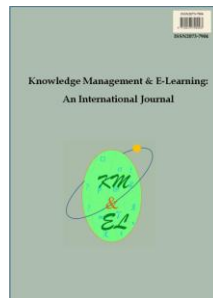


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### **Understanding the knowledge sharing process among rural communities in Tanzania: A review of selected studies**

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## **Understanding the knowledge sharing process among rural communities in Tanzania: A review of selected studies**

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**Abstract:** The study investigated how knowledge sharing process takes place among communities in rural areas in Tanzania. Specifically, the study determined how knowledge was created; assessed how rural people shared knowledge; and evaluated the impacts of social-cultural practices, individual and institutional factors on knowledge creation and sharing. The study also assessed how ICTs were used in knowledge creation and sharing among rural people. The study employed a meta-analysis where studies on knowledge acquisition and sharing among rural people in Tanzania were critically analysed. The findings reveal that rural people created and shared knowledge in need for their day to day activities. Knowledge was created through observations, personal experiences and social interactions and shared mainly through discussions and conversations held on several occasions. Individual, institutional, social-cultural practices and technological factors influenced the knowledge creation and sharing process. It was further established that rural people consulted some knowledge sources more and shared knowledge through formal and informal groups. Decisions on sources consulted were influenced by socio-economic, demographic and geographical factors surrounding rural people. However, the poor link between the knowledge-rich and knowledge-poor units limited the knowledge sharing and creation processes. It is recommended that the link between units creating knowledge and those using it should be improved so that rural communities can easily acquire and share it. Because rural people depend on exogenous knowledge from other institutions, institutional knowledge creation and sharing capacities should be improved to enhance knowledge sharing in rural communities. Rural communities should try to eliminate the individual factors and social-cultural practices hindering knowledge creation and sharing process.

**Keywords:** Knowledge creation; knowledge sharing; Rural areas; Social-cultural practices; Tanzania

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## 1. Introduction

Any community is composed of people who interact on regular basis around a common set of issues, interests or needs (Lesser, Fontaine, & Slusher, 2012). This is because community members engage themselves in various activities, live together, share knowledge and help among each other. Moreover; as members of the community interact, they build relationships that enable them to learn from each other.

Within communities, some members may share more common interests, involve themselves in similar activities, and interact much; these people are likely to frequently share knowledge. Members of the same community have similar practices thus sharing knowledge help them perform their activities better. According to Ranmuthugala et al. (2011), members of rural communities share knowledge to perform their day to day activities. For knowledge to be created and shared communities must have opportunities for regular interaction and allowed to participate in discussions (Bacsu & Smith, 2011). It is important to have public and private spaces to interact; document activities, goals and outputs; and identify the value of the community itself.

### *1.1. Rural communities and knowledge management*

Knowledge management is an important process. Rivera (2011) describes knowledge management to involve the creation, storage and sharing of knowledge. Knowledge management needs individuals' and institutional capacity for creation and sharing knowledge. Knowledge is created and shared through social interaction among people (Berg & Snyman, 2003). The level of social interaction is usually higher among community members who share common interests. According to Rivera (2011), members of the same community are at a position of creating and sharing more knowledge because they are likely to have more social interactions. Nonaka and Konno (1998) describe knowledge creation to result from individuals' socialization, internalization, externalization and combination of knowledge. Community members who socialise

frequently have more opportunities of externalizing, internalizing, and combining knowledge thus being involved in creating and sharing knowledge.

In Tanzania, majority of the population live in rural areas and, most of them are marginalized in terms of limited social services (Aikaeli, 2010). Studies by Mtega (2012) and Lwoga (2010) show that limited access to knowledge has equally marginalized rural communities and limited their struggles towards poverty reductions. The current study investigated how communities in rural and marginalized areas created and shared knowledge for improved livelihoods.

1.2. Objectives of the study

The study aimed to investigate how rural communities acquired and shared knowledge. Specifically the study determined how knowledge was created; assessed how rural people shared knowledge; and evaluated the impacts of social-cultural practices, individual and institutional factors on knowledge creation and sharing. The study also assessed how information and communication technologies (ICTs) were used in knowledge creation and sharing among rural people.

