The State of Rural Information and Communication Services in Tanzania: A Meta-Analysis

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ABSTRACT

The study investigated the factors influencing accessibility of rural information services in Tanzania. Specifically the study identified the types of information services provided in rural areas; identified the sources of information used by rural people and determined the barriers to accessibility of information services in rural areas in Tanzania. The study employed a meta-analysis methodology where studies on information services in rural areas in Tanzania were analysed. Findings of the analysis were then compared and contrasted to see the similarities and differences. It was found that there were several information sources used in rural areas ranging from simple face to face communication to modern interactive ICTs including the mobile phones. Despite the availability of a number of information sources, several factors limited the accessibility of information services in rural areas. Findings show that high illiteracy levels, poor/unreliable information infrastructure, low income, lack of electricity and high cost of ICTs have limited the accessibility of information services in rural areas. Others factors including the use of difficulty languages when repackaging information, lack of time to access information and geographical isolation to have also limited some from accessing information services in rural areas. The study recommends that in-order to improve the access to information services in rural areas, it is important to deal with both individual and institutional factors which limit access to information. It is also important to conduct audience research oftenly that appropriate information can be delivered to the right people.

Keywords: *Information services, communication channels, ICTs, Tanzania, rural areas*

1. INTRODUCTION

Information is considered to be an important resource in the day to day life of human beings. Scholars [1,2] describe information to play an important role in decision making thus making it the lifeblood of any society and vital for successful developmental activities. Moreover, information is very important for empowering communities.

The type of information needed for decision making may vary from a person to another. Scholars [3,4, 5, 6,7, 8,9] identify that the type of information needed relate much to the day to day activities a person is involved in, the geographical location of the information seeker, level of education, age, sex, field of study, profession, career stage, and size of business operation an individual has. Individual information needs determine the types of information services to be provided and the sources to be consulted.

In rural areas, information needs arise from the day to day activities rural people involve themselves in. Information needs of rural communities can be categorised into health; agricultural; educational; housing; employment; transportation; religion welfare and family; and legal information [1]. Other information needed may relate to crime and safety, policies and government, land and human rights. Moreover, rural people need information on markets, health, civics, political, credit, academic, farm inputs, leisure, agricultural husbandry practices and international news [10]. The types of information needed

by people from a certain area may differ from the other due to difference in economic activities.

1.1 Rural Information Services

For developmental purposes, rural communities need effective information services. Information services are multidimensional and serve as a binding thread among different groups of rural dwellers [1]. Information services empower people as they provide knowledge which is needed for solving practical problems being faced.

Information services may be provided through various models which include service station, farmer's home and the association model [11]. Service station refers to an information service centre providing services to information to rural communities [11]. To access information services from service station, people must pay physical visits to information centres. Telecentres and rural information resource centres are examples of information service stations. Moreover, farmers may access information as they acquire agricultural inputs as well as from farmers' associations.

For information services to be delivered, reliable information services infrastructure are needed. Rural information infrastructure is instrumental in boosting up the rural development initiatives in villages [12]. Rural information infrastructure may be physical or electronic in nature. It `must enhance the accessibility of speech, transfer of images and

mails, multimedia document retrieval, and accessing the radio, television and data [13]. Such rural information infrastructure may include the road and vehicles needed for transporting print information resources; rural information centres; and the radio, television, internet and mobile phone infrastructure for transmitting data and audio-visuals.

For attaining full potential of rural information services, communities must perceive the usefulness of the services being offered. The existence of services does not necessarily justify the successful of rural information services [14]. It is important to assess the perceived usefulness and benefits associated with the usage of the services. If rural communities recognise the benefits and usefulness of information services being provided, the services are likely to be translated into social economic development.

