1959, when the conservation was first established (Swanson, 2007). According to the NCA (2013), by 2012, the human population had increased by 5.6%. Increased human and livestock populations have threatened the existence of wildlife in the NCA. Hence, zoning of the area was undertaken to restrict access to some areas for pastoralists, including the Ngorongoro crater and realms of the Embakai crater. Native pastoralists perceived these restrictions as a threat to livestock keeping; that perception sparked the serious human-wildlife conflict (Swanson, 2007, p 66).

Furthermore, the extension of the designated protected areas forced evictions, and restrictive access to resource use for local communities from the area, coupled with incompatible land-use practices, have further exacerbated the human-wildlife conflict (Kideghesho, 2006). The question, which remains unanswered thus far, is: What are the effects of

such human-wildlife conflicts on conservation? This study was undertaken to address four specific objectives, to determine the types of human-wildlife conflicts in the NCA; to establish causes of human-wildlife conflicts in the NCA; to examine perceptions of human-wildlife conflicts in the NCA, and finally, to assess the community opinions on the potentially viable mitigation measures for combating human-wildlife conflicts in the NCA.

METHODOLOGY

The study area

The NCA is located in Northern Tanzania (340 52 - 350 58 E, 2030 – 3038 S) and covers 8,283km² (Elliott, 2010) (Figure 1). It borders Loliondo Game Controlled Area (LGCA) to the North, the Serengeti National Park to the west, Lake Eyasi to the south, and agricultural communities on the south-eastern border at Karatu district (Elliot, 2010). The area has five ecological zones: The Crater highlands, Salei plains, Gol Mountains, Serengeti plains, and Kakesio/Eyasi escarpment. Rainfall in the area is seasonal and highly variable, ranging from 400 to 600 mm in the lowland plains to more than 1200 mm per annum in the highland areas. The borders of the NCA encompass a great variety of ecosystems, including montane forest, swamp, marsh, and dry forest, as well as long and short grasslands that are extensions of the Maasai Mara and Serengeti ecosystems Swanson (2007). The NCA is endowed with a complex community of large grazing mammals accompanied by various large and small predators (IUCN, 2017). Water resources are limited; borehole water sources, which could otherwise add on consumable water, are frequently blackish and mostly saline, making the water unpalatable. The Maasai pastoralists inhabit the area.

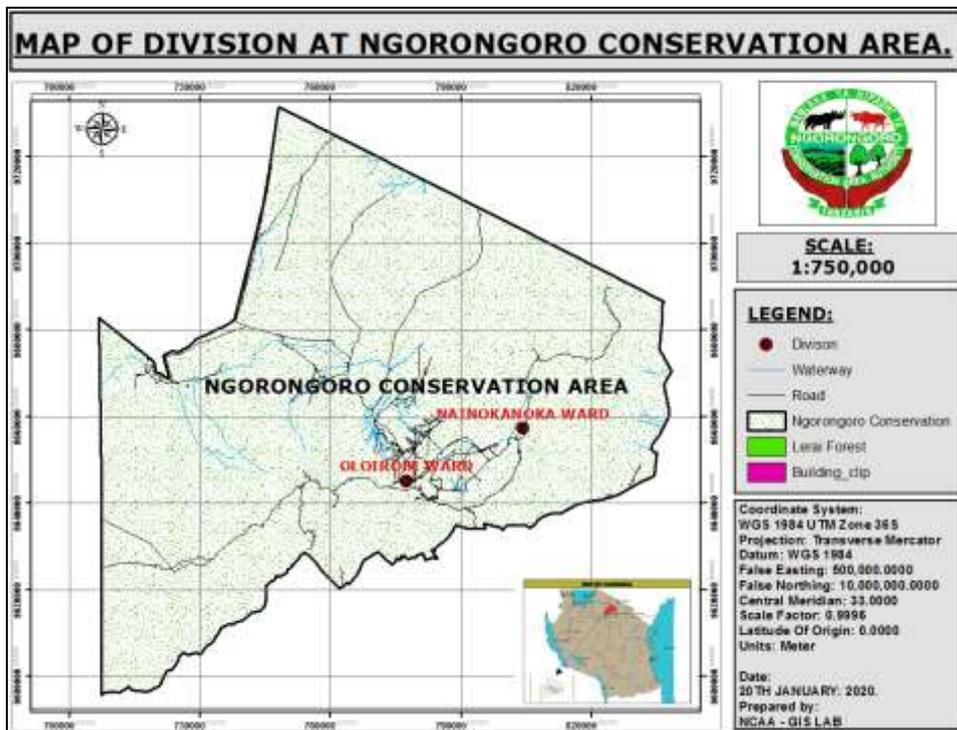


Figure 1: Map of Ngorongoro Conservation Area Authority

Methods

The study used both quantitative and qualitative research approaches. The study calculated the sample using the following formula:

$$n = \left(\frac{1/E}{\sqrt{pq}} \right)^2 (z)^2$$

Where n=sample size needed

E=desired margin of error

pq=variance of hypothesized proportions

z= z score of confidence level

The desired margin error is 5%, with an expectation that 90% of the respondents voluntarily agreed to participate; therefore, a .95-confidence level was used to calculate the sample size for this study. Hence the sample size for this study was calculated as follows:

$$n = \left(\frac{1/0.05}{\sqrt{0.9 \times 0.1}} \right)^2 (1.96)^2$$

$$n = 139$$

A random sampling technique was used to get a representative sample. A list of all the villages in the Ngorongoro division constituting the NCAA was prepared to form a villages sampling frame. Ten (10) villages were randomly selected in the village sampling frame. A list of heads of households in the randomly selected villages formed the village respondents' sampling frame. In order to come up with 139 research participants, in the first nine (9) randomly selected villages, 14 respondents were selected from the established villages. From the last randomly selected village sampling frame, only 13 respondents were randomly selected, making 139 randomly selected respondents for this study. The study used a questionnaire to collect quantitative data. A checklist of guiding questions was used to collect qualitative data through Focus Group Discussions (FGD). The groups comprised village government leaders, NCAA senior officers, traditional leaders, and influential people from the study villages. Descriptive statistics, including percentages and frequencies, described the study population. Data from focus group discussions were analysed using the content analysis approach.

FINDINGS

Types of Human-Wildlife Conflicts in the NCA

Respondents were asked to indicate whether there was any prevailing Human-Wildlife Conflict (HWC) in the study area; all of them (100%) affirmed the existence of the conflict. Moreover, when they were asked about the most prevailing HWC in the area, most of them (95.7%) cited wildlife confronting humans. Only 4.3% of the respondents indicated the type of conflict to be confronting human wildlife. Respondents were also asked to cite cases of HWC indicating the main types of conflicts. The findings show that cases of wild animals attacking livestock were higher (66.9%) than those of wild animals attacking humans (33.1%). When respondents were asked to indicate the most prevalent wild animals that attacked humans, they cited buffaloes (31.7%) followed by elephants (26.6%), leopards (22.3%), hyenas (17.3%), and lion (2.2%) in descending order.

During FGDs, participants were asked to explain why buffaloes were the wildest and most attack-minded animals against human beings in the NCA when the same animals mainly were observed around NCA headquarters offices to be the most pacific. The FGD participants pointed out that wild animals not exposed to harassment like those found around

NCAA headquarters exhibited the least hostile conduct against humans, but usually, buffaloes were dangerous. One of the discussants had the following to say:

Buffaloes are dangerous animals to human beings. Unlike other wild animals, when buffaloes hear human voices, they move close to the path where the human beings would pass and abruptly attack them. As a result, we have many cases of human beings being hurt and even killed by buffalo.

As far as the most affected livestock by wild animals, the respondents indicated that sheep (35.97%) and goats (35.25%) were the most affected livestock, followed by cattle (20.14%) and donkeys (2.88%). Concerning most wild animals that attacked livestock, respondents indicated that hyenas accounted for the most significant proportion (46%), followed by lions (33.1%), leopards (14.4%), and cheetahs (4.3%). Other wild animals that attacked livestock accounted for a negligible percentage (2.2%). During FGDs, discussants pointed out that in addition to wild animals infamous for attacking livestock, animals such as baboons, jackals, and buffaloes also pose a threat to domesticated animals. They indicated that lambs were primary targets for baboons and jackals. Although, in addition, buffaloes were reported to fight cattle, on some occasions, cattle were seriously injured. During FGDs, participants believed that livestock was mostly attacked during late evenings when livestock was heading back home and during early mornings. During the late evenings, the most vulnerable livestock was reported to be those lost on the way and those trailing behind. However, though rarely, the lion, leopards, hyenas, and jackals attacked livestock even during the daytime.

When the respondents were asked to indicate which wild animals attacked livestock mainly during the night, their responses indicated that hyenas (46.0%) topped the chart, followed by leopards (30.2%) and lions (23.0%), others made only 0.7 percent.

Causes of Human-Wildlife Conflicts in the NCAA

During the study, respondents were also asked to indicate the causes of HWC. The leading reason cited by the respondents was competition over resources (33.1%), change in human behaviour (20.1%), change in wild animals' behaviour (19.4%), and native traditions (11.5%). During FGDs, participants believed that the increase in the human population

contributed to the escalation of HWC in the study area mainly because the human population increase prompted the invasion of wildlife habitats. One of the discussants had the following to say:

Most former grazing land has been converted into settlements. However, due to the population increase, there is no more land for settlement; hence people have built their houses in areas meant for pastures, and the grazing land is diminishing. As a result, herders are invading game habitats for pastures.

Exploring further how native traditions escalated the HWC, the study found that youth killing lions accounted for 42.4 percent, youth killing birds for 24.5 percent, whereas others accounted for 33.1 percent.

FGD members noted that the tradition that requires youths to kill either a lion or bird contributes to HWC. In the past, killing the former occurred when lions attacked livestock. Nowadays, however, youth kill lions only for the sake of traditions. Concerning feathers worn during the circumcision period, one member of the FGD said:

Due to punishment imposed on causalities found guilty of killing wild animals, including birds, youth usually collect feathers shaded by ostriches in bushes. In a few cases, colorful birds can be killed. Nevertheless, generally, people have been educating youth to abandon the tradition of killing animals.