1.3. Conceptual framework

The study was guided by the modified knowledge management model (see Fig. 1) which shows how knowledge is created and shared (Nonaka, 1994). According to Nonaka (1994), knowledge is created through the socialization, internalization, externalization and combination processes. Knowledge creation and sharing occurs when individuals interact among themselves and their environments. However, the knowledge creation and sharing process begins from an individual.

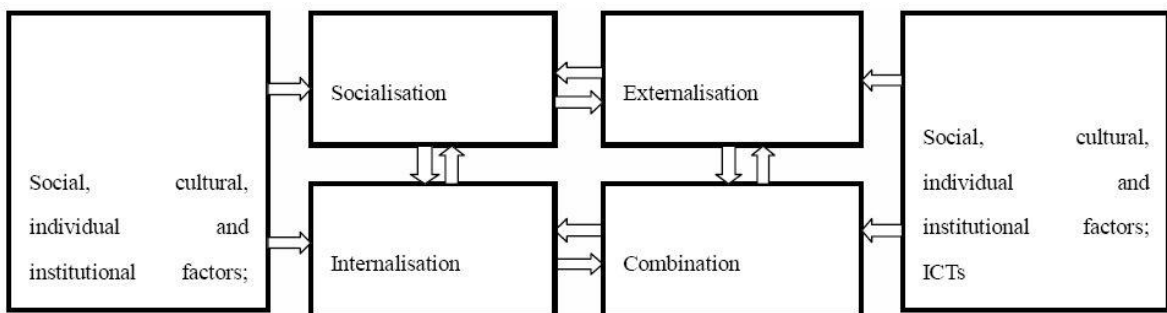


Fig. 1. The modified Nonaka (1994) knowledge management framework

The process of knowledge creation takes place through externalization, it is through this process people expose and share with others what they know. Those with limited knowledge of some aspects grasped the knowledge externalized. King (2009) describes externalization and socialization as social processes allowing people to interact and share knowledge thus creating new knowledge. However, in the knowledge creation and sharing process interactions are influenced by social, cultural, individual, institutional and technological factors. The modified Nonaka (1994) framework guided the study to investigate how social, cultural, individual, institutional and technological factors influenced the knowledge creation and sharing process. The model also helped to assess how the social and cultural practices in rural areas influenced the knowledge creation and sharing.

## 2. Literature review

### 2.1. Knowledge creation and sharing process

Knowledge is important for the day to day life as it is used to solve practical problems facing human beings. Knowledge is extracted from information which is defined by Kalkan (2008) as data with some meaning. Mercer et al. (2005) describe knowledge as the capacity of individuals or groups to learn from information. However, despite the vivid differences between the two terminologies, scholars have been using two terms interchangeably. Regardless of the misunderstanding, knowledge remains to be important in improving livelihoods and increasing productivity and profitability. Lee and Al-Hawamdeh (2002) describes knowledge as the source of competitive edges; those with more knowledge are more likely to benefit from whatever they are involved in.

Nonaka (1994) places socialization at the core of the knowledge creation process. As people interact (socialize) they share with others what they know. Socialization creates a platform where individuals learn from each other and thus creating some knowledge. The platform should not only enhance socialization but also internalization, externalization and the combination of knowledge because each of these processes enhances knowledge creation and sharing. However, for interactions to be effective, members involved should share common interests among themselves. Moreover, to create knowledge through socialization, externalization, combination and internalization, involved people must have different levels of understanding on a particular aspect. This is so because knowledge flows from units that are relatively knowledge-rich to units that are relatively knowledge-poor (Noorderhaven & Harzing, 2008). Davenport and Prusak (1998) describe knowledge assets to appreciate in value with use: ideas breed new ideas, and shared knowledge stays with the giver while enriching the receiver. So as people share knowledge new knowledge is created; thus, community members have the capacity to create, refine, share and eventually apply knowledge (Berg & Synman, 2003).

It is a fact that rural community members acquire and use knowledge for their day to day activities. Little is known about how social, cultural, individual and institutional factors influence the knowledge creation and sharing processes among rural people in Tanzania.

