CONSORTIUM OF TANZANIA UNIVERSITY AND RESEARCH LIBRARIES (COTUL)

PROCEEDINGS OF THE 1ST COTUL ANNUAL CONFERENCE HELD ON 25TH – 28TH NOVEMBER 2014 AT RUAHA CATHOLIC UNIVERSITY, IRINGA, TANZANIA

"Information and knowledge as drivers for poverty reduction"

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Foreword

Consortium of Tanzania University and Research Libraries (COTUL) was established in 2009 to facilitate access and usage of library electronic resources among its member institutions. Apart from facilitating joint subscription to e-resources, over the years, COTUL has played a significant role in capacity building among its member institutions. To achieve this, COTUL has been organising at least one training workshop in selected topical issues to ensure its members are kept abreast with the emerging developments in the digital era for betterment of information delivery services to their user communities.

The COTUL annual general meeting of 2013 decided among other issues to hold scientific conferences for knowledge sharing among information professionals in the country and beyond. Planning for the first scientific workshop started immediately after the meeting, and the COTUL executive committee was tasked to ensure that the event in question was realized in the next year. Taking into account the central role of information and knowledge in societal development**,** it was decided that "Information and knowledge as drivers for poverty reduction" would be the major theme of the conference. The key note paper by Professor Matovelo sets ground on the potential role of information and knowledge in the fight (of) against ignorance which was identified as one of the key enemies of development at the onset of Tanganyika independence by Mwalimu Nyerere, the founder of the nation**.** Professor Matovelo points out that despite some of the on-going consented effort in fighting ignorance as one of the core causes of poverty in Tanzania, this enemy persists. Professor underscores the need for coordinated effort by information and knowledge providers to reach rural communities in order to fight poverty.

Other papers in these conference proceedings cover some of the following sub-themes:

- Role of libraries, information centers and archives in poverty reduction
- Information and communication technology (ICT) for poverty reduction
- Web 2.0 technologies / social media and social networking and poverty reduction
- The role Information services in health care delivery services for poverty reduction
- The role of community information services for poverty reduction

It is my hope that readers of the conference proceedings papers will gain knowledge which would contribute in changing their strategies of fighting poverty in their respective rural communities. The conference organising committee wishes to express sincere thanks to contributors of conference proceedings' papers and other individuals who played part in any way for the success of this 1st COTUL conference.

Prof. F. W. Dulle

Chairperson: COTUL 2014 Organising Committee

An opening speech at COTUL Scientific Conference delivered by the Ruaha Catholic University Vice Chancellor

Vice Chancellor

Ruaha Catholic University

November, 2014.

The Chairperson, Consortium of Tanzania University and Research Libraries (Prof. Msuya)
The Deputy Chairperson (Prof. Dulle),
COTUL Executive Committee Members,
Conference Organisers,
Conference Participants,
Ladies and Gentlemen.

First of all, I would like to welcome all of you to Iringa, and especially for those who are visiting this town for the first time. I would particularly like to welcome you to Ruaha Catholic University, formerly known as Ruaha University College (RUCO), which is now a fully fledged university. You are warmly welcome and I hope you will enjoy your stay.

Ladies and Gentlemen,

I also would like to take this opportunity to express my sincere appreciation to the Chairperson of the Consortium of the Tanzania University and Research Libraries (COTUL), and his Executive Committee for inviting me as the Guest of Honour to officiate at this conference. I feel most privileged to be associated with COTUL activities and its developments. I thank you very much for your invitation.

May I also express my appreciation for choosing this institution as a place to hold your conference. This is an indication of your recognition of this university, and I have no doubt that your choice was well thought out. As you have noted, this institution is geographically well situated and conducive for such serious academic work.

Workshop Participants, Ladies and Gentlemen,

I am aware that the main objective of COTUL is to facilitate joint access and usage of electronic/online information resources among its member institutions. As such, the decision for all universities and research institutions to come together for joint subscription and usage of e-resources is a move in the right direction.

It is well acknowledged that there is no single library in the world that can survive on its own, especially at this time when prices of learning materials are escalating every day. This reality signifies the need for coming together under the consortium for resource sharing. Furthermore, it is cost-effective when resources are negotiated and ordered by one consortium with a common goal, instead of each institution going on its own. I therefore, congratulate you on this endeavour.

Conference Participants,

I am informed that the theme of this conference is *"Information and knowledge as drivers for poverty reduction"*. Under this theme, areas such as the role of libraries in poverty alleviation, Information and Communication Technology, library education, indigenous knowledge, distance education, agriculture and health, and their relationship to poverty alleviation shall be explored.

This theme is topical as it deals with an area of major concern. At independence, poverty was identified in Tanzania as one of the three major enemies of this country, others being ignorance and disease. To-date, poverty remains a major area of concern for many Tanzanians and, indeed, all developing countries. Hence, there is a need for a thorough discussion on this subject with a focus on the role of information in poverty alleviation.

Indeed, there is a significant linkage between information and poverty alleviation. For example, there are instances when people fall into the poverty trap simply because they are not informed. In fact, areas such as good agricultural practices, taking a balanced diet, and healthy practices could be improved if people were well informed. Apart from serving the academic libraries and other information centres purpose, unfortunately, have not yet reached rural areas to contribute to poverty alleviation through the provision of appropriate information. Exploring best ways of engaging libraries and information professionals along

with other players in poverty alleviation at this particular time is, therefore, of paramount importance.

Ladies and Gentlemen,
During this conference, I would like to urge you to share your experiences and engage in practical deliberations. And when you go back, share the knowledge you gain with the rest of your staff who did not have the opportunity to attend this conference. The knowledge and skills that you are going to acquire during this conference should be imparted among other members of staff in your respective institutions.

May I also remind you to put into practice what you will learn here: there are cases where conference materials are shelved immediately after one returns and are never touched again. This defeats the whole purpose of the conference as there is no application of the knowledge gained. In this regard, the end of the conference should mark the beginning of affecting the activities learnt.

Workshop Participants, Ladies and Gentlemen,
May I once again, express my sincere appreciation for your invitation, and wish you all the best in your conference.

With these few remarks, I would now declare this conference officially open.

Thank you very much.
Vice Chancellor,
Ruaha Catholic University
November, 2014.

Harnessing expertise and practices in information and knowledge management for poverty eradication

A keynote paper

Doris S. Matovelo

Sokoine University of Agriculture

Morogoro

1. Introduction

> *The Bible, one of the oldest books, has long time philosophers who recognise the centrality of knowledge in human life. Some of the biblical verses include: "My people are destroyed for lack of knowledge..." Hosea 4: 6; "An intelligent heart acquires knowledge, and the ear of the wise seeks knowledge" Proverbs 18: 15.*

This paper is based on literature in information and knowledge as they relate to poverty eradication or reduction, as well as the author's experiences drawn from community information research work (2004-2008). The entry point as Information Professionals (IP) in this matter is on the contribution of IP to the first of the eight UN's Millennium Development Goals (MDGs), "Eradication of extreme poverty and hunger". As pointed out by Bandara (2013), this goal can be achieved by taking up multidisciplinary actions, meaning that there will be many actors, all aiming at the same goal.

Poverty is a complex issue and its meaning has raised discussions in clarifying what it means and how it can be defined. The European Union, for example, identifies two types of poverty: absolute or extreme poverty and relative poverty. Absolute or extreme poverty occurs when people lack the basic necessities for survival (they may be starving, lack clean water, lack proper housing, lack sufficient clothing, etc. In short, these people are struggling to stay alive). This type of poverty is the most common in developing countries. On the other hand, in most of the EU countries poverty is generally understood as relative poverty which occurs "when some people's way of life and income is so much worse than the general standard of living in the country or region in which they live that they struggle to live a normal life and to participate in ordinary economic, social and cultural activities" (EAPN, 2014).

The United Republic of Tanzania (URT, 1998 broadly explains poverty as "a state of deprivation prohibitive of decent human life" (URT, 1998). Essentially, poverty consists of two interacting deprivations—physiological and social. Whereas physiological deprivation refers to an inability to meet or achieve basic material and physiological needs, social deprivation is assessed at the individual or community level and refers to the absence of elements that are empowering.

Most recently, others have explained poverty within the concept of and closely linked to marginality and social exclusion (Joachim & Gatzweiler, 2014). People affected by poverty are marginalised from life systems: social economic, political, ecological or biophysical (ibid.). Bartle (2007[a]) advances another concept of poverty being *poverty of spirit* .This allows members of that community to believe in and share despair, hopelessness, apathy, and timidity. He argues further that poverty cannot be eradicated by alleviating its symptoms, rather by attacking its factors. The main five factors of poverty have been identified as ignorance, disease, apathy, dishonesty and dependency (Fig 1). These factors, in turn contribute to the secondary factors of poverty such as poor infrastructure, poor leadership, lack of market, bad governance, underemployment and several others (Bartle, 2007[b]).

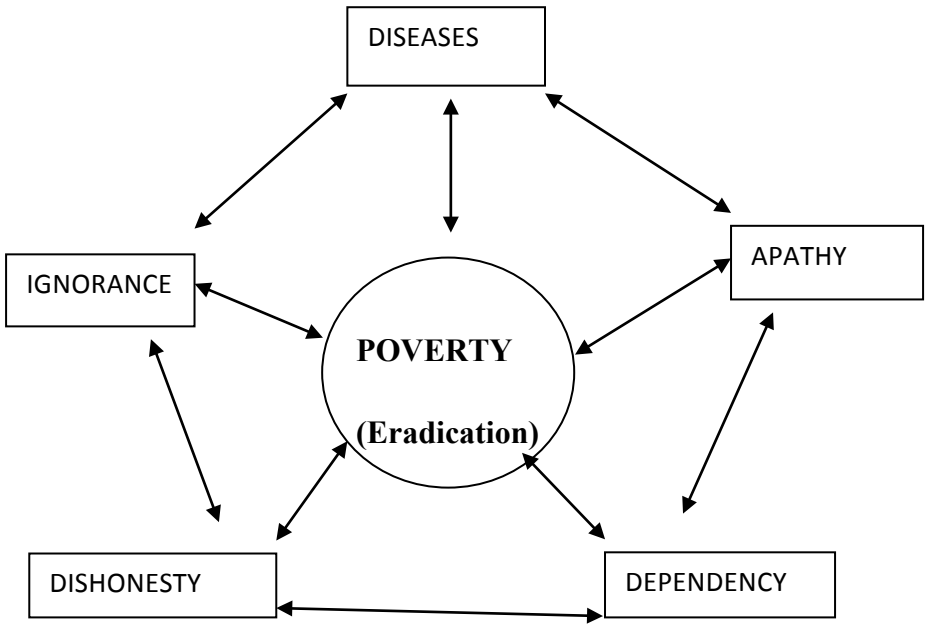

Figure 1: The main five factors of poverty

Source: Bartle (2007[b]), modified by the author

For the sake of sustainability, the process to fight against poverty must be understood and owned by the affected people. The affected have to be empowered, feel responsible and be in-charge of their destiny.

As poverty is multidimensional, strategies to eradicate it have to be multi-dimensional and multidiscipline too. Almost all disciplines have a role to play in poverty eradication goal. For IPs or information managers, the point of entry stems from recognising that informed and knowledgeable parties are those who have been empowered to stand better chances in fighting against their problems including poverty. It is the intention of this paper to, among other things; stimulate discussions on practical strategies by IPs that aimed at contributing towards poverty eradication by reducing ignorance especially among rural population.

2. FOCUSING ON IGNORANCE AS A POINT OF ENTRY FOR IPs

Ignorance

Bartle (2007[b]) argues that winning the war against poverty entails directing attacks at the factors that contribute to the continuation of poverty rather than those attacking the symptoms. It is understood that the main factors of poverty are interwoven. As such, breaking the cycle of poverty, therefore, requires interventions directed against each of the major factors in the cycle. Indeed, these are factors we can do something about, ignorance being one of them.

The diversity of reasons behind poverty notwithstanding, one scenario that is apparent is that relative or absolute ignorance of already available ideas and technologies seem to be one of the major factors behind under-exploitation of existing opportunities that could otherwise make much impact on the poverty problem. In this respect, ignorance is taken to mean lack of information leading to lack of knowledge about something, and includes wrong perceptions. As pointed out by Bartle (ibid.), something can be done to overcome ignorance unlike stupidity and foolishness. The bottom line assumption is that there is still a gap between available knowledge, on the one hand, and the communities in need of such knowledge for their development, on the other. This is the IPs' point of entry.

3. Who are Information Professionals and what is their potential contribution to poverty eradication goal?

According to SLA (2014), an Information Professional ("IP") strategically uses information in his/her job to advance the mission of the organisation. This is accomplished through the development, deployment, and management of information resources and services. The IP also harnesses technology as a critical tool to accomplish goals. IPs include librarians, knowledge managers, chief information officers, web developers, information brokers, and consultants (ibid.).