As far as HWC caused by behavioural change, the findings show that sick carnivores accounted for the most significant proportion (47.5%) of the prevailing conflicts caused by wildlife behavioural change, followed by injured wild animals, lactating wild animals (15.4%), old carnivores (8.6%) and others (5.8%). During the FGDs, the research participants identified sick wild carnivores, particularly those suspected of suffering from rabies, as threats. They pointed out that since rabies is a zoonotic disease, transmission could occur from sick wild carnivores to domestic carnivores, particularly dogs, and vice-versa, compounding the human-wildlife conflict in the study area. Respondents were also asked to indicate causes of HWC which are most prevalent in the study area. The results show that poor treatment, including corporal punishment of the natives by the NCA authority, topped the chart of responses, followed by the belief that there is a low native benefit accruing from conserving wildlife (Table 1).

Table 1: Causes of HWC

Respondents' choices	Respondents	Percent
Persistence in compensation delays	17	12.2
Low compensation packages	25	18.0
Assumed poor native benefits accruing from conserving wildlife	36	25.9
Poor native treatment by the NCA authority	37	26.6
Others	24	17.3
Total	139	100.0

Respondents were asked to give their views on whether HWC has increased in the past ten years. The results show that 33.1 percent disagreed with the statement, whereas 33.8 percent strongly agreed. Table 2 presents the results:

Table 2: Responses on whether HWC has increased over the past ten years

Respondents' choices	Respondents	Percentage
Moderately disagree	46	33.1
Agree	24	17.3
Moderately agree	22	15.8
Strongly agree	47	33.8
Total	139	100.0

When respondents were asked whether the NCA had adequately addressed HWC, the results show that about 33.8 percent strongly agreed, 22.3 percent moderately disagreed, 26.6 percent agreed, and 17.3 percent moderately agreed with the statement (Figure 2).

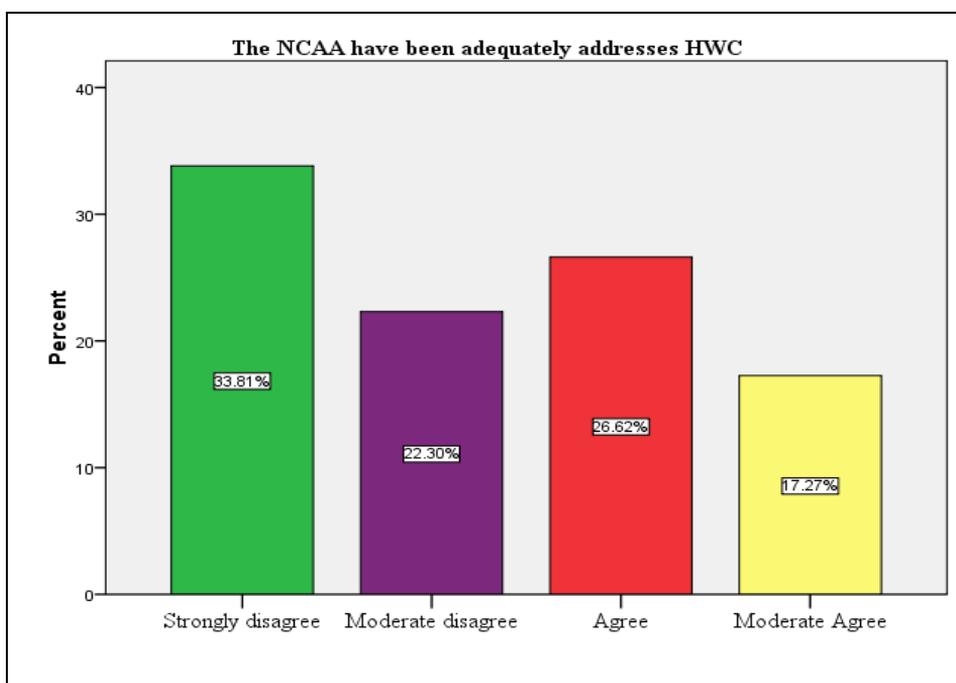


Figure 2: Responses on whether NCAA has been adequately addressed HWC

As a means for double-dipping the existence of native tradition in lion killing, most respondents strongly disagreed with the statement, followed by those who moderately disagreed with it (Table 2).

Table 2: Level of agreement on whether Native Youth Tradition of killing lions has Increased

Respondents' choices	Respondents	Percentage
Strongly disagree	69	49.6
Moderately disagree	62	44.6
Moderately agree	8	5.8
Total	139	100.0

During FGDs, research participants revealed that the mechanism for reducing HWC that has been instituted in the past 10years includes the construction of solid bomas using poles instead of tree branches that wild animal quickly destroy to get access to livestock. The other strategy has been avoiding using children in herding livestock in areas of high risk of attack by wild animals. Furthermore, the FGD members explained that a recent lion conservation project in the area named Mama Simba had discouraged lion killing. The project seems to be successful partly because the community members know that the community will be awarded if lion numbers increase in their area. One FGD member said:

Nowadays, residents have been using solid poles in constructing bomas fencing off their livestock as these be strong enough to prevent wild animals such as hyenas from preying on livestock at night.