### 2.2. Influence of social-cultural practices on knowledge creation and sharing

Knowledge creation and sharing depends on social, cultural practices and technological factors surrounding rural communities. Community members share culture, McDermott and O'Dell, (2001) see culture as the key inhibitor for effective knowledge creation and sharing. Several cultural factors including the individual's self-motivation to share knowledge, social relationship among individuals, and organizational culture influence the knowledge creation (Lee & Al-Hawamdeh, 2002). Similarly, knowledge sharing is limited by the unfriendly organizational cultures (Hendriks, 1999). According to McDermott and O'Dell (2001), sharing knowledge is linked to a pre-existing core value of the organization and the networks for sharing knowledge people use in their daily work.

Culture shapes the assumptions about what knowledge is and which knowledge is worth managing; defines the relationships between individual and knowledge, determines who is expected to control specific knowledge, as well as who must share it and who can store/keep it (De Long & Fahey, 2000). It is culture that creates the context for social

interaction and determines how knowledge will be used. Thus, culture is linked with the creation and sharing of knowledge.

For knowledge to be shared, community members must be motivated to share it. However, it is knowledge which is linked with attaining the competitive edge. For this reason, the possessor of knowledge may fear losing ownership of knowledge (Lee & Al-Hawamdeh, 2002). Sharing knowledge may mean reducing one's competitiveness. For this case institutions should have strategies aiming at promoting knowledge creation and sharing. However, individual social-cultural characteristics may influence the creation and sharing of knowledge. The current study is set to assess how social-cultural practices in rural areas influence the knowledge creation and sharing process.

### *2.3. Influence of ICTs on knowledge creation and sharing*

Communication, channels and technologies play an important role in the knowledge creation and sharing processes. According to Lee and Al-Hawamdeh (2002), people use the communication devices to store and share knowledge. Among the commonly used communication tools are the Information and Communication Technologies (ICTs). ICTs can enhance knowledge sharing by lowering temporal and spatial barriers between knowledge workers, and improving access to information about knowledge (Hendriks, 1999). The use of ICTs in knowledge sharing and creation limit the barriers caused by distance. ICTs can be used for sharing both explicit and implicit knowledge. However, the use of ICTs for knowledge creation and sharing among rural people may be influenced by several factors which the current study was set to investigate.

### *2.4. Research gaps*

Various studies on knowledge creation and sharing have been conducted in Tanzania but none of them have taken a holistic view of how rural people acquire and share knowledge; and how the social, cultural, individual and institutional factors influence knowledge creation and sharing processes. Moreover, it is not known how the use of ICTs for knowledge creation and sharing among rural people is affected by the social, cultural, individual and institutional factors.

## **3. Research methodology**

The study employed a meta-analysis approach that involved studies on knowledge management in rural areas in Tanzania. The meta-analysis approach was purposely selected because several studies on knowledge management have been conducted in rural areas in Tanzania, however; each study has limited itself to only few aspects. The current study critically assesses the selected studies to determine how knowledge creation and sharing process takes place among people in rural areas in Tanzania. The studies selected were conducted between 2008 and 2013. The choice of this time interval was mainly due to the increased information infrastructural investment which has been taking place in rural areas in Tanzania. Moreover, combining several studies makes the current study to have a holistic view of knowledge management processes among rural people in Tanzania.

Selection of the studies included in the current study depended much on whether they were about knowledge creation and sharing in rural areas of Tanzania. Information functions as a tool for acquiring knowledge and it is the carrier of knowledge (Siyao,

2012). It is for this reason several studies on information sharing or rural information systems were included in the study. For this case, the current study involved a meta-analysis of 10 studies on information and knowledge sharing conducted in rural areas in Tanzania. Of the ten studies, some (Siyao, 2012; Mtega, 2012; Churi, Mlozi, Tumbo, & Casmir, 2012; Lwoga, 2009; Mtega, 2008; Chilimo, 2008) were used for analyzing how rural communities accessed information/knowledge for improving their livelihoods. Other studies (Chilimo, 2008; Lwoga, 2010; Mtega, 2008; Mtega & Malekani, 2009; Sanga, Kalungwizi, & Msuya, 2013; Sife, Kiondo, & Lyimo-Macha, 2010) were used to analyse how ICTs facilitated knowledge creation and sharing. Data obtained from similar studies were used to supplement and complement results from the ten studies.