In Tanzania, majority of population (80%) live in rural areas and involve themselves in agriculture [15]. Moreover, a number of rural information services and programmes using a variety of approaches and channels are being provided in rural areas of Tanzania over the years [16, 17, 18]. Information services have been provided through extension agents, individuals, farmer-to-farmer contact, print media and electronic media [10, 17, 19]. Despite the realities afore mentioned, the accessibility and usage of information services among rural communities is still low. Various studies [19, 15, 20] conducted in Tanzania have revealed the limited access to information services among rural communities. The current study was set to investigate the factors influencing the accessibility of rural information services in Tanzania.

1.2 Objectives

The general objective of the study was to investigate the factors influencing the accessibility of rural information services in Tanzania. Specifically the study identified the types of information services provided in rural areas; identified the sources of information used by rural people and determined the barriers to accessibility of information services in rural areas in Tanzania.

1.3 Conceptual Framework

The study was guided by the authors' proposed model which shows how rural information services are provided. The usage of rural information services depends on the perceived usefulness of the services provided. If rural communities acknowledge that the services provided are helpful and may lead to transformed livelihood such services may be used frequently. Rural information services must provide information needed at that time [2].

The framework associates various individual, cultural, economic, social and institutional variables necessary for the usage of rural information services. The perceived usefulness of rural information services among rural communities is influenced by the user's social, cultural and economic profiles and the availability of rural information access points. The level of usage of rural information services, the community and institutional involvement, types and number of services provided may equally have impacts on the level of usage of rural information services. Thus, this conceptual framework guided the current study in assessing how rural information services are provided and used for improved livelihoods.
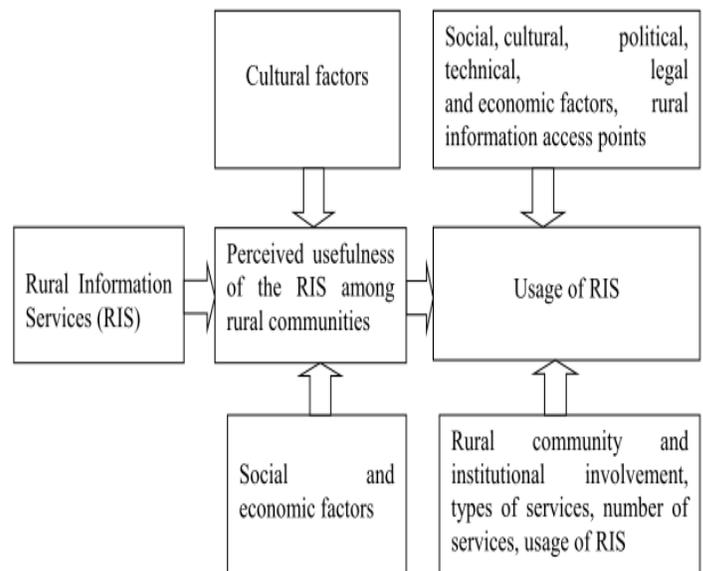

Figure 1: Information Services Provision Model

2. LITERATURE REVIEW

2.1 Types of Information needed in Rural Areas

Societal needs are satisfied through various kinds of services, each of which requires information as an input. Information is a raw material for development for both urban and rural dwellers [22]. Prosperity, progress, and development of any nation depend upon the nation's ability to acquire, produce, access and use pertinent information.

There are different types of information needed for social economic development in rural areas. Information needed by rural communities include information on health, information on rural development programmes, academic information, legal

information, and agricultural extension and advisory services [23]. The types of information needed by rural communities also include political information, marketing information, leisure information, business information, livestock husbandry information, news and religious information [24]. However, information needs of rural communities vary with respect to new and complex problems communities face every day [25].

2.2 Types Of Information Services In Rural Areas

Appropriate information services delivery to rural areas can empower people towards actions that can transform lives, and allows a greater sense of independence [26]. The development of information services industry in rural areas can effectively promote rural economic growth [27]. In most cases, rural populace suffers from an acute low productivity, social and economic retrogression mainly due to ignorance which also results from either inadequate or poor information services [22]. People in the rural areas, whether literate or not, should have access to any kind of information services which will help them to be more capable and productive in their daily occupations, discharge their social and political obligations efficiently and to become better informed citizens [1].