During FGDs, the NCAA had introduced natives' wildlife conservation motivation schemes for undertaking collaborative development projects such as building schools, supporting individual students, and providing safe and clean water. However, when respondents were asked to indicate whether the gravity of HWC was more severe than documented, most respondents agreed with the statement (Table 3).

Table 3: Gravity of HWC Bigger than Documented

Respondents' choices	Respondents	Percentage
Strongly disagree	31	22.3
Moderately disagree	37	26.6
Agree	23	16.5
Moderately agree	16	11.5
Strongly agree	32	23.0
Total	139	100.0

Issues of genuine community participation in addressing HWC are paramount for sustainable conservation. When respondents were asked to indicate whether the community has been adequately involved in addressing HWC in the NCAA, it was found that opinion varied, but the majority agreed with the statement (Table 4).

Table 4: Adequate Community Involvement in Addressing HWC in NCAA

Respondents' choices	Respondents Percentage	
Strongly disagree	40	28.8
Moderately disagree	30	21.6
Agree	54	38.8
Moderately Agree	8	5.8
Strongly agree	7	5.0
Total	139	100.0

Concerning whether the laws are more in favour of wildlife than native inhabitants, hence fuelling HWC, it was found that most of them (66.9%) strongly agreed with the statement, followed by agreed (16.5%), moderately disagreed (10.8%) and the least being those whose opinion follow under moderately agreed (5.8%). Additionally, the study respondents were asked to indicate whether cases of retaliatory killing of wild animals in the NCAA recently had increased. The results are presented in Table 5, where the majority of the respondents strongly disagreed with the statement.

Table 5: Levels of Agreement on Increase of Cases of Retaliatory Killing of Wild Animals

Respondents' choices	Respondents	Percentage
Strongly disagree	44	31.7
Moderately disagree	40	28.8
Agree	31	22.3
Moderately agree	16	11.5
Strongly agree	8	5.8
Total	139	100.0

Mitigation Measures for Combating Human-Wildlife Conflicts in the NCAA

The respondents were asked whether providing conservation knowledge to natives is the best way to combat human-wildlife conflict in NCAA. The results indicated that 48.9 percent strongly agreed, 39.6 percent agreed, 5.8 percent moderately agreed, and 5.8 percent moderately disagreed. The respondents were also asked to indicate whether the

provision of timely compensation was the best way of fighting HWC in the NCAA. Responding, 39.6 percent of all respondents agreed, 33.1 percent strongly agreed, 21.6 percent moderately agreed, and 5.8 percent moderately disagreed with the statement.

When respondents were asked whether the use of solar lighting was one of the best ways of combating HWC in the NCAA, they moderately agreed with the statement (46%), strongly agreed (25.9), percent moderately disagreed (17.3), agreed (5%) and moderately disagreed with the statement (5.8%). During the focus group discussions, the research participants pointed out that initially, they had used solar lighting at the beginning. It works, but afterward, wild animals got used to it so much that it no longer helps repel the wild animal at night as initially intended. Respondents were further asked to indicate whether solid fences around their bomas constituted the best means of combating HWC in the NCAA. The results show majority agreed with the statement in Table 6.

Table 6: Use of Strong Fences as Best Means for Combating HWC in NCAA

Respondents' choices	Respondents	Percentage
Moderately disagree	8	5.8
Agree	31	22.3
Moderately agree	39	28.1
Strongly agree	61	43.9
Total	139	100.0

Regarding whether the provision of artificial feathers for youth during the circumcision period can reduce HWC related to bird-killing, the results show that 33.8 percent of the respondents strongly disagreed, 28.1 percent strongly disagreed, 27.3 percent simply 5.8 percent moderate disagreed, and 5.0 percent strongly agreed. The study also solicited responses on whether the provision of sports and games to youth during the circumcision period could reduce their engagement in the traditional killing of wildlife. Responding, 44.6 percent of the respondents moderately disagreed, 28.1 percent others agreed, 15.8 percent strongly agreed, and 11.5 percent moderately agreed with the statement on sports and games mitigating wildlife killings by youth. Also, the study sought to establish whether controlling the number of livestock could help reduce HWC in the area. The results show that 37.4 percent of the respondents

strongly disagreed, 34.5 percent others agreed, 17.3 percent moderately disagreed, and 10.8 percent strongly agreed with the statement on controlling the number of herds as a mitigating measure.