#### **4. Findings and discussions**

The study involved a critical review of 10 selected studies on information and knowledge sharing among rural and marginalised communities in Tanzania. Findings of the meta-analysis are as described below.

##### *4.1. Knowledge creation and sharing in rural areas*

Findings from the selected studies show that rural people created and shared knowledge frequently for their day to day socio-economic activities. According to Lwoga (2009) and Mtega (2008), observations and personal experience were the main ways of acquiring new knowledge among rural people. They also gained experience through doing and solving problems thus creating some knowledge. The other common way used by rural people to create new knowledge was through sharing ideas.

Lwoga (2009) found that rural people were members of formal and informal groups which held discussions on several occasions. Formal groups had defined goals to meet; they held discussions for either sharing or solving problems thus having opportunities to share and create some knowledge. Members of informal groups socialised frequently on topics of interest mostly during evening hours (normally after working hours); it was during this time when they exchanged views on issues related to their day to day activities (Mtega, 2008). Moreover, Chilimo (2008) found that friends, families and relatives interacted very frequently and as new knowledge was shared and sometimes created. As rural people met, those with some knowledge shared it to their colleagues. It was found that related people interacted more frequently than others, thus sharing and creating knowledge. These findings are in-line with the Nonaka (1994) model which points out that knowledge is created through socialisation, externalisation, combination and internalisation.

Noorderhaven and Harzing (2008) describe knowledge to flow from knowledge-rich units to units that are relatively knowledge-poor. Findings from the selected studies show that there was a flow of knowledge from agricultural research institutes to farmers. Agricultural researchers shared knowledge with farmers who needed such skills for increasing agricultural productivity (Sanga, Kalungwizi, & Msuya, 2013; Mtega & Malekani, 2009; Mtega, 2008). Farmers living away from research institutes accessed the same knowledge through agricultural extension staff (Chilimo, 2008; Lwoga, 2009). However, the number of agricultural extension staff in most rural areas was low as compared to farmers they had to serve (Sanga, Kalungwizi, & Msuya, 2013; Lwoga, 2009). This limited some farmers from accessing new agricultural innovations and knowledge developed through agricultural research. It was for this reason Sanga,

Kalungwizi, and Msuya (2013) implemented a radio based extension system for sharing agricultural knowledge. The radio based extension system project through the Sokoine University of Agriculture has been successful because farmers and other rural people preferred to access knowledge from trustworthy sources.

For effective knowledge creation, it is important to have an adequate and efficient information and knowledge infrastructure. Studies (Sanga, Kalungwizi, & Msuya, 2013; Siyao, 2012; Churi, Mlozi, Tumbo, & Casmir, 2012; Mtega & Malekani, 2009; Lwoga, 2010; Chilimo, 2008) found that most rural areas in Tanzania had limited number of information brokers/providers. Moreover, information and rural roads infrastructure was poor thus limiting the accessibility of knowledge among rural people (Mtega & Malekani, 2009). Lwoga (2009) and Chilimo (2008) describe about the poor link between research institutes and rural people to have resulted into limited access to knowledge in most rural areas in Tanzania. Research institutes are knowledge rich units which must have strong linkages with rural areas which in most cases are in need on knowledge.

Generally, rural communities had access to knowledge and were involved in knowledge creation. Knowledge creation was mainly through observations and involving themselves in solving problems while it was mainly shared through social interactions and discussions. However, the poor linkage between knowledge-rich and knowledge-poor units limited knowledge sharing and creation.

#### *4.2. Choice of knowledge sources for rural people in Tanzania*

Findings from the selected studies show that rural communities acquired knowledge from radio and television sets; friends and relatives; agricultural extension staff; researchers; newspapers; churches and mosques; and few from libraries. Studies by Lwoga (2009) and Chilimo (2008) found that most rural areas had both formal and informal sources of knowledge. Formal knowledge sources contained mostly exogenous knowledge; this type of knowledge was accessed through extension agents, libraries and the radio and television broadcast. Informal sources contained indigenous knowledge and were more dominant as most rural people consulted them. Indigenous knowledge was accessed when an individual socialised with family members, neighbours, relatives or friends. Studies (Mtega, 2012; Lwoga, 2010; Mtega & Malekani, 2009) found that knowledge sources which were close to rural residential areas were more consulted than those at a distant.