The IP has the mandate to manage and enhance access to information and access to knowledge. A popular saying among IP is: "Information is power and at a higher stage Knowledge is power". Knowledge is power because it empowers people so that they may take control of their own development. As a matter of professional requirements, the IP does not keep knowledge to themselves. IPs gather knowledge on the information needs of the community to facilitate access to relevant knowledge. However, the information needs should be mapped accurately with available information. According to Olaronke *et al.* (2011), IPs can make a substantial contribution to the paradoxical situation where there is scarcity of information and information explosion at the same time. This implies that IP target the scourge of information poverty. The IPs themselves should be active in making people aware of the importance and role of information for development. They are expected to design innovative ways of disseminating and sharing information, and facilitate access to information.

4. Information and knowledge management as drivers for poverty eradication

The Assumption: Adoption of innovative ideas and technologies for poverty eradication and development is hindered by restricted or limited access to information and knowledge. In simple terms, knowledge is what one know, it is a combination of information, experience and insights that may be beneficial to individuals or organisations. McKeen (2001) argues that in a new economy, the basic economic resource is no longer capital but knowledge; it is the most important factor of production (traditionally others have been Land, Labour and Capital). Some literature indicates that knowledge makes a significant contribution to a country's GNP. Examples include Korean GNP, which is identified to have risen by six times

in thirty years (Mchombu & Mchombu, 2014) because of deliberate initiatives to increase knowledge among its citizen.

Knowledge Management (KM), as a discipline, is a concept which originated from explosion of information in the 1990s. So far there are various definitions, but generally, KM means making the right knowledge available to the right people. Some scholars have defined it as the process of capturing, distributing and effectively using organisational knowledge (Koenig, 2012). It is divided into explicit (found in documents, databases, etc) and tacit or implicit knowledge (the know-how, experience-based, personal in nature).

KM has provided opportunities to IPs to embrace management of both the explicit knowledge and tacit knowledge. The IPs should realise these opportunities, change attitude to keep abreast with the requirements of the knowledge age/knowledge-driven economy.

5. Libraries in the knowledge age

The twenty-first century libraries are operating in the economy which is knowledge-driven, the economy which demand access to information to enable delivery of services and products be it health, agriculture, trade and other economic activities; they all need information. This situation makes libraries and IPs in general remain relevant now as they have been.

However, it is observed that libraries, like many other institutions, are being transformed by the technological and economic forces that are taking place worldwide. Libraries are changing to become learning and knowledge centres; they are expected to serve as gateways to knowledge. Inevitably, library services have changed or have to change to match with the expectations of their patrons. Consequently, the role of librarians of present day has also changed; they are managing digital libraries and electronic resources; they are spending more time guiding users on how to navigate the internet effectively, and less and less time on how to navigate through library shelves (Rao & Babu, 2001).

With the advent of the WWW, there have been debates as to the relevancy of libraries and librarians in digital/internet era. However, it is becoming apparent that the Internet is complementing libraries rather than replacing them. At present, the trend is to integrate e-learning through “WebCT” and “cyberlianship”. A study in the US in 2012 suggests that the demand for libraries may be as high as ever even though for different reasons from traditional ones, and that users look at a library as an important technical resource (McMillan, 2013).

What is inescapable is that the format of libraries is changing from mostly physical to a combination of physical and virtual; however, irrespective of the format they remain libraries. Despite the debates on the usefulness of libraries today, there are many reasons behind the libraries' continued importance. A detailed discussion on the usefulness of libraries in the present time is available on College online (2014).

For libraries to become even more meaningful than ever before, remain relevant and be seen that they matter in the development process, they have to be proactive and be visible as active partners in development. As Stuart (2013) argues, libraries are not just about access to information but also about offering expertise on use of information. It has been pointed out before that sometimes librarians remain as background players who has minimal visibility of the work they do in the community. This is one of the areas where change in approach and attitude is required.

6. Libraries and information services for rural development and poverty eradication in Tanzania

IPs in general and Librarians in particular need to re-think on reaching out to the majority of the population who live in rural areas. In respect to access to information, people at the grassroots who are actually the most poor are theoretically supposed to be served by the public library system under the Tanzania Library Services Board (TLSB). However, libraries under TLSB are to a great extent poorly resourced and most of them are located in urban areas. Furthermore, it is not very clear how these libraries in their current form could be used effectively by people in rural areas. Other libraries such as research and university libraries, on the other hand, are relatively more endowed and in some cases have materials that could be better utilised for basic information needs by the public (Personal experience, 2001[1]). However, for the time being, there is no clear relationship between these two library systems or a mechanism to enable them to collaborate and work together with respect to a common goal of poverty eradication. Although these two systems serve the interest of the country's economic development, they work in isolation rather than as one strong body. It is evident that people in rural areas are changing, and in some cases they are changing rapidly; the

[1] Discussions with farmers who visited SNAL pavilion during Farmers' week exhibitions in Morogoro, in 2001. Following their interest in some reading materials the library ordered for more materials for them.

impact of globalisation is observed in rural areas just as it is observed in urban areas, particularly the influence of Information and Communication Technologies (Sife *et al*., 2010). A few years back the rural people, for example, in Tanzania were literate enough to benefit from recorded information (Matovelo, 2008). Literate and awareness levels are most likely much higher today than they were in 2008. Despite this change, there is a gap in literature regarding the current role of the library facility in meeting the farmers' information needs. In view of the prevailing situation, the IPs may have to take a leading role in proposing and spearheading practical and sustainable mechanisms to reach out to rural areas where the majority of the population is found.

The idea to involve libraries, particularly the public library services for meeting the information needs of rural communities, has frequently been recommended by various scholars in developing countries such as Ikhizama and Oduwole (2003), Okiy (2003), Manda (2002), Aina (1991) and Namponya (1986).

Likewise, the attempt to take knowledge to rural people through libraries in Tanzania is not a new idea. It was long recognised by the TLSB and hence its rural library scheme and mobile libraries to serve farmers and peasants in rural areas (Mwasha, 1985; Kaungamno & Ilomo, 1989). This move was in response to the government's constant urge to direct resources to rural development and to wipe out illiteracy. The mobile library service and the rural library scheme, however, did not last long enough to have their impact felt in the Tanzanian rural areas. Failure of these libraries was attributed to the use of untrained personnel, the largely illiterate environment, lack of permanent structures, dependence on donor funding and the absence of relevant materials (Kilindo, 1989). In addition, a number of other researchers have pointed out the ineffectiveness of the rural libraries when they were set up as extensions or replicas of urban public libraries rather than being established based on the actual needs and end-user participation (Katundu & Nyerembe, 2002; Durrani, 1985).

Although rural libraries in Tanzania did not demonstrate good results, some governments in developing countries such as China (Xu, 2001) and Nigeria (Aboluwarin, 1998) have had a successful deliberate focus on rural libraries in their efforts to improve agricultural productivity. Also, rural libraries are known to function by meeting the information needs of rural people in many other parts of the world such as Thailand, Malaysia, Singapore, the Philippines, India and Russia whose success, as pointed out by Okiy (2003), has been

attributed to innovative library services. In Malawi, a study by Sturges and Chimseu (1996) stresses the role of the national library system in meeting the information needs of the rural agricultural community. For the libraries to play a bigger role in providing information to the rural population, Asamoah-Hassan (1997) challenged librarians to have new approaches and a change in attitude so that they demonstrate interest and innovativeness when serving rural communities. Similar challenges have been advanced by Okiy (op. cit.) who urges libraries to discard their traditionally docile role as repositories/custodians of knowledge and ideas so that they become more active as disseminators of knowledge for rural development. Communities must also be involved in the decision-making process right from the planning stage in, for example, determining the materials that will be useful and the formats which will be acceptable to them, so as to achieve the desired results. The process of establishing the services has to be participatory to be acceptably by and useful to the community (Matovelo, 2008). There is no doubt that there are a number of countries that involve libraries in development process. In this regard, Tanzania need not re-invent the wheel by adopting the approach that is working well in other countries similar to Tanzania but customised for use in this country. What is being underscored here is that rural areas should be given a much higher consideration in development programmes, including information service programmes to have more impact in fighting against poverty. As Nyerere argued, for the country to have significant economic development, efforts to address ignorance and eradicate poverty must also be directed to rural areas where the majority of the population is found: "While other countries aim to reach the moon, we must aim, for the time being, at any rate, to reach the village" (Nyerere, 1968).

7. Training IP for Knowledge-driven economy

It is apparent that libraries today are technologically-driven even as they adhere to traditional principles. Rapid changes in the information management sector calls for regular training and re-tooling or continuous professional development of IP to reflect the environment in which IP works. In view of the requirements to match with knowledge-driven economy, there is also a need to review the curriculum for IP programmes to reflect the changing role/enhanced role of librarians and other information professionals as well as knowledge managers. We must always be conscious that there are many other information providers, especially those dealing with internet-based services, who are sometimes perceived as competitors or even rivals at

times to library and information professionals. We therefore must be strategic, innovative and creative to retain and attract users to the services we provide. In this regard, IP training institutions are challenged to come up with new programmes that will capture emerging issues and user requirements. Also, there is still room for making improvement in terms of establishing innovative and attractive programmes in our institutions. In the context of knowledge-driven economy, information professionals would be better equipped if they are also equipped with communication skills (Gulati & Raina, 2000). Issues that may be considered in the revised curriculum include KM and IL, Communication and marketing skills, "infopreneurship" , "cyberlianship", digital library, repositories, and the Web 2.0+ (and library 2.0+) particularly with respect to application of social media for professionals.

8. Collaboration with other actors and building team work

The fight against poverty is an initiative that must combine the resourcefulness of a diverse body of actors in this filed. IPs at the front of Information Management must draw from and work with researchers, on the one hand, and educators or outreach agents, on the other hand. Researchers play an important role in the creation and generation of new knowledge available for processing into information packages ready for sharing and dissemination to outreach agents and other target consumers. Consequently, IPs are challenged to pool information resources from various knowledge development initiatives and actors and render it available for beneficiaries. Accordingly, to realise the ideals advocated by IP, collaboration between IPs themselves, on the one hand, and researchers, educators as well as outreach, on the other hand, is a matter of necessity. In this wake of collaborative initiatives, IPs should endeavour to initiate and/or participate in platforms that promote harnessing of expertise and practices in information and knowledge management.

Collaboration and co-operation in terms of sharing knowledge, skills, and materials is not new; it is a well known tradition particularly to librarians whereby libraries, for example, have had agreements about resources to acquire and share. Collaborations have ranged from those that are simple and informal to the formal and complex collaborative schemes. In the present era of advanced information technology, collaboration between IPs is even more important and necessary than ever before because of the explosion of information, the availability of numerous software and systems, both simple/ordinary and advanced ones, as well as users of information that are inevitably more demanding and sophisticated in their

demand. Knowing that no single profession can do everything or go into all the emerging technologies, we must be prepared to build new relationships and networks, identify and invest in areas where we are most competent. We need to establish a platform for sharing ideas and solutions to problems that are common to all. Accordingly, collaborations should be viewed as inevitable strategies to cope with changes and challenges in the digital world. For the IP to remain relevant and excel under these circumstances, they must demonstrate willingness, ability and competence to attract users to information facilities and retain them. Some areas or issues where collaboration and or co-operation are needed include organising joint short training to build capacity, particularly in the application of IT in information management, establishing ways to share IT resources including human resources. A special focus is needed to look into modalities for acquiring and maintaining a common integrated library system for libraries in Tanzania (Library automation software), as well as establish and maintain common electronic catalogues and repositories. We may also discuss having joint policies such as policy on document borrowing, purchasing expensive equipment jointly for digitisation and microfilm.

In as far as collaborative initiatives are concerned, COTUL's initiatives and efforts to enhance access to information and building team work is commended and should be supported to ensure the sustainability of these initiatives.

9. Some challenges to be worked upon

The most critical challenge that we need to reflect upon as IPs in the knowledge-technology driven economy is about the paradigm shift in the library and information profession. This calls for a change in attitude, ways of thinking and ways of doing things. We must be prepared to acquire (by training or other means) and apply new knowledge and skills in information management.

Although information plays an important role in almost every human activity, its value in the development process is a topic of extensive debate, probably because of its indirect relationship to development. The challenge here is on three aspects. The first involves how to articulate the role of information and knowledge so that they are clearly viewed as key tools in combating poverty. The second aspect involves lobbying and advocacy for commitment and support from policy-making organs and leaders for initiating and attaining sustainable information management facilities at all levels in the development process. The third aspect is

related to the challenge of focusing on rural areas. Specifically, there is need to find an acceptable and practical mechanism or platform to enhance teaming up with various information-knowledge players (governmental organs, NGOs, CBOs), look into various disjointed efforts to come up with a comprehensive plan to direct enough effort towards rural areas to reach out to the majority of the population.