Some private or governmental institutions and agencies have developed different types of information services that facilitate the dissemination of information to rural areas. Information services for rural communities may include science club services, computer services, mobile phones services, photo micrographic and video services, radio and television services, village leaders and spark services [28]. Internet services and village information services may equally provide information services to rural communities [29]. Scholars [30, 31] describe that rural community radio, extension services, printed media and library services are among the information services provided to rural communities.

Studies [10, 32, 33, 34] show that information services in rural areas are provided mainly through radio, village leaders, farmer groups, extension services and newspapers. However, different target groups have different information needs thus needing different information services. Information providers should assess and recognize their target groups and devise the best means to disseminate meaningful information for sustainable development to such groups [1].

2.3 Challenges Facing Information Service Provision

There are various challenges faced in providing information services in rural areas. Studies [35, 24] describe the problems facing by information provision in rural areas to include: poor

infrastructure, impassable roads, limited access to telecommunication networks and poor electrification. These barriers to effective information service provision limit individuals from contacting appropriate information sources in search for needed information. Moreover, provision of electronic information is limited by the both institutional and individual problems. Lack or unreliable physical infrastructure for electronic information sharing; lack of appropriate technologies for providing electronic information; lack of organised system for provision of information; and lack of skills/expertise in information among providers and users of information also limit the provision and usage of such services [35].

The flow of information is limited by a number of factors which include the low literacy level, the limited numbers of radio and television sets, the lack of financial resources, human capacity, and the lack of legal frameworks at national and international levels to support the information service provision to rural areas [36]. Moreover, the ratio of extension staff to farmers is very poor that making the information provision role not manageable [33]. Scholars [17, 32] add that poor quality of information services; poor information centre management, low bandwidth, outdated and irrelevant materials and lack of ICT facilities have limited the accessibility of information too.

3. RESEARCH METHODOLOGY

The study employed a meta-analysis approach where six studies on rural information services in Tanzania were involved. Meta-analysis approach was selected because several studies on rural information services have been conducted, however; each study has limited itself to some few aspects of rural information services. The studies selected were conducted in-between 2005 and 2011, choice of this time interval was due to the fact that several investments in the information sector have taken place over these years. Tanzanian studies and reports [38, 19, 39, 40, 41] show that the information infrastructure and the number of users of information services have been growing from year to year. Moreover, combining these studies enables the current study to have a good representation of Tanzania rural as the studies were conducted in different regions of Tanzania.

The current study is on rural information services in Tanzania. Among the six studies involved in the meta-analysis, two studies [24, 42] investigated on how ICTs facilitate access to and usage of information in rural areas; others [32, 33, 43, 19] assessed how rural communities acquired and used information/knowledge. Furthermore, the infrastructure, information services and information and communication management capacity of institutions involved in agriculture and rural development was assessed. The current meta-analysis

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involves studies conducted in Dodoma, Kigoma, Morogoro, Mwanza, Kilimanjaro and Ruvuma regions of the main land Tanzania thus representing six of the seven Tanzanian agricultural ecological zones.

Through the meta-analysis, results and contents in the six studies were identified, categorised and critically analysed to determine how information services are provided in rural areas. Other secondary data on rural information services in Tanzania were equally employed to supplement and complement results from the six studies.

4. DISCUSSION OF THE FINDINGS

The current study assessed the state of information and communication services in rural areas in Tanzania. The study determines the rural information services in Tanzania, the information needs of rural communities and barriers to meeting the identified information needs of rural communities.

4.1 Rural information services in Tanzania

Information services in Tanzania are not uniformly distributed as they are more concentrated in urban than in rural areas [19]. Moreover, studies [32, 33, 42, 43] show that most of the information services provided to rural communities in Tanzania are either in print, verbal or electronic format.