Furthermore, the study sought to determine whether reducing wild carnivores in the NCA via relocation to other areas could reduce HWC in the area. The results show that 43.2 percent of the respondents strongly disagreed, 23.0 percent others moderately agreed, 16.5 percent agreed, 11.5 percent moderately disagreed, and 5.8 percent strongly agreed with the statement that relocating wild carnivores reduces human-animal conflict. The study also asked respondents to indicate whether the laws to deal with HWC in NCAA need an amendment to reduce HWC in the area. Again, the results show that 42.4 percent of the respondents strongly agreed, 28.8 percent agreed, 23.0 percent moderately agreed, and 5.8 percent moderately disagreed with the statement on the need to amend the laws to deal with HWC.

DISCUSSION

Types of Human-Wildlife Conflicts in the NCA

When respondents were asked to indicate whether there was any prevailing Human-Wildlife Conflict (HWC) in the study area, 100 percent of those interviewed confirmed such existence of the conflicts. This finding is consistent with Billé *et al.* (2012), who found that material conditions promoting human welfare while conserving biodiversity are incompatible. According to Shemwetta and Kideghesho (2000), "Conflicts between wildlife and people," especially when "sharing the same ecosystem" with those in "boundaries with protected areas," is a universal problem. Stanley *et al.* (2014) noted that conflicts between people and wildlife are the main threats to conservation in Africa. However, Swanson (2007) noted that NCAA had been meant for multiple land use for people, livestock, and wildlife to co-exist with a high degree of HWC tolerance by the pastoralists since its establishment.

When respondents were asked to account for HWC whereby wildlife confront humans, they indicated that cases of wild animals attacking livestock were higher (66.9%) than those of these beasts attacking humans (33.1%). Implicitly, the residents in the study areas did not only lose their livestock but also ended up being victims themselves. The Wildlife Policy 1999 stipulates: "There is a necessity of controlling wildlife, which poses or causes damage to human life and property." In

other words, the wildlife-human conflict can be tolerable only to a certain extent.

When the respondents were asked to indicate which wild animals attacked humans mostly, the results show that the buffaloes featured much more prominently (31.7%) than others, followed by the elephants (26.6%), the leopards (22.3%), and the hyenas (17.3%). The least were lions (2.2%). This finding is consistent with Matindi *et al.* (2015), who documented that human-wildlife conflicts are prevalent, with large numbers of big mammals such as elephants, buffaloes, and lions still roaming freely in marginal rangelands and protected areas. The NCA is “endowed with a complex community of large grazing mammals accompanied by an equally impressive diversity of large and small predators including as many as 7,500 hyenas, 3,000 lions, 1,000 leopards, 225 cheetahs, and wild dogs” (IUCN (2017)).

This study found buffaloes to be the wildest animal that attacked humans in the NCA. On the other hand, animals observed mainly around the NCAA headquarters behaved less aggressively. Participants pointed out that those wild animals not exposed to harassment like those found around NCAA headquarters exhibited tame behaviour, but buffaloes were usually dangerous. However, it was unknown whether buffaloes behaved tame or hostile due to human interaction with wildlife. In this regard, Patana *et al.* (2018) observed:

An impact, positive or negative, results from a wildlife-related event that causes a human reaction and results in human behavior. The author noted that both the human reaction to an event (positive versus negative) and the resulting behaviour from an impact affect wildlife and are influenced by complex interactions among humans.

In other words, the human-wildlife interaction in such scenarios remains rather complex and needs carefully planned and executed intervention measures.

Causes of Human-Wildlife Conflicts in the NCAA

During the study, respondents were asked about the causes of HWC. The results show that most of the responses indicated competition over resources (33.1%) to lead the causes of HWC in the study area. The other causes are changes in human behaviour (20.1%) and changes in wild animals' behavior (19.4%). In the meantime, native traditions accounted

for 11.5 percent. As Biru *et al.* (2017) contend, "For a long period generally pastoralists have lived in harmony with wild animals." Similarly, Niamir-Fuller *et al.* (2012) proffer: "Pastoralists believe that livestock has to live in coexistence such that they can live alone." Peterson *et al.* (2010), on their part, explain this dilemma this way:

Although the conservation benefits of the terministic shift are debatable, a significant shift occurred nonetheless. Terministic screens become problematic in biodiversity conservation contexts when they frame the needs of humans and wildlife as arising from conscious antagonism. Cases where the resource demands of humans and wildlife must be balanced could be described as human-wildlife coexistence, human-wildlife competition, or human-human conflict.

Chardonnet *et al.* (2010) also noted that the fast "encroachment of human activities on lion habitat – the reduction of wilderness as a whole – increases the interface between humans and lion." This development, consequently, makes the coexistence of large predators such as lions with humans, their potential prey, rather tricky. During focus group discussions, research participants indicated a rise in the population of both humans and animals to contribute to the escalation of HWC in the study area. According to Swanson (2007, p.15), the human population explosion in Ngorongoro Conservation Area from 1959 when the conservation was incepted (p 15). According to the NCA (2013), the human population in the NCA swelled from 26,743 in 1988 to 87,851 in 2012, a 5.6 percent human population increase. The conflicts, then, are in this small area grow as wildlife and the Maasai livestock compete for valuable resources crucial to their survival (Swanson, 2007). The increase in human beings and livestock threatened the existence of wildlife conservation in the NCA as per its establishment, leading to the area's zoning, which restricts accessibility for pastoralists in some areas, including the Ngorongoro and reams of the Embakai crater. Native pastoralists perceived these restrictions as threatening their livestock keeping, igniting human-wildlife conflict.