With respect to the successful collaboration and co-operation, there should be a feeling of shared responsibility and respect for each other irrespective of the size of institutions in terms of available resources, human and other resources, as well as technological advancement and challenges at individual institutions.

10. CONCLUSION

Information and knowledge are drivers for poverty eradication because they are empowering. They empower people to make decisions—write or wrong, but in this case right decisions. For purposes of empowerment, people need to be informed or be aware of their environment and their potentials. For knowledge to trickle down, there should be deliberate efforts to manage, disseminate and share it, which is the point of entry for IPs. The IPs should be abreast with an inevitable transformation in information and library profession as a result of rapid technological changes. Also, for IPs to remain visible, cope and excel as user-centred in the knowledge-technology-driven economy, they should reflect upon necessary retooling, change in ways of thinking and doing things, embrace collaborative approaches and team work as strategies not only for coping and excelling but also for remaining valuable contributors to the first UN's Millennium Development Goal, "Eradication of extreme poverty and hunger".

11. RECOMMENDATIONS

COTUL is requested to find ways of organising seminars and workshops on emerging issues of importance for IPs. Such training and retooling platforms would have an impact in line with the paradigm shift mentioned in this paper.

There is also a need to set up a team of professionals (preferably on voluntary basis) to try and articulate the role of IP in poverty eradication initiatives with the aim of influencing policy changes towards mainstreaming information and knowledge as economic resources.

Furthermore, there is a need to initiate collaborative projects for the acquisition, use and maintenance of an integrated library system for Tanzania's libraries (maybe have a common system for university and research libraries, for public libraries, etc).

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Leveraging on hybrid ICTs for Improved Government Transparency, Accountability and Citizen Engagement

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Abstract

An accountable government recognises the needs and interests of citizens and works towards advancing public welfare. Lack of accountability impedes both democracy and socio-economic development of any community. Citizen feedback is important as it boosts transparency and accountability in government. In this regard, ICTs can help expand the communication channel between the government and the citizens while fostering transparency and accountability in public services. This study proposes the use of hybrid ICTs as a tool for engaging citizens in monitoring their government. The evaluation of the proposed prototype shows that the use of ICTs in facilitating the citizens' engagement is still in its infancy in Tanzania and that more research work is needed to explore their feasibility in the Tanzanian context.

Keyword: Citizen Engagement, Accountability, Transparency, e-government.

1. Background

Citizen participation is the third inextricable element of the tripartite fundamentals of efficient and effective government service delivery: accountability, transparency, and participation (Kuriyan, Bailur, Gigler, & Park, 2013).Citizen participation plays an important role in helping to establish and maintain government accountability by organising and demanding government transparency, predictability, and responsiveness. Once citizens have more information and participation, they are likely to influence public officials to perform better. Citizen engagement builds trust in the government by promoting transparency and builds the bases for the accountability of the government to citizen (Archon & Hollie, Russon Gilman Jennifer, 2013).Transparency in governance is an important tool for combating corruption, exposing weaknesses in governance structures and encouraging participation in

governance (Finnegan, 2012). Citizen feedback on government services helps the government to keep track of its services to the citizens so as to clearly evaluate, improve and sustain them.

The delivery of public services in the developing countries such as Tanzania is often challenged by the lack of a mechanism of collecting feedback from the citizen regarding government services. Moreover, even when governments initiate measures aimed at improving the quality and effectiveness of service delivery, citizens often do not have the opportunity to provide inputs on whether the changes have achieved their desired objectives (Kirkby, 2012). This lack of feedback prevents the government from identifying areas that need improvement and eventually undermines transparency and accountability.

Efforts for poverty alleviation primarily should start with effective planning. Community development planners require bases of knowledge to create sustainable plans *(Björn-Sören et al*., 2014). In this regard, citizens hold information that can help planners do their duty better.

The rapid rise in the use of technology among citizens could significantly complement citizen engagement and expand the relationship between the government and citizens. In Tanzania, on mobile phones penetration is reported to be at above 61 percent (TCRA, 2013). This penetration can be leveraged to strengthen the citizens' engagement with government issues. In fact, emerging ICTs have the potential of strengthening citizens' voice in governance by creating spaces for engagement, and promoting increased government accountability (NDI, 2013).

Despite the exuberance for technologies in developing countries such as Tanzania, there has been no formal government platform for citizens to voice their concerns and government to provide them with feedback. This gap has delayed efforts towards of advocating citizen engagement. Scholars tout Information and Communication Technologies (ICTs) as a cornerstone for bridging communication gap between the government and its citizens. Experience from the previous studies on the use of ICTs for citizen participation show a promising usefulness of cheap technology in crowd-sourcing citizen knowledge (Hollie Russon & Kevin, 2013; (BangladeshGov, 2009; (Worldbank, 2010; (Felipe & Boris, 2012; (Belle & Cupido, 2013).

In this regard, the use of technology that is already common in the community such as mobile phones can empower citizens to participate in the decisions that impact on their community

through processes that are more transparent, more inclusive and more effective than ever before.

2. Technologies for Participation, Transparency and Accountability

ICTs have the potential of transforming governance by fostering transparency and accountability. Technologies such as Web 2.0, mobile technologies and interactive mapping have a capability of addressing public problems by uncovering corruption and creating openness in the governance (David *et al*., 2010). Table 1 presents ICTs for citizen engagement.

Table 1: ICTs for Citizen Engagement

Technology	Description	Example
Web 2.0	Web 2.0 describes World Wide Web sites that use technology beyond the static pages of earlier Web sites Web 2.0 is grounded on architecture of participation than just presentation (Tim, 2005). The use web 2.0 technologies have potentials of expanding government-citizen communication channel as their adoption is on rise. Examples of these sites are Facebook, Twitter, Blogs, e-forums etc.	**1. Burma**[2] An interactive website for connecting citizens and their government in Burma **2. Sithi**[3] Cambodian human rights portal that aims to create a single map-based database of reports of human rights violations with contributions from human rights activists, organisations, and regular citizens from across the country.
Interactive Mapping	An interactive mapping tool that visualises geo-tagged projects/events to facilitate monitoring.	**1. NMIS**[4] Nigeria MDG Information System.

[2]Burma: Available at http://www.burmapartnership.org/
[3]Sithi: Available at http://transparency.globalvoicesonline.org/project/sithi
[4]NMIS: Available at http://nmis.mdgs.gov.ng/

Mobile Technology	Mobile based tools that exploit services such SMS and IVR to create environment for citizen to communicate with their government.	**1. Uspeak** An SMS and Web-Based Constituent Engagement and Case Tracking Platform (Uganda) **2. mRushwa[5]** Corruption cases reporting tool (Tanzania)

This research work analyses how digital innovations can be leveraged to amplify citizens' voices and empower decision-makers and planners with data to improve public services.

3. Challenges of Using ICTs for Citizen Engagement

Despite advances in ICTs and their effectiveness in closing the feedback loop between the government and citizens, there are challenges that hinder citizens from using ICT as an engagement tool. These challenges are:

a) **User friendliness of the Platforms:** Some citizen engagement platforms are not user friendly and not accessible to some low devices such basic phones, and some were not designed to include requirements of people with vision disability (Finnegan, 2012).

b) **Lack sustainability:** Some of the citizen engagement initiatives through ICT-based tools are not sustainable due to lack of serious support from the governments. Few initiatives established by CSOs fail as they do not compel the government to respond to citizen concerns (Kwami, 2013).

c) **Low ICT Capacity:** Lack of access to ICT hampers the use of technology for government accountability projects. Furthermore, ICT illiteracy among community members hinders the adoption of citizen engagement practice through ICT(David *et al*., 2010).

d) **Lack of participation culture:** The absence of established culture for government-citizen dialogues causes so much fear among citizens that the government may ignore their voices (Seltzer & Mahmoudi, 2012).

[5]mRushwa : available at http://mrushwa.com/

e) **Privacy and security**: Online privacy, censorship and secure communications present challenges to technology-for-transparency projects. Technology-driven transparency projects need to be cautious in how they collect and use data, and ensure that participants know how to protect their right to privacy online (Finnegan, 2012).

3. Methodology

A comprehensive literature review was conducted to understand the theoretical bases of citizen-government engagement. The articles that focused on the use of mobile phones and others on the learning theory concepts were chosen for review accordingly. The process of reviewing selected articles followed the 'literature review steps' as defined by Oates (2006): (Search->Obtain->Assess->Read->Evaluate->Record->Review).

Concepts gathered from the literature were conceptualised by designing a technology-based citizen feedback platform (CitizenVoice) to understand how ICTs can bridge the information gap between the government and citizens. March and Smith's (1995) framework was used to conceptualise and represent techniques in proposing the CitizenVoice prototype.

4. Results

In this study a citizen feedback platform prototype was designed incorporating low cost technology such as SMS and web 2.0 technologies. The deployment of the proposed platform is deemed to empower leaders of constituents with the citizen feedback, which can help to understand problems and opportunities faced by communities.

5. Conceptual Framework

Citizen engagement is the foundation of democratic values. When citizen engagement models are implemented effectively, more citizens are brought into the decision-making process, and this allows the government to be more responsive to community needs. Moreover, citizen engagement practice is important in building accountable and responsive government by creating space for citizen-government collaboration. Leveraging on various ICTs (Hybrid ICTs) in building citizen engagement models can effectively amplify citizen voice and increase government responsiveness and accountability (BangladeshGov, 2009). Figure 1

shows the conceptual framework of how citizen engagement through technology can lead to improved public services delivery:

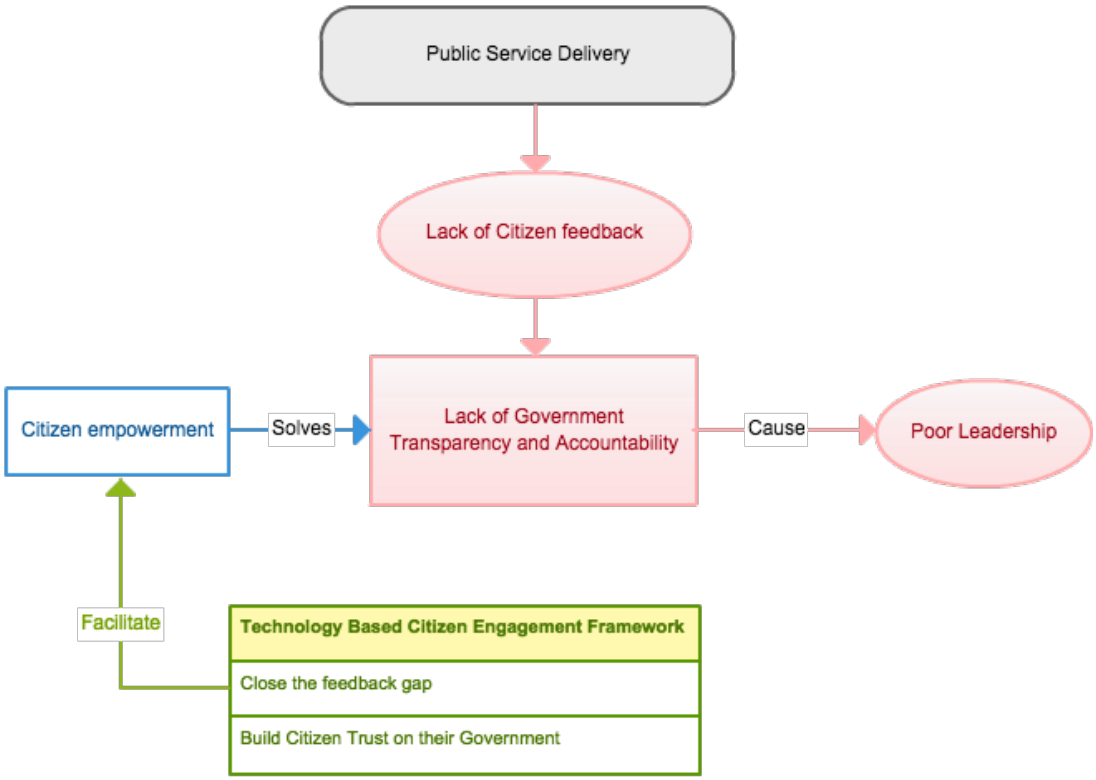

Figure 1: Citizen Engagement Conceptual Model

6 .Proposed Citizen Voice Platform

This study proposes citizen engagement framework that conceptualises how various ICTs can be integrated to bridge the information gap between the government and citizens. Web 2.0 technologies such as social media and interactive maps have been combined with mobile technologies to create space for citizens to report and receive feedback from government officials on issues in their community.