Print Information Resources in Rural Areas

Information services in Tanzania are dominantly consisting of print resources. A scholar [19] found that by the year 2008 over 350 publications including newspapers, magazines, periodicals and newsletters were registered in Tanzania. However, it was found that approximately 90% of print publications were circulating only in urban centres, serving less than 17% of the population. Studies [32, 43] describe about the inadequate access to information in most rural areas in Tanzania. This has resulted into the rural-urban digital divide hence limiting majority of rural Tanzanians from making informed and rational decisions concerning their day to day activities. The limited access to information among others has resulted into poverty among rural communities.

Among the factors limiting access to print information resources in rural areas is the inability to timely delivery of print resources to rural areas. On one hand this has been contributed by the impassable roads particularly during the rainy season. A report by The United Republic of Tanzania (URT) of the year 2007 describes that Tanzania has poor rural road infrastructure which makes it difficult to access rural areas for delivery of various services including print resources

particularly during rainy season. This is supported by scholars who observed that rural communities in Tanzania especially those in interior areas hardly accessed information particularly through news-papers and other publications due to poor and impassable roads [44]. Despite the limited accessibility of these resources, print materials are still the mostly used information resources compared to others.

The government of Tanzania through the Tanzania Library Services (TLS) provide library services to Tanzanians. Most libraries under TLS are found in regional headquarters with very few branches at district levels. Studies show that very few wards had libraries [32, 43]. However, books in such libraries were very few and in most cases outdated and most of them were irrelevant to rural livelihoods. However, the usage of print resources depends on level of literacy of the one needing information. Illiteracy is one of the barriers when it comes to using printed information materials particularly in rural Tanzania where the illiterate level is higher [45]. For this case, limited rural libraries and high level of illiteracy among rural communities has resulted into poor information usage thus making it difficult for transforming rural economy and livelihoods.

ICTS in Provision of Rural Information Services

Information and Communication Technology (ICT) related services are provided and used in rural areas in Tanzania. Among the most used ICT services in rural areas are the radio, television (TV) and mobile phones [32, 24, 33, 42, 43]. These services are accessed through the providers located in urban areas. In Tanzania, radio and TV are categorised according to their coverage [46]. The coverage can be national wide, regional or district wide. Most radio and TV stations are owned by individual companies thus being commercial while few are owned by the government and religious institutions; these are non-commercial stations.

Studies [32, 43] mention radio, television and mobile phones to be among the highly used communication devices among rural people. These ICTs are used in the provision of various information services including extension and advisory services [19].

Studies [24, 43] found that of the three ICT devices, the radio sets were owned by more rural people thus making it the most used. The usefulness of radio sets in rural areas is contributed by a number of factors including the affordable cost of acquiring a new radio set, portability, the use of dry cells as source of power and the incorporation of radio applications in mobile phones. Studies [24, 42, 43] describe that radio sets were sources of different types of information. However, few

radio programmes in Tanzania are on agricultural related information and none of the radio stations is dedicated to broadcasting agricultural related information [19].

The usage of mobile phones have increased rapidly mainly due to the fast growing mobile phone infrastructure in both urban and rural areas. By the year 2011, Tanzania had five mobile phone service providers including Airtel Tanzania, the Tanzania Telecommunication Limited (TTCL), Tigo, the Vodacom Tanzania and Zanzibar Telecom Limited (ZANTEL) [46]. Mobile phone service providers with wide infrastructure have more subscribers than those with infrastructure limited to urban area because most Tanzanians live in rural areas [46].

The use of mobile phone services in rural areas in Tanzania has been affected by the limited ownership of mobile phones among rural people, poor mobile phone infrastructure in some rural areas, limited electrification as mobile phones require power for recharging batteries and the unaffordable mobile phone tariffs. Studies [24, 42, 43] show that the ownership of mobile phones among rural communities is lower than that of radio sets. However, the usage of mobile phones in rural areas does not only depend on ownership; mobile phone kiosk and borrowing from owners have been common ways of using such service among non-owners. Lack of electrification affected mobile phone battery recharging and limited the usage of mobile phones among rural communities. Rural people living near electrified areas had to pay physical visits to such areas for battery recharging which in most case was at a fee. For limiting the number of visits, some of the rural people owned more than one mobile phone battery; this created a power backup when the other loses power. To enhance affordability of mobile phone services, most mobile phone providers had special time bound offers users could subscribe for a cheaper price. This has promoted the usage of mobile phones in accessing various services including both financial and information services.