Rural people consulted knowledge sources which were accessed freely; it was for this reason some modes of knowledge sharing were preferred to others. Studies (Mtega, 2012; Churi, Mlozi, Tumbo, & Casmir, 2012; Siyao, 2012; Lwoga, 2010; Chilimo, 2008; Mtega & Malekani 2009) show that more rural people shared knowledge through face to face oral communication because such residents had to pay nothing when seeking clarifications from neighbours, family members or friends. Moreover, when rural people accessed knowledge the more knowledgeable people were consulted, asked questions or observed as they performed some tasks. However, when rural people had to consult knowledge sources from a distant cell phones were used to assist the knowledge acquisition and sharing process (Sife, Kiondo, & Lyimo-Macha, 2010).

Findings from the selected studies show that rural people preferred to use radio for accessing exogenous knowledge and sometimes actively participating in discussions. This was possible due to the convergence of the radio and mobile phone technologies which enhance full participation of the listeners in radio programmes. Studies (Sife, 2010; Chilimo, 2008; Mtega, 2008) show that people used radio sets as sources of knowledge because one could easily acquire the set and maintain it. Moreover, radio programmes



could be heard through mobile phones which some of the rural people owned. Other formal knowledge sources used by rural people include religious leaders, village meetings, agricultural shops, farmer groups, non-governmental organizations and cooperative unions Lwoga (2009).

**Table 1**  
Radio stations in Tanzania

	Commercial	Non-Commercial	Total
National Radio	3	2	5
Regional Radio	4	3	7
District Radio	17	18	35
Total	24	23	47

Adapted from TCRA (2006)

Rural people acquired exogenous knowledge through the mobile phones and radio sets (Sanga, Kalungwizi, & Msuya, 2013; Churi, Mlozi, Tumbo, & Casmir, 2012; Lwoga, 2010; Mtega & Malekani, 2009). People used radio and mobile phones in acquiring knowledge because of the wide radio and mobile phone infrastructure in rural areas (Sanga, Kalungwizi, & Msuya, 2013; Mtega, 2012; Sife, Kiondo, & Lyimo-Macha, 2010). Preference on mobile phones and radio sets was mainly due to the fast growth of radio and mobile phone infrastructure; adequate choices of radio stations and mobile phone providers; and the decreasing mobile phone tariffs (See Table 1 above and Table 2 below for details).

**Table 2**  
Phone subscriptions in Tanzania up to December 2012

	Phone subscribers							
	2005	2006	2007	2008	2009	2010	2011	2012
Fixed phones	154,420	151,644	163,269	123,809	172,922	174,544	161,063	176,367
Mobile phone	2,963,737	5,614,922	8,322,857	13,006,793	17,469,886	20,983,853	25,666,455	27,219,283
Penetration rate	10%	15%	21%	32%	43%	50%	59%	61%

Adapted from TCRA (2012)

Decision on what knowledge source to be consulted depended much on the availability of the source, its trustfulness, and ease of use of the source, literacy level of the one seeking knowledge, norms, and affordability. Mtega (2008) found that knowledge sources which were very close to residential areas were used more than those at a distant (See Table 3 for details). It was also found that sources which were ease to use were preferred by more rural people. Findings from the ten studies show that some sources of knowledge were consulted by literate people; reading newspapers and using libraries depended on one's ability to read. Illiterate rural people were limited from using knowledge sources. Norms limited some few from consulting certain sources of knowledge (Lwoga, 2009), for example knowledge on herbs was passed from a generation to the other through members of some clans or through some family lines.

The selected studies show that income influenced preference of knowledge sources. It was found that most rural people used radio sets because they were cheap to acquire and maintain them. For this case cheap and affordable knowledge sources were

more useful among rural communities than others regardless of the type of knowledge they had. Other demographic factors including age and sex influenced the choice of knowledge sources. For example, Mtega (2008) found that young people particularly young males preferred advance communication technologies to simple ones because they wanted to know how such technologies operated. On the other hand, Lwoga (2009) and Chilimo (2008) found that old people hardly consulted young people for some knowledge because they rarely trusted them.