7. Components of a CitizenVoice prototype

The CitizenVoice Platform is composed of several components. These include a central server, mobile reporting tool, web 2.0 tool and web portal. Figure 2 depicts the components of the proposed CitizenVoice:

a) ***Web 2.0 tools:*** This provides web users with ability to report cases via web forms and also through social media page.

b) ***Mobile Tool:*** This provides mobile users with the ability to report cases via mobile forms and also through short messaging services (SMS).

c) ***Central Server:*** A Linux box installed with apache web server which hosts open source software called Freedomfone6 and an interactive mapping tool. Freedomfone software is customised to allow for the creation and share audio content using Interactive Voice Response (IVR), voicemail and SMS. In CitizenVoice platform, Freedomfone is used to manage routing of responses to citizens in the format of text and audio. With help of telecom service providers CitizenVoice Platform handles communication between CitizenVoice and other actors (citizens, CSOs, Local government authority).

d) ***Web Portal:*** This is web2.0 platform with interactive mapping of cases reported by citizen and their response status. The data that are published in a portal are aggregated and analysed in advance to simplify their consumption by end users. Third party agencies such as Civil Society Organizations (CSOs) can benefit from this data for the duties of advocating for better wellbeing of the citizens.

8. How CitzienVoice Platform operates conceptually

Citizens initiate a claim via SMS, mobile forms, web form or social media tweet. The CitzienVoice platform receives claims and analyses it in category (e.g. budget, social services, crime report, and opinion). Once the case has been analysed, the platform forwards the case to appropriate responder for example district medical officer, police station etc. When the responses are issued the case profile is updated to show the action taken and the citizen who reported is sent with notification about the action taken.

CitizienVoice platform aggregates the cases in locations and categories published as open data. The anonymity of the citizens is observed to ensure that privacy is protected. The platform provides a data Application Programming Interface (API) to enable flexibility in the

[6]Freedomfone available at: http://freedomfone.org/

manipulation of the data published, for example, the generation periodic reports, categorical reports and comparative reports.

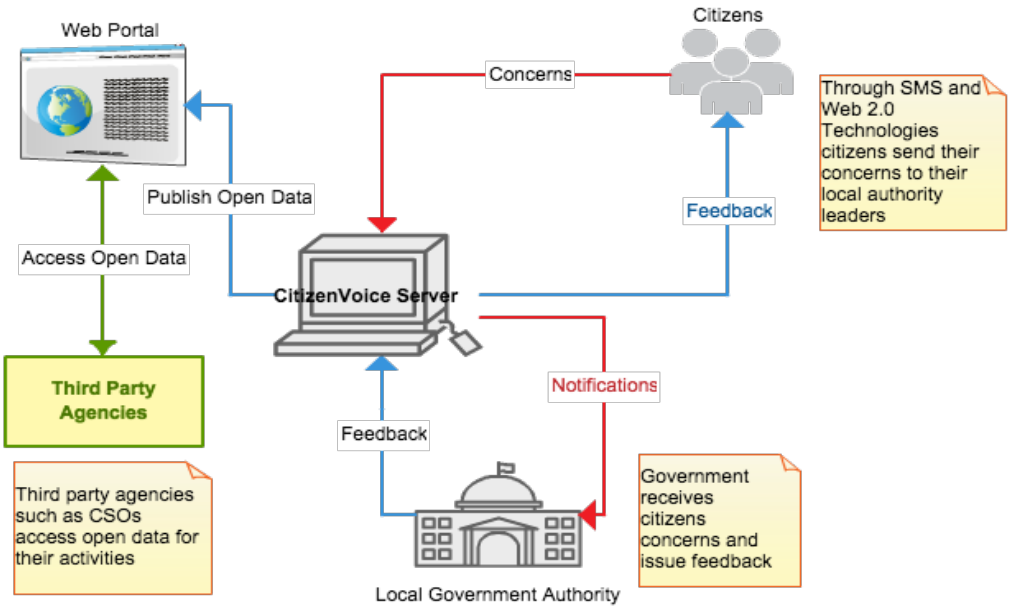

Figure 2: Citizen Engagement Framework (CitizenVoice Platform)

9. Evaluation of the CitizenVoice Platform

According to Hevner *et al.*(Alan R. Hevner, Sudha Ram, Salavatore T. March, 2004), there are different ways in which IT artefacts can be evaluated. These are functionality, completeness, usability, consistency, accuracy, performance, reliability and how it fits with the context. The evaluation process of this study is aimed at evaluating how CitizenVoice Platform fits with the context of the developing countries Tanzania as an example.

Scenario based evaluation technique (Babar, 2004) was used to assess the applicability of the CitizenVoice Platform in developing countries. Web platform was used to share the scenario and collect feedback from citizens. Making all Voice Count (MVC)[7] web platforms was used to collect users' opinions. In a period of first 14 days, the scenario received 44 votes and eight positive comments. CitizenVoice Scenario[8]ranked 91 out of more than 180 scenarios

[7]MVC Available at http://www.makingallvoicescount.org/gic2015/

[8]CitizenVoice Scenario Available at http://ideas.makingallvoicescount.org/a/dtd/Citizen-Voice-Platform-Voicing-Citizen-Concerns/94501-26650

posted at the MVC portal. Despite the few votes from the people's perspectives, the feedback still shows the applicability of the CitizenVoice Platform in the Tanzania context.

10. Impact on policy and practice

Leveraging on ICTs to foster citizen engagement will help marginalised and disadvantaged groups to voice their concerns to their local government leaders without unnecessary barriers. This development is likely to promote equality by giving every citizen a voice regardless of gender or disability so that he or she is heard by the government. Expansion of communication between government and citizens will accelerate the success of the government projects by creating channel for feedback mechanisms whereby the beneficiaries (citizens) will be able to monitor their accomplishment.

11. Conclusion

Leveraging on ICT in public administration matters such as public project tracking and budget decision process make citizens more inclusive in monitoring their own government, which in turn catalyses more accountability and transparency and improves communication between local government actors, civil society, and citizens. However, there are issues that need to be a resolved to ensure citizens are made aware of the effectiveness citizen engagement through ICT-based platforms. The issues that need government attention are perceived usefulness; perceived responsiveness; perceived relevance; quality and reliability of the information; trust in the technology; perceived risk to user privacy; perceived reliability of the mobile network and the ICT-based system; trust in the government; and perceived quality of public services; perceived risk to money; perceived compatibility, and self-efficacy in the use of ICTs. On the whole, the use of ICT platforms on civic engagement is still a nascent field without enough research behind it to make solid claims for its usefulness. Future work needs to explore deeply the impact and the ways of addressing challenges of applying ICT in governance particularly the mobile-based technology that has already been adopted widely.

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Combating Medical Drug Counterfeit in Tanzania: The Role of Technology

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Abstract

The infiltration of Counterfeit Drugs (CDs) in the Pharmaceutical Supply Chain (PSC) is adversely affecting health sectors in their efforts to provide quality health services to the public. According to the World Health Organisation (WHO), over 30 percent of anti-malaria drugs sold in the developing countries are substandard. Furthermore, the Confederation of Tanzania Industries (CTI) estimated that 60 percent of the medicines imported into Tanzania are counterfeits. Several initiatives have been taken in an attempt to curb the selling of CDs. However, the effectiveness of these initiatives remains questionable. There is an urgent need to formulate more effective strategies to secure the PSC by involving all stakeholders. In this regard, technology-based solution could be an effective uptake in mitigating CDs. This study assesses how the technology-based system can secure PSC and enable medical drugs verification in Tanzania. The proven adoption of Information and Communication Technologies (ICTs), especially mobile technology, could be leveraged to enable the enforcement of laws and regulations and advocate community awareness on medical safety.

Keyword – Counterfeit drugs, Healthcare, Pharmaceutical supply chain.

1. Background

The growth of the market for Counterfeit Drugs (CDs) continues unabated despite the regulatory efforts to curb it by governments and international organisations such as World Health Organization (WHO) and Interpol. CDs can be defined as drugs that are deliberately and fraudulently mislabelled with respect to identity and/or source (WHO, 1999;TFDA, 2003). WHO has discovered an alarming growth rate in CDs market especially in developing nations which has caused alarming rate of ill-health and eventually deaths amongst all level of human development (Agbaraji, 2012). And yet, the problem of CDs remains largely underreported and there has been little information on its prevalence. The few published estimates indicate that CDs prevalence globally ranges from one percent to 50 percent of the global medicine market (WHO, 2005). The developing countries are reported to be mostly

victimised by the effects of CDs (WHO, 2012). According to a survey by WHO conducted in 2010, almost a third of anti-malaria drugs sold in the developing countries were substandard (WHO, 2010).

The circulation of CDs in a pharmaceutical supply chain (PSC) is a problem that contributes to morbidity, mortality, and drug resistance, and leads to spurious reporting of resistance and toxicity and loss of confidence in health-care systems (Newton, Green, Fernández, Day, & White, 2006).The estimate of 192,000 patients killed by fake drugs in China in 2001 indicates the scale of human suffering (Agbaraji, 2012). Therefore, it is important to crack down on this illicit trade, which has been a threat to health services in the developing countries.

Poverty, high cost of medicines, lack of an official supply chain, easy accessibility to computerised printing technology, ineffective law enforcement machinery, and light penalties provide the counterfeiters with an enormous economic incentive without much risk (Utreja & Singal, 2009). Therefore, the war against CDs remains ominous.

Tanzania is also facing the problem of CDs. In 2008, the Confederation of Tanzania Industries (CTI) estimated that 60 percent of the medicines imported into Tanzania were counterfeit. Furthermore, in 2009 CTI claimed that Tanzania was a 'dumping ground' for fake drugs from China, India, Europe and the US, which used the country as a gateway into Africa (Emily, Eva & Maura, 2011). Reports suggest that counterfeit drugs have not only infiltrated the informal health sector but also the official health sector (Emily *et al.*, 2011).

Although several measures have been taken to restrain the selling of counterfeit medicines in developing countries, the problem is far from over. Recently, the Short Messaging Service (SMS) verification method has been adopted in some developing countries such as Nigeria and Kenya. Initiatives such as Hakikisha Dawa campaign in Tanzania (24Tanzania.com, 2013), mpedigree in Ghana (Mpedigree.net, 2014) and Pharmasecure in India (pharmasecure.com, 2014) are among the proposed measures for verifying the drugs' authenticity. However, their effectiveness in addressing CDs in these countries is questionable as their emergence came in enterprise terms; therefore, they have less impact in securing public health system (Dipika & Swathi, 2013).

Generally, there is a need to formulate strategies to secure the PSC from the manufacturer to the end user. Involvement of key stakeholders is vital for understanding the magnitude of the CD problem and how to curb it.

The strategy which will include inputs from various stakeholders can result into an effective way of detecting counterfeit products, increasing audit compliance, enhancing PSC management capabilities, preventing brand erosion, and eliminating the supply chain routing leakage such as misplaced inventory and drug expirations (Sanjay & Sanjeev, 2009).

2. Research objectives

This study takes the first step in understanding the magnitude and the challenges of addressing the CD problem in Tanzania. Furthermore, the study assesses how the technology can be applied to mitigate CDs.

3. Research methods

In this study, three research instruments were used to gather information. These include the questionnaire, focus group discussions and documentary review.

A 25-question structured questionnaire was designed and administered with citizens in three different regions of Tanzania. The regions were Mtwara, Mwanza and Dar es Salaam. The selection of data collection areas was made based on the prevalence of Malaria. The prior assumption was that the prevalence of malaria is directly proportional to the demand of anti-malaria drugs and naturally the high demand for anti-malaria drugs attracted counterfeiters to produce fake drugs to meet the high demand. The following formula was used to determine the sample size of the study (Yamena, 1967):

$$n = \frac{N}{(1 + N(e)^2)}.$$

Here, n-Sample Size, N-Total Population, e-Detection error expressed into percentage (5%-10%). For N=8,407,904 (total population of Mwanza, Dar es Salaam and Mtwara) and e=5%, the sample size n becomes 400. A total of 665 participants filled in the questionnaire, 51.8% was from Dar es Salaam, 24.8% from Mwanza and 23.3% from Mtwara.

A plenary and focus group discussion was carried with key stakeholders of the Tanzanian PSC. Six focus groups were randomly created out of 23 participants. The groups included manufacturers, distributors, regulators, consumers, and others such as researchers and health

professionals. Each group was given a checklist to guide their discussion and came up with answers for each question.

Literature review of conference proceedings, technical reports and journal articles was carried. out The process of reviewing selected articles followed the 'literature review steps' defined by Oates (2006). The articles that fall on the context of our objectives were chosen and reviewed accordingly.

Data analysis was performed through the use of the Statistical Package for Social Sciences (SPSS) version 16 and MS-Excel software.