Exploring how the indigenous people's traditions escalated HWC, the study found that youth killing of lions accounted for 42.4 percent, and killing of birds stood at 24.5 percent. Meanwhile, other youthful killings accounted for 33.1 percent. Traditionally, at a certain age, youths are obliged to participate in hunting some wild animals as part of ceremonial deeds (Gardner, 2016; Tian, 2016). In addition, at 14 years, Maasai youth

undergo circumcisions that are accompanied by the making of crowns using birds' feathers (Hodgson, 2001; Bruner & Kirshenblatt Gimblett, 1994).

During the FGDs, research participants hinted that the tradition of youth killing either lions or birds was diminishing. It is mainly observed that retaliatory cases occurred when lions attacked livestock. However, nowadays, it is challenging to observe youths killing lions only to fulfill traditions. According to Ikanda and Packer (2008, p. 72), the Maasai tend to kill lions in "retaliation for livestock depredation" in the pastoralist NCA. Additionally, though the short grass plains serve as ritual hunting grounds", Maasai warriors tend to kill nomadic Serengeti lions during the wet season. Based on the study by Ikanda and Packer (2008), it was difficult to get information on cases related to the Maasai killing of lions in the NCAA as part of their tradition. They illustrate using a case of a group of Maasai that had just speared a radio-collared Serengeti female and claimed that it was a retaliatory attack as the feline creature had mauled cattle 30 km away the previous day. Nevertheless, the radio-collared lion could not have killed their livestock, and neither had this group of Maasai traveled 30 km overnight (Ikanda & Packer, 2008, p. 72).

The respondents were asked to state what, among those HWC caused by the change of behaviour of wild animals, was the most compelling in this area. In their responses, it was noted that sick carnivores accounted for the most significant proportion (47.5%), followed by injured wild animals, lactating wild animals (15.4%), and old carnivores (8.6%), and others (5.8%). During the FGDs, research participants cited sick wild carnivores as a threat, particularly those suffering from rabies. They said that cases of rabid hyenas and jackals attacking livestock were experienced in the Ngorongoro Conservation Area. They pointed out that since rabies is a zoonotic disease, it was possible for transmission from ailing wild carnivores to domestic carnivores, particularly dogs, and vice-versa, hence escalating the human-wildlife conflict in the study area.

Community perception of the trends of HWC in the NCA

The study also explored whether HWC had increased in the past ten years. Responding, 33.1 percent of the respondents moderately disagreed, whereas 33.8 percent strongly agreed with the statement. In this regard, a study by Ikanda and Packer (2008) indicated that wildlife killing at the

hands of the Maasai in the study area was little documented. However, as Gardner (2016) and Tian (2016) noted, ceremonial wildlife killing persisted, signalling the prevalence of HWC.

This study established that they are the untold story of the level of HWC in the study area. One research participant expressed doubt on whether the NCAA residents were not killing wild carnivores in retaliatory scenarios in an unreported manner. As noted earlier, Ikanda and Packer (2008) contend that it was difficult to get information on cases related to the Maasai killings of lions in the NCAA to fulfill traditional demands. Residents did not tolerate HWC in the study area to a certain degree. A considerable number of respondents confirmed that the presence of less tolerance with HWC is worth it. According to Swanson (2007), "Although Maasai pastoralists in the NCA exerted a high degree of tolerance with livestock predation by wildlife, the conflict between the two does exist. That unsolved HWC threatens the sustainability of the wildlife conservation as per NCAA establishment in 1959."

As a means of double-dipping on the existence of native traditions of lion killing, when respondents were asked for their opinion on whether the level of native youth traditions of killing lions had increased, the results show that about 49.6 percent strongly disagreed with the statement, 44.6 percent moderately disagreed, and 5.8 percent moderately agreed with it. Different scholars (see, for example, Gardner, 2016; Tian, 2016) have established that Maasai youths participate in hunting wild animals as part of the rite of passage at a certain age.

The study has also established that more means of reducing HWC have been devised over the past ten years. For example, the NCAA has undertaken various projects to reduce HWC to motivate indigenous peoples in fostering wildlife protection. Moreover, the NCAA has introduced natives' wildlife conservation motivation schemes by undertaking communal development projects such as building schools, supporting individual students, and providing safe and clean water.

Means for reducing HWC that have been instituted include the construction of solid bomas using poles instead of tree branches that wild animal quickly destroy to maraud on livestock. In addition, they said that the presence of Mama Simba (a recent lion conservation project in the area) has served as a means of discouraging lion killing as the community

gets rewarded when the population of lions increases in their area. According to Elmqvist *et al.* (2010), the interactions in the communities of organisms at the population and community level play a significant role in determining the stability and resilience of the ecosystem. Thus, community education on conservation has reduced HWC in the study area.