Studies [24, 43] have shown that among the mobile phone services; voice calls and the Short Message Services (SMS) were most used by rural communities. Of the two applications, voice calls was preferred more as it just involved listening and talking as opposed to SMS which required both writing and reading skills. Generally, mobile phones were used for sharing information of different types.

Among the three mostly used ICTs in Tanzania, TV sets were noted to be the least used among rural communities. Studies [24, 42] mention the mention that the limited rural electrification to have resulted into the situation. In Tanzania very few rural areas were electrified by the time the studies were conducted. The situation limited the usage and discouraged the ownership of TV sets as they needed electricity

for running them [24, 19]. Despite the limited usage of TV, Tanzania has several TV stations with either district, regional or national coverage. These TV stations broadcast programmes which educate, inform and entertain [24, 19]. With the current rural electrification strategies being implemented in the country, television will be one of the most used ICT devices among most rural people. Electrification will also encourage rural people to acquire TV sets.

Telecentres in Provision of ICT Services in Rural Areas

Studies [24, 33, 43] show that there are several telecentres providing some information services to rural communities in Tanzania. Among the services provided by telecentres include radio, computer training, internet and printing services. Studies [42, 43] mention some other services to include IT-consultancy, video shooting and conference facilities through video and data projecting facilities. One of the telecentre (the Sengerema Multipurpose Telecenre) has gone to the extent of being an internet service provider [42].

Among the telecentre services mostly used by rural communities was the radio. Studies [42, 43] show that most respondents involved in the two studies mentioned to use the community radio from the telecentres. This was because these radio stations were in their locality and they provided the information they needed. Community radio provided information related to; agriculture, health, women and development, environment, wildlife and forestry. Other types of information provided included; markets and marketing, human rights and cooperatives. These types of information related to rural livelihoods.

Studies [42, 43] found that the usage of telecentre services was highly influenced by socio-economic and demographic factors of users. It was found that the usage of some services including the internet and computer training was highly influenced by age, level of education and gender roles. For this case, most of the services provided by the telecentres were mostly used by young people most young males with higher levels of education. Few females used these services because most of the services were accessed during evening leisure time when females had to engage themselves in preparation of evening meals.

Despite the usefulness of these centres for information service provision, studies [42, 43] state that most telecentres faced several problems related to human and financial resources, equipment, limited institutional and governmental support and inadequate information services they provided. These problems limited telecentres from providing information services at their

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fullest potentials. Regardless of such limitations, the information services provided by telecentres were local and to a certain extent reflected the societal needs as the centres were within rural areas and near rural communities.

Face to face communication was mentioned by all of the six studies to be useful and dominant more than print resources. Studies [32, 33, 42, 44] show that verbal communication was the most useful and sometimes successful as almost the entire rural community in Tanzania used it regardless of their literacy levels. Verbal communication tied rural communities together (families, farmer groups etc.); farmers were linked with agricultural extension agents through face to face communication. Rural people shared their personal experiences through verbal communication and facial expression that is the face to face communication [32].

Generally, there were several information services provided in rural areas. Accessing appropriate information from such services depends on other factors like relevancy, currency of information and the information source/channel used in delivering information.