4. Results

4.1 Respondents Demographic Information

Results based on the demographic information of the general public respondents of gender and educational levels are presented in figures 1 and 2.

(i) **Gender:** Results in Figure 1 show that the majority of the respondents in Dar es Salaam (51.9%) and Mtwara (51.6%) were females whereas in Mwanza the males accounted for 56.4 percent of all the respondents. On average, however, there was almost equal representation of females (49.8%) and males (50.2%) in the filling out of the questionnaire. The significant proportion of females' representation in the field data collection and subsequent stages of the research is vital. This is so since females are generally highly affected by the consumption of counterfeit medical drugs, especially during pregnancy (antenatal) and postnatal. This point is further amplified by the fact that two out of three health related MDGs directly target mothers [(i) Reduce Child Mortality (MDG 4) (ii) Improve Maternal Health (MDG 5)]. Moreover, the proportion of females in the population in Tanzania is relatively larger than that of males (URT, 2012; Population and Housing Census, 2013).

(ii) **Education level:** Results on the education levels of the respondents indicate a wide variation among the three regions as presented in Figure 2. Whereas 37.7 percent of respondents in Dar es Salaam were degree holders and 19.5 percent were secondary school leavers, the situation was different in Mtwara where 60.9 percent were primary school leavers and 25.2 percent were secondary school leavers. The situation in Mwanza indicates that 42.4 percent of the respondents were secondary school leavers

followed by primary school leavers (33.3%). The difference in levels of education reflects the gap that exists in accessing education among the three regions. Furthermore, the results could be a reflection of the general trend among learned persons to migrate to big cities to pursue employment opportunities. The results suggest a need to take into account these variations in education levels in the intended technology for easy adaptability.

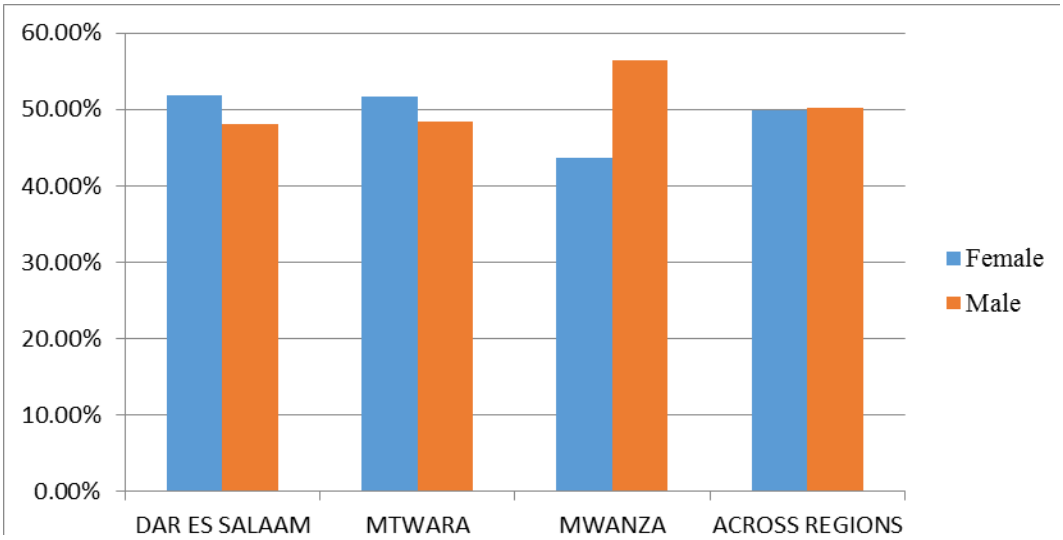


Figure 3: Gender Distribution of Respondents

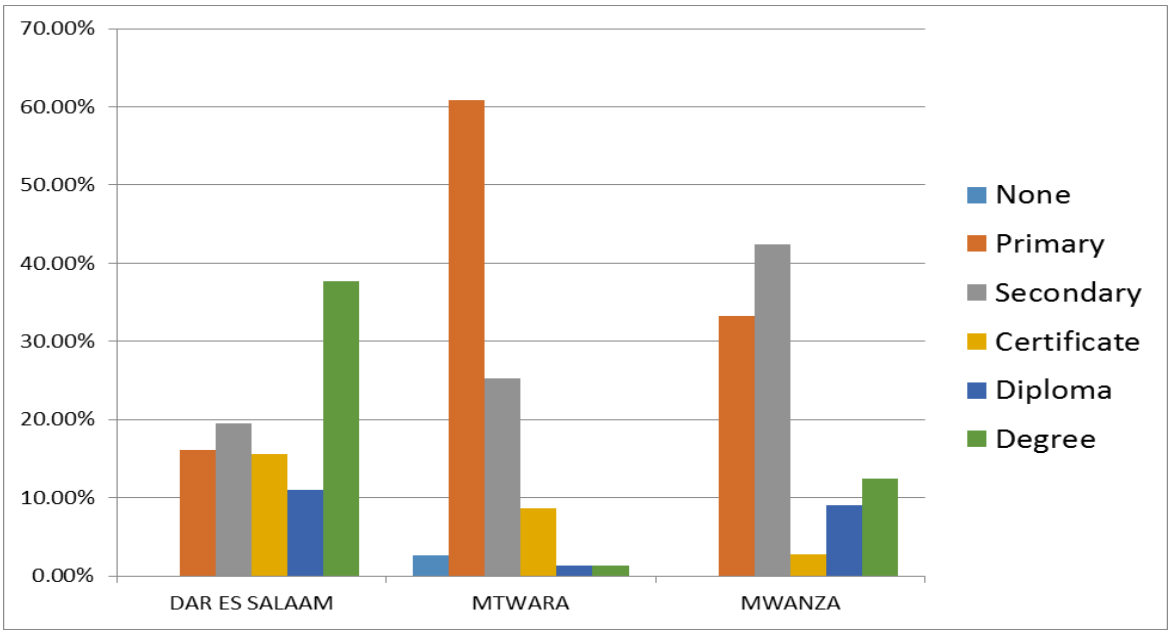


Figure 4: Education Levels of the Respondents by Region

4.2 Medical Drugs that Respondents Mostly Deal With

General public respondents indicate that the medical drugs they mostly deal with were anti-malarial drugs (38.7%), painkillers (35.9%) and antibiotics (23.4%). The findings can imply that more often than not anti-malarial drugs and painkillers are taken complementarily. Results presented in Figure 3 show that anti-malarial drugs are mostly dispensed in Mtwara (43.3%) and Mwanza (47.0%) followed by painkillers (33.5%) and (33.6%), respectively.

However, a slightly different trend was observed for respondents in Dar es Salaam where painkillers were identified as the mostly used (38.4%) compared to anti-malarial drugs (34.9%). The findings, among other things, support our initial assumption on the scope of the research that identified anti-malarial drugs as a pilot.

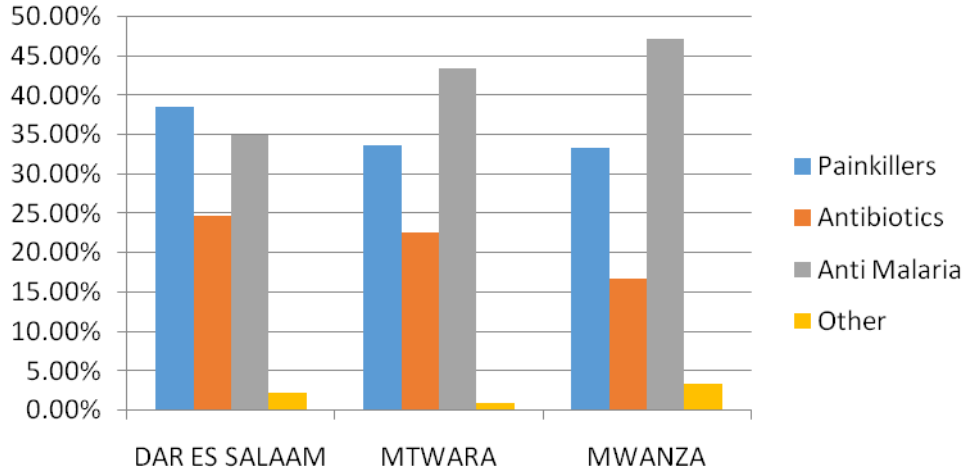


Figure 5: Types of Medical Drugs Respondents deal with by Region

4.3 Magnitude of Counterfeit Drugs in Tanzania

The magnitude of the drug-counterfeiting problem is difficult to gauge. Since the crimes of producing and selling counterfeit drugs generally become known only when the perpetrators are caught, any true estimate of prevalence is difficult. Participants in three aforementioned regions were asked to rate the magnitude of the CDs in their areas. As Figure 4 illustrates, 49.8 percent of the respondents in Dar es Salaam, 51.6 percent in Mtwara and 51.9 percent in Mwanza considered the problem to be serious. Moreover, 33.5 percent of the respondents in Dar es Salaam, 25.8 percent in Mtwara and 31.7 percent in Mwanza considered the severity of the problem to be moderate. In addition, 46.5 percent, 32.9 percent and 57.3 percent of the respondents in Dar es Salaam, Mtwara and Mwanza, respectively, reported to have experienced the effects associated with the consumption of counterfeit medical drugs. The

magnitude of the problem as perceived by the respondents calls for prompt action to contain the prevailing situation.

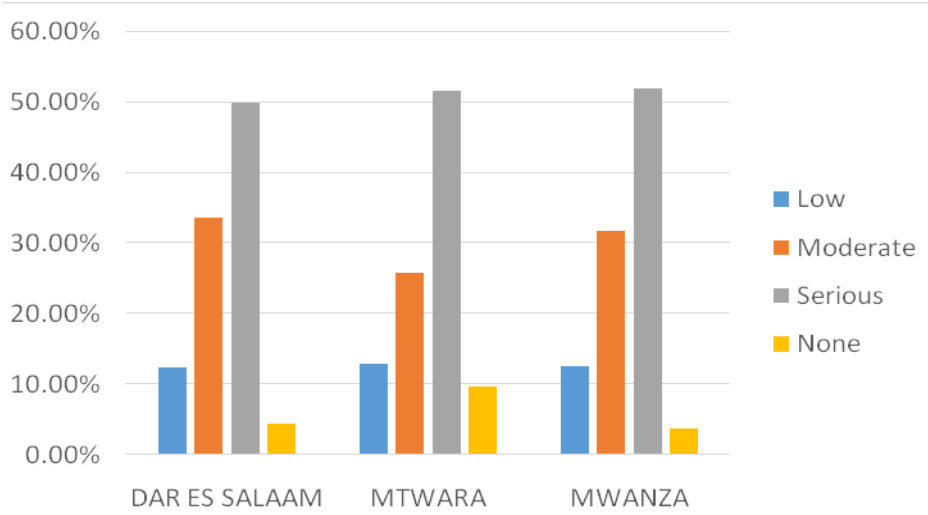


Figure 6 : Magnitude of Counterfeit Drugs in three regions (Mtwara, Dar es Salaam and Mwanza)

4.4 Awareness of Counterfeit Drugs

Raising community awareness on CDs is one of the strategies in combating the menace poised by the CDs. The community should be empowered with knowledge that will enable them to be vigilant in detecting any abnormally low-priced medicine as decoy for fake drugs (Davison, 2011). In this regard, the level of awareness among Tanzanians was surveyed. Figure 5 depicts the levels of awareness of CD problems in three study regions. Only 28.5 percent of the respondents said that they were aware of the CD problem, and among these respondents 34 percent were from Dar es Salaam, 23.5 percent were from Mwanza and 16.5 percent were from Mtwara. The discrepancy in levels of awareness among the regions surveyed could reflect the limitation to media access. Thus, the battle of combating the CD problem could be geared towards increasing access to information on the existence of CDs (Newton *et al.*, 2006).

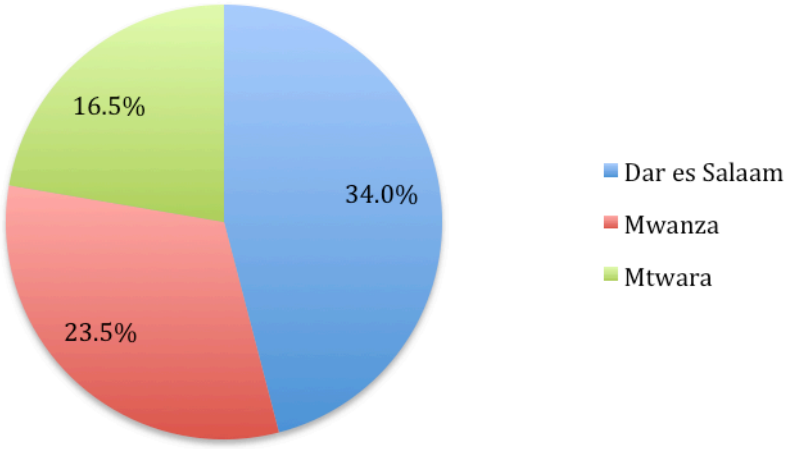


Figure 7 : Level of awareness on Counterfeit Drugs in three regions

4.5 Current practices of verifying medical drugs

Currently, there are some methods that are applied by the community to verify the authenticity of medical drugs. During field data collection it was established that only 41.1 percent of the respondents knew at least one method of verifying drugs authenticity. Amongst these respondents, 68.8 percent were from Dar es Salaam, 9.5 percent were from Mtwara and 21.7 percent were from Mwanza. Regarding the methods, which are used n verifying medical drugs, 50.1 percent said they checked the expiration dates, 13.9 percent indicated that they did nothing, 14.8 percent checked the manufacturer's brand (logo), 17.2 percent checked the quality of the packaging, 2.9 percent examined the visible labels and 1.1 percent used other methods such as colours and smell test as depicted in Figure 6. The survey did not find any technology-based tool for verifying medical drugs in public PSC.