Also, issues of genuine community participation in addressing HWC are paramount for sustainable conservation. When respondents were asked to indicate whether the community had been adequately involved in addressing HWC in the NCAA, opinions varied. About 38.8 percent of the respondents agreed with the statement, whereas 28.8 percent strongly disagreed and 21.6 percent moderately disagreed with it. This result contradicts the Wildlife Policy of 1999, which recognises the need to change how wildlife resources are managed and conserved and promote local community participation in conserving and utilizing wildlife resources.

When the respondents were asked to indicate whether the laws in place favour wildlife at the expense of native inhabitants, hence fuelling HWC, the study found that most of them (66.9%) strongly agreed with the statement, some agreed (16.5%), others (10.8%) moderately disagreed with, and the least (5.8%) moderately agreed with the statement. Peterson *et al.* (2010) insist on all human experience being grounded in material reality as “materiality alone is insufficient to motivate social action.” People's experiences, beliefs, and values tend to frame their perceptions. When the NCAA residents perceive the laws to favour wildlife, they are likely to be silent on the human killing of wildlife.

Mitigation Measures for Combating Human-Wildlife Conflicts

There are two basic approaches to managing human-wildlife conflicts: Prevention and mitigation (Muruthi, 2005). Preventive measures can prevent or ease the risk of conflicts between people and animals, including completely removing either the people or the animals, separating the two using barriers, and deploying various scaring and repelling techniques. During this study, respondents were asked to ponder whether providing conservation knowledge to natives is the best way of combating NCAA. Most of them (48.9%) agreed strongly, 39.6 percent agreed, 5.8 percent moderately agreed, and 5.8 percent moderately disagreed. The provision of conservation education to NCA residents

would be part of prevention measures as recommended by Muruthi (2005). According to FAO (2010), to prevent the happening of HWC, the first step is to raise people's consciousness that they were in a wildlife area and of the potential consequences.

When respondents were asked to indicate whether the provision of timely compensation is the best way of dealing with HWC in the NCAA, the study established that 39.6 percent agreed, 33.1 percent strongly agreed, 21.6 percent moderately agreed, and 5.8 percent moderately disagreed with the statement. According to Chardonnet *et al.* (2010), victims seek compensation to recover payment for the losses in uncontrolled remote areas where wildlife damage occurs. However, compensation is not a priority means for dealing with HWC in the NCAA (Swanson, 2007), The place has been established for multiple land use, allowing humans, their livestock, and wildlife to co-exist in the same area.

When the respondents were asked to indicate whether they used solar light to combat HWC in the NCAA, 46.0 percent moderately agreed, 25.9 percent strongly agreed, 17.3 percent moderately agreed, and 5.8 percent moderately disagreed with the statements. This finding is consistent with Manoa and Mwaura (2016), who noted:

Deterrent solar lights, installed around pastoralist bomas, prevent predators from entering the boma and raiding the livestock during the night. However, the effectiveness of retaliating light works in the first days of installation in the area. During the focus group discussion, research participants pointed out that the use of retaliating light at the beginning worked, but afterward, wild animals got used to them to the point that it did not help in repelling the wild animal during the night.

When the respondents were asked whether solid fences around the bomas are the best means of combating HWC in the NCAA, most respondents (43.9%) strongly agreed, and 28.1 percent moderately agreed. This finding supports Chardonnet *et al.* (2010), who indicated that "the best way to avoid conflict with lions is through lion-proof *bomas*. When I say 'lion-proof', I mean *bomas* which are sufficiently high and strong to prevent cattle from breaking out of them and lions from jumping in."

When the respondents were asked to indicate whether participatory treatment of cases related to WHC is the best way of combating HWC in the NCAA, 44.6 percent of the respondents agreed, 28.1 percent

moderately agreed, and 27.3 percent strongly agreed. This finding is consistent with The Wildlife Policy of 1999, which was formulated to recognize the need to change how wildlife resources are managed and conserved but must promote local community participation in conserving and utilising wildlife resources.

On whether the provision of sports and games to youth during the circumcision period could reduce chances for youth to engage in the traditional killing of wildlife, 44.6 percent moderately disagreed, 28.1 percent agreed, 15.8 percent strongly agreed, and 11.5 percent moderately agreed with the statement. According to Richardson *et al.* (2017), the use of sport as an intervention to reduce crime in the community and prisons in recent years and to reduce the radicalization of young adults has become common. Studies suggest that participating in sports may improve self-esteem, enhance social bonds, and provide participants with a feeling of purpose. In addition, the introduction of an education element can improve outcomes following the completion of the programs, providing participants with a pathway towards employment. Although it is recognized that sport may form only one element towards reducing crime and radicalisation, effectiveness may be enhanced by a combination of other services such as religious re-education and assistance with housing.