4.2 Information Needs among Rural Communities

Information services are meant for satisfying the individual or community information needs. Among the studies included in the meta-analysis, four studies investigated on the information needs of rural communities. Studies [32, 33] investigated on agricultural information needs; other studies [42, 43] assessed the general information needed by rural communities. According to the findings, information needs expressed by rural people are almost alike. The study [32] found that rural communities needed information related to markets, weather, credits, inputs, soil classification and animal and crop husbandry practices. Information needed by rural farming communities can be categorized into soil classification, crop varieties, crop husbandry, irrigation, agricultural tools, animal feeds, animal breeding and credit facilities [32]. Moreover, rural communities needed information on agriculture, education, career development, health, non-governmental organization activities, government related information and loan and micro credit information [42]. Likely, found that rural communities needed information related to health, politics, civics, leisure, livestock and crop husbandry [43]. Information related to markets, inputs, academics, international news and credits was also needed by rural communities too [43].

It can be seen that rural people need information for solving the problems they face. Such problems relate much to the day to day activities a person involves her/himself in. Because of this, all of the four studies describe about the need for market,

inputs, credits and agricultural related information. These types of information reflect the type of activities rural people involved themselves in. In Tanzania, most rural people involve themselves in agriculture and related activities; thus, these types of information were needed for increasing agricultural productivity and profitability. Other types of information needed were not directly related to agricultural activities but could have impacts on level of productivity and livelihoods. Such types of information included the information on health, education, politics and civics, career development and government related information.

Generally, rural people need different types of information for their day to day activities. Information needs vary from one individual to another due to different social economic profiles and demographic characteristics. Moreover, information needs may vary from one time (season) to another depending on what economic or social activities are taking place. However, there are some information needs which are termed as basic information needs; these may include the information on health, education, civics, politics, and food security. Access to all basic information is a necessity for human development and livelihood.

4.3 Information Sources in Rural Areas

For rural people to access information they require appropriate information sources. Information sources are points where information can be accessed; they may include people and organizations; and may be in print or electronic format. Information comes from either internal or external sources [19]. Internal information sources originate from within a particular organization or community while external information sources are from the outside. In most cases both internal and external sources of information are dominant.

Studies [32, 33] investigated the sources of information used by rural communities in accessing agricultural information. There are several information sources used by rural communities in accessing agricultural information [32, 33]. The sources used included; villages leaders, agricultural extension officers, neighbours and friends, family/parents, radio, TV and internet. Others were the books, brochures, films, leaflets, newspapers and magazines. Furthermore, non-governmental organizations, farmers groups, personal experience, agricultural inputs supplier, posters and agricultural shows have been used as agricultural information sources in rural areas [32, 33]. Others including social group gathering, religious leaders, women's meeting, livestock headers, researchers, observations, churches and mosques, notice board and, seminars are information sources used by rural people [33].

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It can be found that the sources of agricultural information are more or less the same throughout the country. Moreover, there are several alternatives of rural information sources rural communities could opt for accessing agricultural information. However, socio-economic and demographic profiles like level of education and income influenced the usage of some of the sources of information. Despite such influences majority of rural communities accessed agricultural information through radio; neighbours and friends; village leaders; agricultural extension officers; personal experience; family and friends; and farmer groups. Few mentioned to use TV sets, books, agricultural shows, internet, posters and leaflets, and notice boards. The sources consulted by few had either limited agricultural information, were not accessible in their areas or needed additional skills for someone to have access to agricultural information.

Studies [42, 43] assessed how rural communities accessed different types of information. It was found that rural communities used various sources of information sources for accessing information they needed for their day to day activities. Rural communities accessed information from friends and relatives; radio; and internet services provided by the telecentres [42]. Other sources of information used by rural communities include personal experiences; telephone; health centres; churches; local authorities; and extension officers [42]. Likely, rural communities use radio; newspapers and magazines; television; cell phone; and face to face communication for accessing information [43]. Other sources of information mentioned include leaflets and posters; extension officers; library; internet services and researchers. Studies [42,43] ranked radio and face to face communication as the highly used sources of information in rural areas. Face to face communication was through talking and listening from parents, family, friends, during meetings and seminars and through the extension officer. On the other hand, the ownership of mobile phones and TV sets were low but the level of usage of such ICTs was high as rural communities used to share and use them communally either commercially for the case of mobile phones or in clubs and recreational areas for TV sets [43].