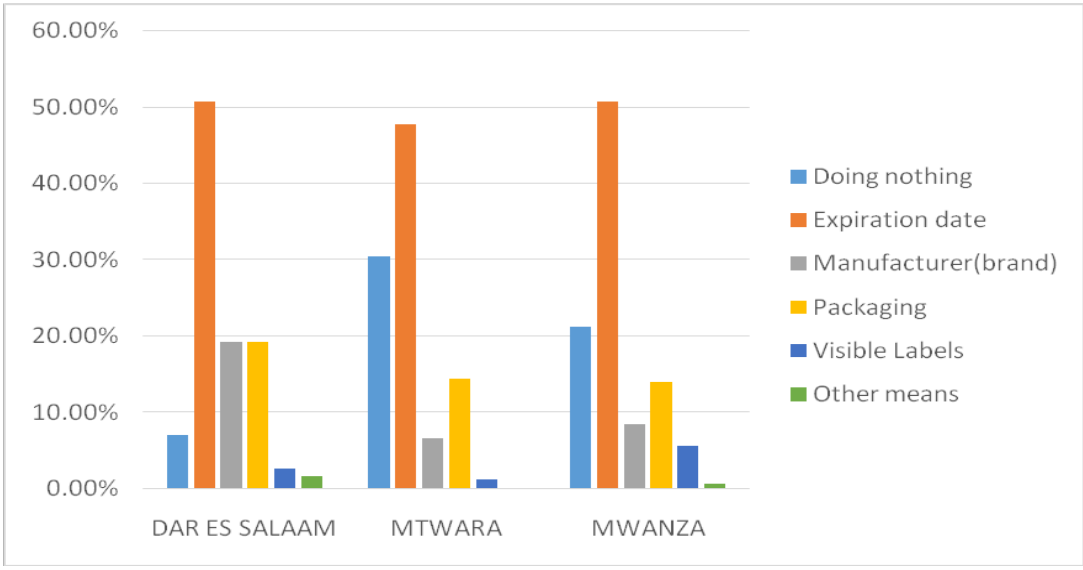


Figure 8 : Methods used to verify drugs authenticity in three regions

The current methods of verifying medical drugs are weak and some are hard to operationalise in the Tanzanian settings. For example, the pilot uptake by TFDA, which used minilabs to improve the testing capacity of regulatory authorities (Peter et al., 2008), has not proved to be cost-effective and did not succeed to reduce the CD problem. Table 2 describes drawbacks of the current practises used by the community and regulatory authorities to verify medical drugs authenticity. Moreover, current efforts to combat CDs encounter gaps which need to be bridged to ensure a secure medical drugs service.

Table 3 presents the gaps of the current efforts for combating CDs.

Table 2: Current Practices on Verifying Medical Drugs

SN	Current Practice	Weakness /Drawback
1	There are machines for validating the quality of medical drugs at the regional pharmacist offices.	- The machines are few and only few samples are tested. - Lack of experts for operating these machines.
2	The use of expiration dates to validate medical drugs before consumptions.	- The large community is illiterate. - Expiration dates can be easily forged.
3	The use of difference in price and sources of medical drugs.	- Sources can be forged easily.

4	The use of packaging style and labels.	- These metrics are weak and are easily forgeable.

Table 3 : Gaps in the current approaches of combating counterfeit drugs

Gaps	Implications	Strategies
Lack of co-ordination among stakeholders	No comprehensive programme on combating counterfeit drugs. Difficulty to trace the suspect, as there are no terms of reference on cases that may cut across authorities.	Develop national taskforce on stakeholder coordination. (Terms of reference for key play players in the supply chain). Develop a national health interoperability framework to streamline the inter-sectoral co-ordination in combating CDs. Develop database of counterfeit drugs and alert system upon detection.
Lack of community awareness on the severity of the CDs problem.	There are no serious community campaigns on the severity of CDs	Develop awareness campaigns on the impact of CDs through media (e.g. TV and Radio). Increase regular workshops for the specific PSC stakeholders.
There is weak law on counterfeit Drugs.	No deterrent sanctions	Strengthen legislation by enacting and enforcing laws against drugs counterfeiting.

4.6 Opportunities for Combating CDs using technology

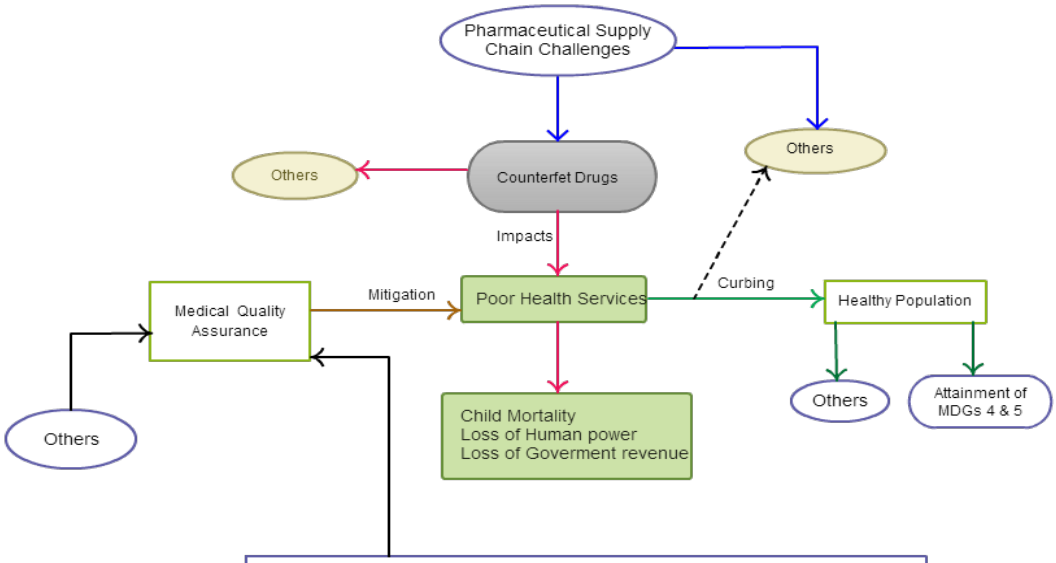
The tremendous adoption of mobile technology in communities could be a stepping-stone in devising methods of reducing the magnitude of CDs. The statistics from International Telecommunications Union (ITU) report that mobile phones are now in the hands of more than 96 percent (6.8 billion) of the seven billion global population, 128 percent in developed countries and 89% in developing countries (ITU, 2013).

In Tanzania, the mobile penetration by the end of 2013 was 61 percent according to TCRA (TCRA, 2013). Similarly, field data in this study report shows that 83.2 percent of the respondents owned mobile phones, 29 percent smartphones and 71 percent basic phones.

Regarding the services that are commonly accessed by these mobile phones, 33 percent use SMS, 51.1 percent voice calls and 15.9 percent access Internet services with their mobile phones. This growth could be an important asset in the development of any solutions for combating CDs in Tanzania such as awareness creation campaigns and even mobile-based drugs verification systems.

Another stepping-stone in the war against CDs is the serious readiness of the key stakeholders. In the focus group discussions with key informants, the researchers recognised the serious desire of different stakeholders in addressing the CD problem. For example, the participants from the Tanzania Food and Drugs Authority (TFDA) and Medical Store Department (MSD) reported how the CD problem affected the quality of services and expressed their readiness to join efforts aimed at solving the problem. Besides, the study indicates that 97 percent of respondents expressed their readiness to explore the use of technology in verifying medical drugs. This study calls for the authorities such as the Ministry of Health and Social Welfare (MOH&SW) to recognise and organise the efforts from various stakeholders to forge a joint national taskforce to combat CDs.

Other strategies that could be implemented to curb the existence of CDs in PSC include the use of technology-based solution, which is touted to be an effective uptake in the process of mitigating CDs. The proven adoption of ICTs, especially mobile technology, could be leveraged to enable laws and regulation enforcement, raise community awareness on CDs, enable consumers to verify drugs, enable data-driven decision and policy-making process and eventually the realisation of a sustainable and secure public healthcare system. Figure 6 presents a proposed conceptual framework of building national medical quality assurance technology-based system:



Mobile Technology Based Solution	
Description	**Supply Chain Actor**
Enable community awareness creation	Consumers
Enable enforcement of Laws and Regulations	Manufactures, Wholesalers, Distibutors,Pharmacies.
Enable medical drugs verification	Consumers
Enable data driven policy and decision making	Medical drugs regulators and distributors
Enable tracking and tracing in the pharmaceutical supply chain	Medical Drugs regulators

Figure 9 : Proposed conceptual framework of a national medical quality assurance-technology based system

The study has identified potential actors in Tanzania's PSC and their roles. The actors include manufacturers, public and private wholesalers, the DMO, pharmacies, street markets, consumers, TFDA (enforcement agency) and Ministry of Health and Social Work (MoH&SW).

4.7 Impact on policy and practice

The use of ICTs in tracking and tracing the PSC can play great role in combating counterfeit and eventually improve the decision-making process. Combating counterfeit medical drugs can ultimately lead to improved health services that reduce child mortality rate, loss of manpower, loss of government revenue through illegal production of fake drugs and eventually improve national economic stability.

4.8 Conclusion

Combating CDs at the national level is a shared responsibility involving relevant government agencies, pharmaceutical manufacturers, distributors, health professionals, consumers and general public. Therefore, the Tanzania government needs to create an environment that will allow different stakeholders to co-ordinate efforts in the battle against CDs. After all, technology itself and on its own is not panacea in the battle against the menace poised by

CDs, a collection of efforts needs to be realised. In a more proactive manner, community Health Workers (CHWs) can play role of raising awareness on CDs among the patients. CHWs should report any suspected medicines and reach out to any other patients who might have taken the medicines too. Also, the media can help by reporting responsibly and accurately on the danger of purchasing medicines from unsafe sources and spreading the word to alert the patients whenever counterfeit medicines were found. Authorities, on their part, can fight counterfeit medicines by supporting CHWs, putting proper legislation in place, financing secure health systems, working with the police and customs to ensure the imports are well-inspected. Generally, the CD problem is beyond the national boundaries; it is a transnational problem. Thus, there is a need to foster inter-country, sub-regional and regional co-operation in the fight against the CD scourge. However, the battle should start with national strategies regarding CDs. In this regard, the Tanzania government and pharmaceutical industry must communicate the danger to ensure public health remains safe and secured.

4.9 Future work

The guidelines introduced by WHO (1999) suggest that to arrive at a concrete solution, the magnitude of CDs need to be understood, the PSC need to be deeply understood, legal procedures on CD crimes need to be understood and the need for technology-based solution must be assessed in the local context. Therefore, future work needs to work along these guidelines to realise the efforts on combating CDs in Tanzania.

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The Roles of Web 2.0 Tools in Socio-Economic Development of Individuals and Societies in Developing Countries

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Abstract

Internet technologies have changed the way we share, collaborate and disseminate information. The new era of web tools and technologies known as Web 2.0 has provided a set of tools and technologies such as social networks, blogs and wikis which facilitate people's connectivity, knowledge sharing, and comment posting to the world community. This paper presents findings of a research conducted to determine the impact of these tools on the socio-economic development of the individual and the society. Data were collected through the use of structured questionnaire and interviews. The findings show that many participants used web tools and technologies for business purposes, education and governance, which constitute ways of getting income and skills necessary for the individual and community to function and contribute to the development of society. Web 2.0 was also found to maintain connectivity between family and friends who are separated by a distance. It can, therefore, be concluded that Web 2.0 tools help in the development process and, hence, play a role in the reduction of poverty.

Keywords: Web 1.0, Web 2.0, blogs, wikis, Google hangout, World Wide Web.