**Table 3**

Usage of a community radio by distance from residential areas

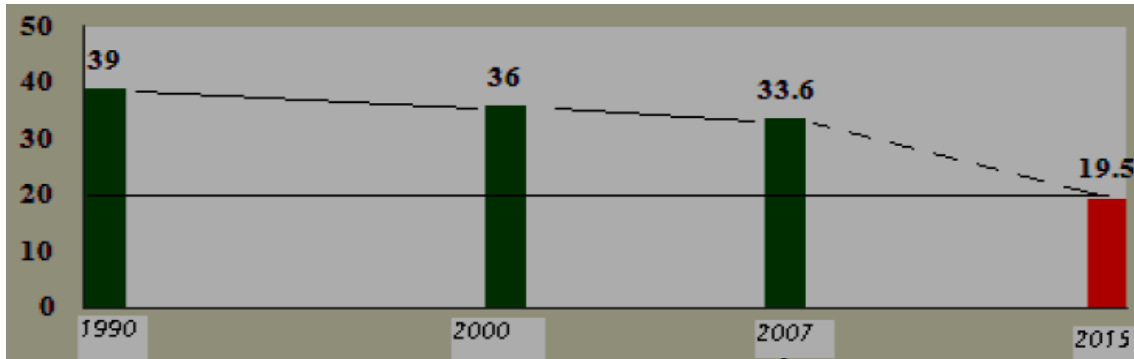
Distance from residential area (km)	Frequency and percentage distribution of extent to which Kilosa Community Telecentre is Used			Sub-total
	Daily	Once in a while	Do not use at all	
05	17 (74%)	06 (26%)	00 (00%)	23 (100%)
06	11 (69%)	04 (25%)	01 (06%)	16 (100%)
07	05 (33%)	10 (67%)	00 (00%)	15 (100%)
17	00 (0%)	14 (47%)	16 (53%)	30 (100%)
19	03 (19%)	08 (50%)	05 (31%)	16 (100%)
<b>Total</b>	<b>36 (36%)</b>	<b>42 (42%)</b>	<b>22 (22%)</b>	<b>100 (100%)</b>

Adapted from Mtega (2008)

Generally, the choice of knowledge sources to be consulted was influenced by socio-economic, demographic and geographical factors surrounding the rural people. It was due to these factors some knowledge sources were consulted more frequently than others.

#### 4.3. Influence of individual and institutional factors on creation and sharing of knowledge in rural areas in Tanzania

Findings show that knowledge creation and sharing was influenced by individual, institutional and individual factors. According to Lwoga (2009), individual factors influencing knowledge creation and sharing include: the poor knowledge sharing culture and lack of trust among rural people. It was found that knowledge was much shared among members of social groups and not others. Lwoga (2009) found that most adults shared knowledge among elders and in most cases hesitated to acquire from young people as they did not trust them. Levels of income and literacy equally limited some from acquiring knowledge. For example, Siyao (2012) and Sife (2010) describe that some individuals hardly managed to afford costs associated with using some communication devices. This can be attributed by the fact that even though poverty level has been decreasing among rural people, a significant portion of Tanzania still live below the acceptable income level (See Fig. 2 describing % of people living below poverty line in Tanzania). Studies (Mtega, 2012; Siyao, 2012; Chilimo 2008; Mtega, 2008) show that high illiteracy levels among rural people limited some from acquiring knowledge through reading books and newspapers. These individual factors limited some of the rural people from timely access to knowledge.



Adapted from URT (2011)

**Fig. 2.** Proportion of population below income poverty national poverty (%)

#### *4.4. Impact of information infrastructure on creation and sharing of knowledge in rural areas in Tanzania*

Among the factors limiting knowledge creation and sharing were poor information infrastructure. Sife (2010) and Chilimo (2008) established that rural ICT infrastructure is still low; only very few of rural Tanzanians have access to information due to the limited information infrastructure and poor electrification. Moreover, other rural people do not use some communication devices because of fear to change (Siyao, 2012; Mtega, 2012; Sife, 2010; Chilimo, 2008; Lwoga, 2009). Language barriers equally limited some from using some ICT based knowledge sources as most knowledge accessed through was in foreign languages (Chilimo, 2008).