Despite the inadequate access to information, most rural areas had several sources of information. Inadequate access to information was due to late delivery and/or the irrelevance of delivery. For the case of radio and TV programmes time of broadcast and irrelevance of the programmes to rural day to day activities resulted into limited access to suitable information. Telecentres and other information providers did not conduct audience research that they often provided irrelevant information.

4.4 Barriers to information services accessibility in rural areas

Accessibility of information services in rural areas is limited by various factors. Technical language used during information repackaging limit information accessibility in rural areas [32]. Other factors including inadequate funds; information being outdated; high level of illiteracy; lack of reading culture; and inadequate numbers of extension agents and lack of awareness of information sources also limited rural people from accessing information [32]. Moreover, distance from rural residential areas to sources of information, costs associated with usage of information, limited information services and poor rural roads and information infrastructure affected the accessibility of information services in rural areas too [43]. Other factors including gender division of labour which kept some busy throughout the day thus making them unable to use information sources and poor knowledge sharing culture among some rural people also limited information accessibility in rural areas.

Similarly, lack of records on past events, lack/inadequate knowledge resource centres; and lack of trust among rural people resulted into limited access to information in rural areas [33]. Furthermore, that differences in age, gender and social economic status limited farmers in acquiring information from their fellow farmers or village leaders; most of the elderly people did not want to learn from the present generation [33]. It was found that costs associated with using some communication channels, lack of time to access information and geographical isolation were among the reasons limiting the accessibility of information services in rural areas [42]. Lack of access to ICTs is a lower barrier than affordability [42], non-owners of ICTs paid physical visits to relatives, friends or bars for the purpose of having access to ICT devices, others used mobile phone kiosk to access the services at a fee [43]. It was further seen that illiteracy has been a great barrier to accessibility of information services in rural areas [43]. Taking an example of mobile phone applications, an illiterate mobile phone user could only have access to voice calls while literate mobile phone users could use both SMS and voice calls.

Lack of electricity, low income, high cost of ICTs; difficult languages used during information creation and weak/unreliable phone/broadcasting network have resulted into limited access to information services in most rural areas in Tanzania [24]. Moreover, low education levels, lack of necessary skills of using ICTs, fear of using new ICTs and lack of appropriate programmes for rural communities have equally limited the access to information services in rural areas.

Generally, the barriers to information accessibility in rural area are alike and they can broadly be categorised into individual

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and institutional factors. Individual factors are those relating to rural people themselves; they may include individual income, level of education, age, gender roles and perceived usefulness of certain information or information sources. These factors can either enhance or limit the accessibility of information services. Increased income increases affordability of information services while literacy increases the ability to use different information sources. Institutional factors may include the infrastructure (roads, information networks, education system, and government support). Limited access to information services in rural areas is mostly due to lack or inadequate institutional support.

5. CONCLUSION AND RECOMMENDATIONS

The study investigated the factors influencing accessibility of rural information services in Tanzania. Findings show that there are several information sources used in rural areas. Despite these sources, most rural areas in Tanzania had inadequate information services. Late delivery of information services, irrelevant information provided, unaffordable costs of information services and high level of illiteracy are mentioned to be among the factors limiting access to information services. Others include the poor and unreliable infrastructure, irrelevant time of broadcast of radio/TV programmes and lack of audience research to determine the information needs of rural people equally limit accessibility of information services in rural areas.

For improving access to information services in rural areas, it is important to deal with both individual and institutional factors which limit information accessibility. The information infrastructure (radio/TV coverage, rural roads, and mobile phone networks) should be improved. The cost associated with ownership and usage of information devices and sources should be reduced, literacy programmes should be revived in both rural and urban areas that Tanzania can have a literate population; culture limiting some members of the society from information accessibility should be avoided. Audience research is important for satisfying information needs, information service providers should conduct audience research to determine the type of information needed, the suitable time to deliver it and the appropriate information forms and channels for rural communities.

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