1. Introduction

The twenty-first century has been witnessed a proliferation of many Internet technologies that are radically changing the ways we create, share, collaborate on and publish digital information through the Internet. In recent years, changes on how the Web can be used for different purposes to bring about social and economic changes have occurred. It is through these changes that Web 2.0 tools and technologies have evolved and spread around the world and are being used by millions of people (Baltaci-goktalay & Ozdilek, 2010). The word Web

2.0 refers to the second generation of the services and applications available on the World Wide Web (www) that let people share, collaborate and disseminate information, documents and media online. These web services have added interactivity to what we already knew as Web 1.0, the Internet technologies that did not allow the users to interact with the content or the publisher of the content and were unidirectional in nature (read-only). This is contrary to the more user-friendly Web 2.0 technologies, which have been used in many areas to bring about social, economic and political changes. Nugulthama (2012) notes that Web 2.0 tools such as blogs, wikis, Real Simple Syndication (RSS), Google hangout podcasts and social networks such as Facebook, Twitter, LinkedIn, Google+, and Instagram are widely used and have a great impact on the development of societies. The number of social network users in the world was expected to reach 1.8 billion by the end of 2014 (Maro, 2014). This increase is due to the development and increase

Hoegg (2012) has shown that there are many ways in which Web 2.0 technologies can be used for socio-economic development particularly in education, business, governance, health and many more. In the business world, these tools have paved a way to the development of entrepreneurial skills. People have made use of the web for financial gains. In addition, the use of web tools particularly social media has increased the number of customers buying different goods, services and products. With Web 2.0, service firms and retail businesses can monitor their products and services by getting real-time feedback from their customers; they can also track the different activities being done by the customers and in a way be able to engage them in their business (Jagongo, 2013).

Generally, these tools and technologies have become ubiquitous because of the development of different Internet technologies and the improvement of the prices of the mobile devices including mobile phones. The ICT Facts and Figures report (ITU, 2013) shows that by the end of 2014 the projected number of users of the internet was 2.93 billion, about 40.4 percent of the total world population. The report further predicts that mobile-broadband penetration was expected to reach a 3 billion mark globally while in the developing countries, the penetration was expected to reach 84 percent. In Africa alone, 69 percent of the population was expected to be reached by mobile-broadband connection. Table 1 compares the statistics of Internet usage for five different years:

Table 1: Global Internet usage

Year	Population (Billions)	Internet users	%
1995	5,741,822,410	44,838,900	0.8%
2000	6,127,700,430	413,425,190	6.7%
2005	6,514,094,610	1,029,717,906	15.8%
2010	6,916,183,480	2,034,259,368	29.4%
2014	7,243,784,121	2,925,249,355	40.4%

Source: ICT Facts and Figures 2014 – ITU

2. Research Objectives

This paper is based on the findings of a study that was aimed at investigating the use of Web 2.0 technologies as a means for fostering socio-economic development in a bid to reduce poverty in Tanzania. The study looked into the ways in which web technologies can be used for financial gain to promote development at an individual and national level.

3. Research Methods

The instruments used in this research were documentary review, the questionnaire and interviews. A number of literatures were examined to determine the impact of Web 2.0 tools. On the one hand, the questionnaire consisted of questions that were structured to be answered by the participants. These questions were aimed at getting data on the use of Web tools and technologies for socio-economic development in Tanzania. The questionnaire consisted of six (6) questions that were administered with a group of people including students from the University of Dodoma whereas the other group consisted of both teaching and academic staff. There were also a few feedbacks from different online groups where the questions were posted. These were combined with the feedbacks from other groups and the results are presented in the next section. The questionnaire was distributed to 96 participants (67 students and 29 online respondents) and the data obtained was analysed using the Statistical Package for Social Sciences (SPSS) to generate descriptive graphs as displayed in section 4.On the other hand, interviews were conducted with 15 people to get the views on how they

use these Web 2.0 tools and technologies specifically in bringing about individual gains and socio-economic development. Most of the respondents provided feedback that was directly translated to contribute to both individual development and national development.

5. Results and Discussion

A structured questionnaire with both open and closed end questions was distributed and the responses were collected from a group of 96 respondents. The responses from the different questions are presented sub-sections 4.1 through 4.4.

6. Contribution of Web Technologies to Socio-economic Development

The respondents were asked a question on whether Web technologies were important in socio-economic development. From the responses, 42.6 percent strongly agreed that these tools played a role in the socio-economic development, 52.9 percent just agreed and only 4.4 percent did not agree. Figure 1 depicts these results graphically.

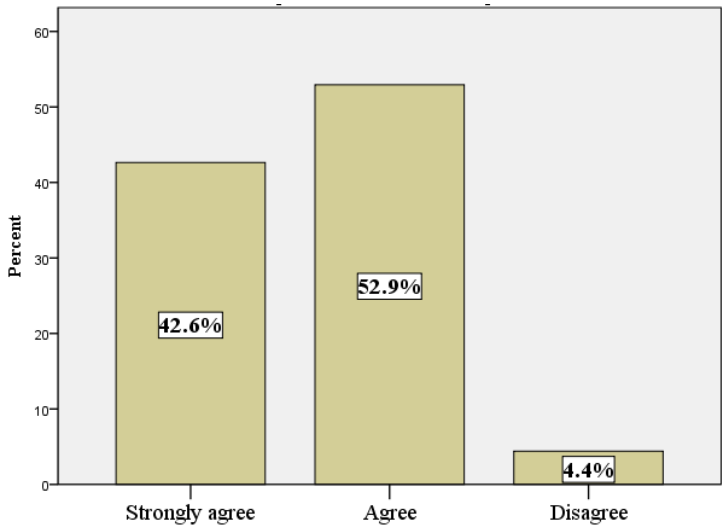

Figure 1: Importance of Web tools and technologies in socio-economic development

7. Impact of Web Technologies on Other Sectors

When asked about the impact of Web tools and technologies on other sectors such as health, education, governance and business, the respondents indicated that these technologies were more widely used in business than in any other sector, and hence greater impact. Sections 4.2.1 through 4.2.4 discuss the responses on the different sectors and graphical representations of the results.

7.1 Web 2.0 Technologies in Business

Most of the participants agreed that the technologies played a significant role in the business sector. It is by doing business that some individuals get financial capital which, in turn, helps to bring about personal and national development (Jagongo, 2013). In this case, 60.61 percent of the participants said that the level of acceptance in the business sector was high, 34.85 percent said that the level of acceptance was medium. 3.02 percent indicated a low level of acceptance while 1.52 percent did not see any role played by the technologies in the business sector. Figure 2 shows the impact of Web technologies on the business sector.

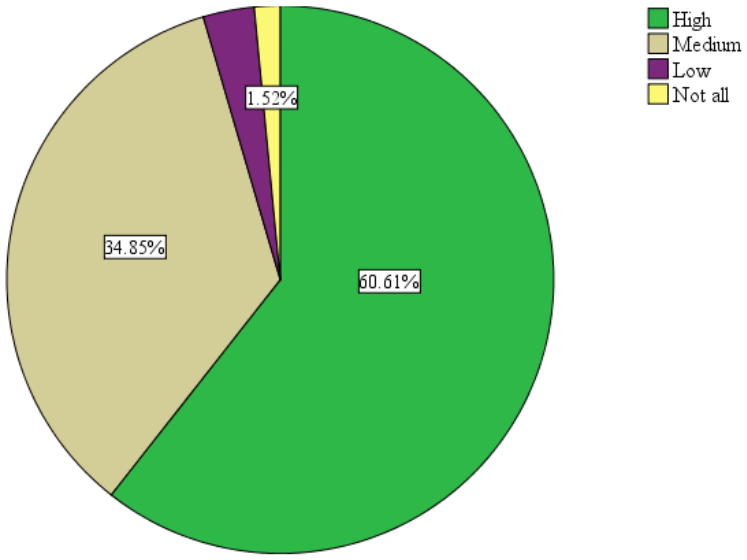

Figure 2: Web 2.0 technologies in business promotion

76.2 Web 2.0 Technologies in Education

Web 2.0 tools have facilitated the process of accessing education, especially online education. Usluela and Mazman (2009) have discussed the different Web 2.0 tools that are easily adopted in education. The findings show that 40.9 percent said that web technologies have a high impact on promoting education whereas 48.5 percent replied that the impact of these technologies on education was medium. Those who said that the impact of technology on education was low constituted 9.1 percent and those who did not see the impact at all made up 1.5 percent. Figure 3 shows the impact of web technologies on promoting education:

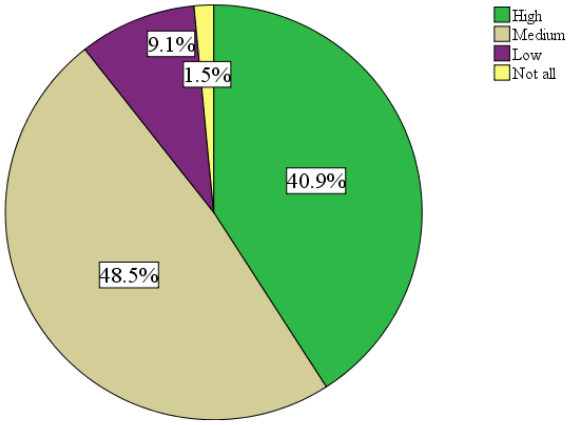

Figure 3: Contribution of Web 2.0 in the education sector

76.3 Web 2.0 in Health

The research findings show that Web 2.0 technologies are used in promoting health in that 22.1 percent said that the impact of web technologies on promoting health was high, 54.4 percent responded by saying that the impact to the health sector was medium with only 2.9 percent said they were not able to see the impact. This impact is depicted in Figure 4:

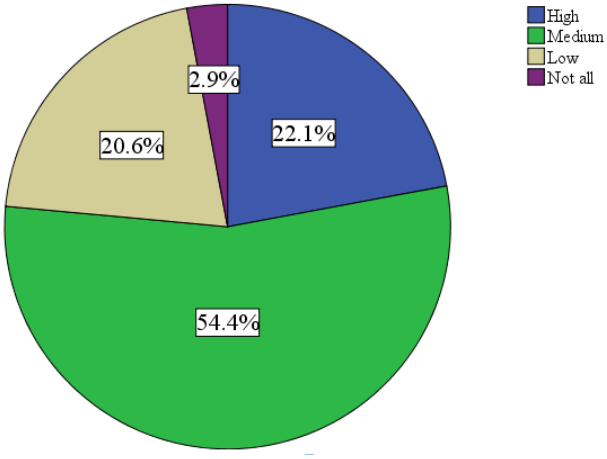

Figure 4: Impact of Web 2.0 in promoting health

7.4 Web 2.0 in Governance

It was reported that using these tools and technologies in governance translated into enhanced accountability and transparency, which in turn promoted development of the nation. Moreover, a report by Accenture (2009) explains how Web 2.0 enables more effective citizen engagement and collaboration within the community they live in. In Tanzania, for example, social media have gained popularity as a way to reveal some issues in which the government has to intervene and take actions. Figure 5 displays how Web 2.0 tools can help in promoting good governance. As observed, 20.9 percent of the respondents said the impact is high whereas many of the respondents (55.2%) answered that the impact was mediam. Only 2.9 perecent believe that Web 2.0 tools and technology do not have an impact on governance.

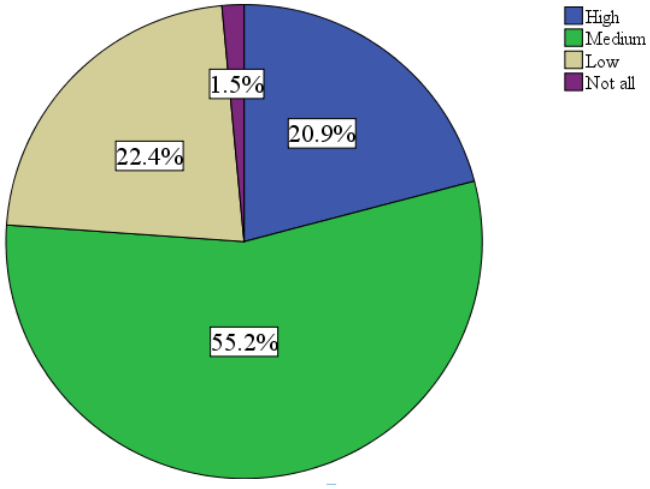

Figure 5: Impact of Web 2.0 in Promoting good governance

8. Purposes of Using Web Tools and Technologies

When participants were asked about how they use the different Web 2.0 tools and technologies, they responded as presented in the following sections.