When the respondents were asked whether controlling the number of livestock is the best means of reducing HWC in the area, 37.4 percent of the respondents strongly disagreed, 34.5 percent agreed, 17.3 percent moderately disagreed, and 10.8 percent strongly agreed. The idea of reducing the livestock population may sound practical in reducing HWC. However, according to FAO (2010), to prevent the occurrence of HWC, the first step is to raise people's awareness that they are in a wildlife area and of the potential consequences: living, working, or travelling in areas with large carnivores called for preparedness. The same idea of dealing with a wildlife population was indicated to affect dealing with HWC. When respondents were asked whether the reduction of wild carnivores in the NCA by relocation to other areas is the best means of reducing HWC in the area, it was established that 43.2 percent strongly disagreed, 23 percent moderately agreed, 16.5 percent agreed, 11.5 percent moderately disagree, and 5.8 percent strongly agreed. However, it should be remembered that the NCA has been established as multiple land use allowing humans, livestock, and wildlife to share the same ecosystem.

The question is how much of each of the elements initially meant to use in the areas is supposed to be maintained to maintain the purpose of its establishment.

When the respondents were asked to indicate whether the laws in place dealing with HWC for the NCAA have to be amended to ease HWC, it was found that 42.4 percent strongly agreed, 28.8 percent agreed, and 23.0 percent moderately agreed, and 5.8 percent moderately disagreed. The findings indicate that NCA residents were not happy with the current governing laws in the study area. This restriction tends to annoy the pastoralists and trigger the need to amend the current laws. In this regard, Kipuri *et al.* (2008) note:

Under the NCA Ordinance, the NCAA is mandated to control all land use, commercial activity, entry, and residence within NCA. The author noted that, despite recognizing pastoralism as a sustainable land-use system, the NCAA has restricted pastoralist grazing and is excluded from prime grazing sites in various parts of NCA and must get permits to take livestock to the Ngorongoro crater to access mineral salts.

CONCLUSION

Based on the study findings, it is evident that HWC persists in the NCAA. Livestock is more prone to wild animal attacks than human beings. Buffaloes were found to threaten human beings in addition to elephants, leopards, hyenas, and lions. The study also found that wild animals not exposed to human harassment like those found around the NCAA headquarters exhibited less aggressive behaviour than others. All the domestic animals found in NCAA (cattle, sheep, goats, donkeys, and domestic dogs) were preyed on by wild animals. Sheep and goats were mainly victims of HWC, with more cases at the hands of hyenas at night. Lion's predations are mainly observed early in the morning and late evening, most victims being livestock at the back when herding back home and those lost in the rangeland. The study also found that human-wildlife conflict in the NCAA was mainly occasioned by competition over resources by human beings, their livestock, and wild animals. The increase in the human population has resulted in the invasion of areas used chiefly by wildlife. There was an observable threat in HWC due to wild animals' change of behavior when they are sick, especially rabid carnivores. Injured wild animals exhibited abnormal aggression. Additionally, the NCA natives were not happy with the degree of participation in the HWC management in the area, hence causing silent retaliation.

Although the Maasai pastoralists in the NCAA used to have a high degree of tolerance of livestock predation, silent retaliation against wild carnivores persists as in the past, with the bit of traditional killing of wild animals when compared to the past. In the meantime, more means of reducing HWC have been established, including the use of solid fences around native bomas and the introduction of zoning whereby the indigenous peoples were not allowed to graze their livestock in some areas such as the Ngorongoro crater preserved for wild animals. In addition, the NCAA has introduced native wildlife conservation motivation schemes entailing undertaking community development projects such as building schools and supporting individual students and provision of safe and clean water. Furthermore, some projects have been introduced on Livestock predation compensation schemes that focus on the existence of wild carnivores (lions) in the community rather than relying on the number of livestock predated. The mitigation measures include inculcating conservation knowledge among the indigenous peoples, promoting livestock predation compensation schemes, advocating for building bomas using solid fences that are wildlife proof, and implementing participatory retreatment of WHC cases. The provision of sports and games to youth could also reduce chances for practicing traditional wild animal hunting. Also, livestock predation could be reduced when young children were not left alone to tend to livestock in areas inhabited by dangerous wild animals.

The Ngorongoro Conservation Area Authority has been designed to serve as a multipurpose place for wildlife and humans to share the same ecosystem and thrive. In this regard, precautions must be taken by natives to avoid grazing their livestock in areas with a high degree of predation. To prevent their livestock from being killed at night, bomas should be strong enough to bar wild animals from attacking their livestock. Additionally, people should avoid herding their livestock early in the morning and late in the evening to reduce the chances of their livestock being attacked by lions. Furthermore, natives must be encouraged to diversify enterprises, particularly those with little competition with wild animals. Relevant authorities need to pay special attention to addressing rabid carnivores' issues and minimizing incidences that may end up with injuries to wild animals to reduce HWC due to sick and injured wild animals. In this regard, the NCAA must improve the relationships with natives by increasing their participation in dealing with HWC.

Overall, several means for reducing HWC have been evident in the past ten years and are applicable in the NCA. These approaches include building poles to construct strong fences for preventing wild animals from entering the bomas. However, these have had adverse effects on the environment. As such, the NCAA has to find an alternative to using poles while maintaining the idea of building strong fences around the bomas. Moreover, the study area residents need to promote compensation schemes that focus on the availability of wild animals in the native environment rather than relying on the number of livestock predated.

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