Institutional/organizational factors are also important for the creation and sharing of knowledge. Kim and Lee (2004) mention some of the institutional factors to include organizational culture, structure and ICT infrastructure. Others may include financial support; and policies and strategies to support knowledge creation and sharing. Studies (Lwoga, 2009; Mtega, 2008; Chilimo, 2008) show that agricultural research institutes involved themselves in creation of knowledge, however; these institutes failed to share created knowledge to rural areas due to limited ICT infrastructure. Each ward was supposed to have a Ward Resource Centre (WARC); however, most did not have such centres and those with one were poorly supported (Lwoga, 2009; Mtega, 2008). WARCs were under the government, budgetary constraints might be reasons for their poor performance.

Generally, individual, institutional and technological factors influenced the knowledge creation and sharing processes in rural areas. For optimal creation and sharing of knowledge, institutions and communities should create environment favoring knowledge management.

#### *4.5. Influence of social-cultural practices on knowledge creation and sharing in rural areas*

Each community is surrounded by social and cultural practices which differentiate it from the other; rural social and cultural practices make rural communities more unique. Studies (Lwoga, 2009; Chilimo, 2008; Mtega, 2008) found that rural people had very strong social ties. Social ties influenced how knowledge was created and shared. Due to

the strong social ties, informal knowledge sources were more useful than formal ones because such sources formed part of their day to day life.

Knowledge creation and sharing was influenced by social cultural practices in rural areas. In Tanzania there are some tribal/clan related economic activities to date. Tribal/clan members involved in the same activities frequently shared knowledge to meet challenges encountered in performing their day to day activities. Farming communities frequently shared knowledge among each other as livestock keepers did among themselves (Lwoga, 2009; Mtega, 2008). Livestock herders shared knowledge on pasture and animal diseases among themselves. Farmers on the other hand, shared knowledge on crop husbandry practices and zero grazing techniques (Lwoga, 2009). It was found that even among tribal/clan members labour was divided by gender which also influenced the way knowledge was shared among members of the same clan. For this case, there was some knowledge shared among those involved in related activities. Labour was also divided basing on the sex of a rural person. For example, Mtega (2008) found that females in rural areas were involved in cooking and meals preparation. For this case daughters were at the best position to gain knowledge related cooking and other domestic activities.

Studies (Sife, 2010; Mtega, 2008) further show that the nature of daily activities rural people involved themselves in determined the types of ICTs tools to use for sharing. These studies report that among the livestock keepers radio sets and mobile phones were used for knowledge sharing. The choice of the tools based on the portability and ability to use portable power sources. Mobile phones were also used much because of their portability; farmers and livestock herders could use it for sharing knowledge from wherever one was.

Tanzania is known to have more than 120 ethnic groups spread in different parts of the country. Lwoga (2009) found that some knowledge may be shared among members of a certain ethnic group and not the other. The Maasai people had their own way of sharing knowledge and learning new things which based on age and sex. So, knowledge shared among rural people explains much on who they are.

Generally, social-cultural practices among rural people influenced how the knowledge creation and sharing process took place. Moreover, social ties among people accelerated knowledge creation and sharing.

## **5. Conclusion and recommendations**

The study investigated how knowledge was created and shared among communities in rural areas in Tanzania. Knowledge was created through observations, personal experiences and social interactions and shared mainly shared through discussions held on several occasions. Individual, institutional, social-cultural practices and technological factors influenced the knowledge creation and sharing processes. There were some knowledge sources rural communities accessed knowledge from; choice of a knowledge source was influenced by socio-economic, demographic and geographical factors surrounding rural people. However, the poor link between the knowledge-rich units and knowledge-poor units and some individual, institutional and social-cultural factors limited the knowledge sharing and creation process.

It is recommended that the link between units creating knowledge and those using it should be improved that rural communities may easily access it. Rural communities accessed exogenous knowledge from some sources including research institutes, it is

important to increase the knowledge creation capacity of these institutes that rural people may timely access needed knowledge. Institutional capacities for knowledge creation and sharing should be improved and incorporate modern ICTs for efficient knowledge creation and sharing. Rural communities should try to eliminate the individual factors which hinder the knowledge creation and sharing process. Social-cultural practices which limit some of the rural communities from accessing some types of knowledge should be avoided by societies.

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