8.1 Web 2.0 for Education Purpose

It is evident that Web 2.0 tools are well applied in education and have been preferred by many as an alternative way of getting education. When asked about the use of these tools in education, 39.4 percent said they always use them for educational purposes whereas 53.0 percent responded that they often use them. Only 6.1 percent indicated rarely using these tools whereas 1.5 percent never used the tools for education purposes. The findings are in line

with the studies conducted by Shao and Hassan (2014): Figure 6 depicts the use of Web 2.0 tools for education:

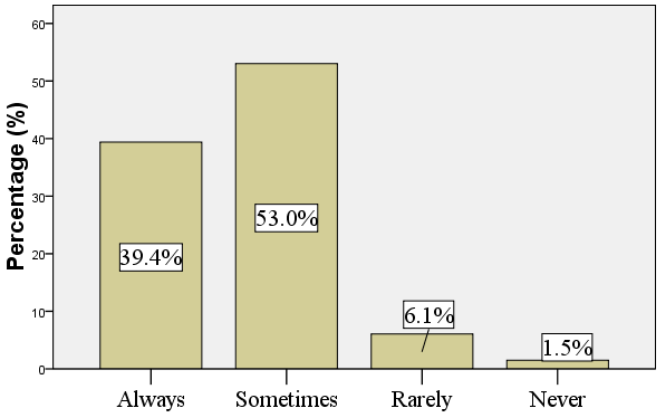

Figure 6: The use of Web 2.0 for education

8.2 Web 2.0 for Business Purpose

From the responses, it is seen that many Web 2.0 technology users used these tools for business purposes. Figure 7 shows the use of Web 2.0 tools for business. In each case, the percentage of users was high: 30.3 percent always used the technology for business, of whom 43.9 percent used them more often and 19.7 percent used the technology rarely.

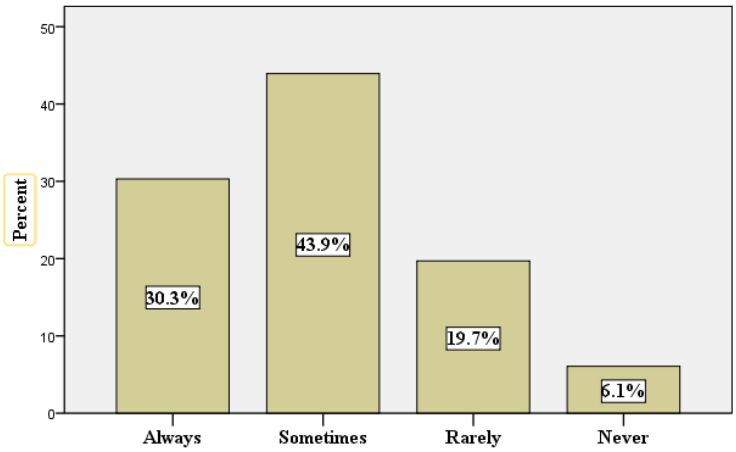

Figure 7: Web 2.0 for business

87.3 Web 2.0 for Connecting Friends and Family

Many users said that they used Web 2.0 tools for connecting with family and friends online. Of these respondents, 68.2 percent always used the tools and 28.8 percent often used them. Figure 8 shows the use of Web 2.0 for connecting with family and friends:

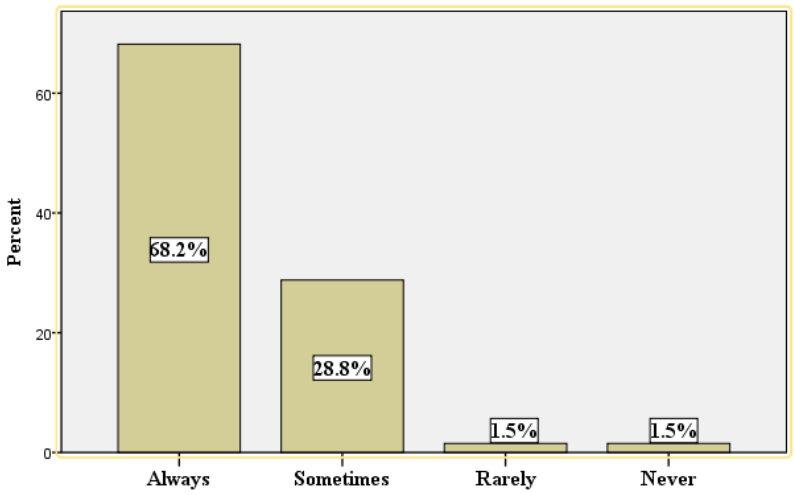

Figure 8: Web 2.0 for connecting family and friends

8.4 Web 2.0 for Getting Information

Some respondents said that they use Web 2.0 technologies to get information on various issues such as employment, headlines of different newspapers, and announcements from various public and private institutions. The information obtained in this case can create opportunities for the individuals to venture into different socio-economic endeavours and hence help trigger personal and national development.

8.5 Web 2.0 for Engaging in Social Groups

By engaging in social groups, one can get some useful information and techniques on how to venture into business or how to make effective start-ups. This has been evident in businesses such as "Forever Living" products which operate using networks. Figure 9 shows how participants engaged in social networks, with more than 30 percent of each category engaged in the use of social networks:

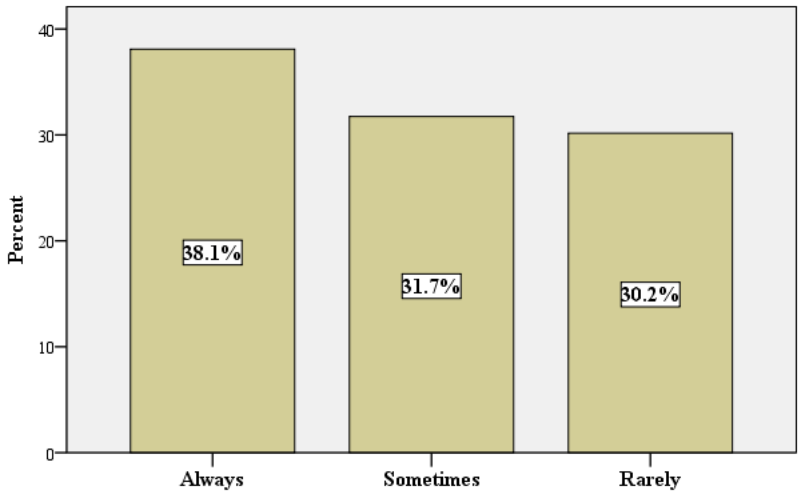

Figure 9: Web 2.0 for engaging in social groups

9. Use of Web 2.0 for Personal Income Generation

In this question, the participants were required to explain briefly how they use Web 2.0 tools and technologies for individual income generation. The overwhelming majority (88.89%) used for advertising goods and services to customers whereas very few (5.56%) used the technologies for posting product and service description and network marketing. Figure 10 shows how the technologies are used in generating personal income. While undertaking network marketing, people can acquire skills on how to do some business and in a way earn money. In this way they increase their personal gains.

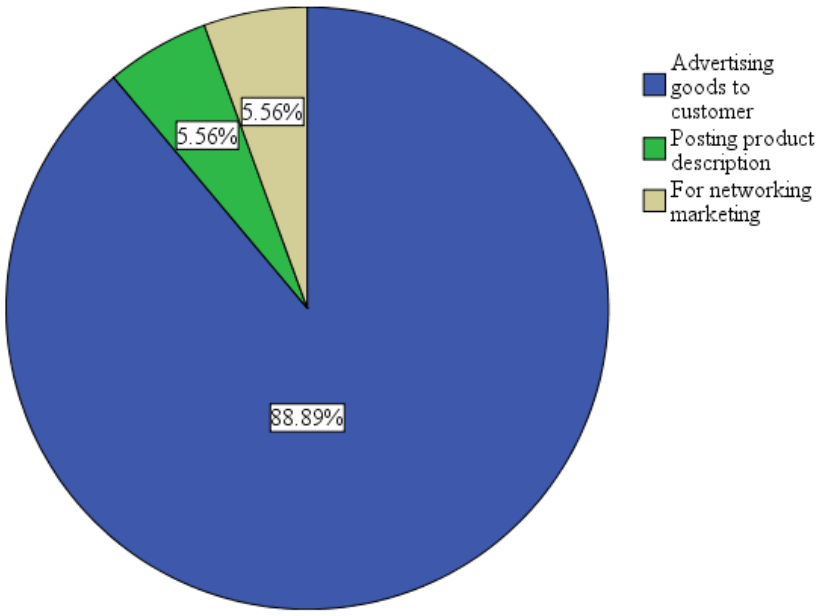

Figure 10: Web 2.0 for personal income generation

10. Impact on Policy and Practice

The use of different Web 2.0 has played an important part in the development of an individual as people can use these tools to increase their financial gains, especially by using these tools to advertise goods and services. Business can also be made in many ways including making advertisements on the pages of blogs and other social networks. In fact, the 2003 National ICT Policy envisages Tanzania to become a hub of ICT solutions that enhances sustainable socio-economic development that will accelerate poverty reduction at the national and global levels**.** This is true because the use of ICT in our daily activities facilitates development and, therefore, the Tanzania government has embraced the use of ICT as a strategy to empower citizens in the fight against poverty and improve the quality of their lives.

11. Challenges to the Use of Web 2.0 Technologies

Despite the positive impact of the use of Web 2.0 tools and technologies on society, there are many challenges associated with the use of these tools. For example, using Web 2.0 tools leads to information overload. This is because information is readily available in which the user can get overloaded by the information floated to him/her through Web 2.0 technology. The technology has also been able to unite people for a common action with the aim of fostering accountability and transparency in political leadership. This was the case with the Tunisia and Egypt Arab Spring of 2010 and 2011, respectively, where protesters were moved due to the high levels of unemployment, long serving leaders, food inflation and governmental corruption (Darwish & Lakhtaria, 2011).

On the other hand, the Web 2.0 platforms can be detrimental to the moral fabric of society. Indeed, in some cases, Web 2.0 and social media users are free to post status, comments, images and videos clips. Some of these posts may degrade the moral values of the society.

12. Conclusions

The findings of the study presented in this paper demonstrate that Web 2.0 tools can be used to promote the socio-economic development of an individual and the nation at large. The ways through which technologies can be used to foster development include advertising

goods and services, network marketing, getting updates with useful information from public and private institutions which have a presence on these Web 2.0 tools. However, to be more effective in using these technologies to increase financial gains, education and awareness should be provided to the Web 2.0 users on how best these tools can be used to maximise financial gains and to boost economic development. On the whole, a well-informed society is a source of many changes including sustainable poverty reduction efforts. Thus, it is high time these Web tools were deployed effectively for the development of the individual and the nation at large.

13. Recommendations

If Web 2.0 tools and technologies are used positively, they can help to transform the individual and the society in different spheres including quick access to information, breaking news, and promotion of governance in terms of awareness, accountability and transparency. In this regard, all government websites should integrate social network links so that citizens can get latest updates via their mobile devices by liking the pages. It is also true that social media can act as another voice to different organisations. After all, people tend to get information from social media much more quickly than navigating through the websites looking for the desired piece of information.

As the National ICT Policy of 2003 (URT, 2003) was formalised before many web services were in place, it is high time it was revised and updated to accommodate the evolutions of different Web tools and technologies, which can help promote the development of the individual and the nation at large.

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Access and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania: a case study of Kilombero district

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Abstract

This paper reports the findings of a study that assessed the accessibility and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania. The study was carried out in six purposively selected villages in Kilombero district, Morogoro region. The study used a sample size of 120 respondents. It employed a case study research design and a combination of quantitative and qualitative data collection methods. Data were collected using documentary review, questionnaires, focus group discussions and observations. Quantitative data were analysed by using Statistical Package for Social Sciences (SPSS) version 16.1 whereas qualitative data were subjected to content analysis. The results of the study show that radio was the most widely used information channel compared to television and newspapers in the study area. Generally, the agricultural information received by respondents through radio was relevant to their farm activities. Moreover, the agricultural information received by the respondents through television and newspapers was only partially relevant to their farming activities. The study findings also established that the barriers to accessing agricultural information through mass media in the study area were associated with poor power supply, poor signals, high cost of purchasing mass media sources, and inadequate feedback mechanism. Therefore, it is recommended that the government should support rural electrification and improve transport system so that modern agricultural mass media sources/facilitates can be more widely available and used in these areas than presently.

Key words: Small-scale farmers, Mass Media, Information, Poverty Alleviation

1. Background information

Agriculture is the backbone of Africa's economy. According to the Economic Commission for Africa (ECA, 2012), about 70 percent of Africans and roughly 80 percent of the continent's poor live in rural areas and depend on agriculture for their livelihood. The sector accounts for about 20 percent of Africa's GDP, 60 percent of its labour forces and 20 percent

of the total merchandise exports. In fact, agriculture is the main source of income for 90 percent of rural populations in Africa. According to the Tanzania Economic Forum (2011), the agricultural sector accounts for 85 percent of exports, and employs 85 percent of the workforce and 75 percent of foreign exchange earnings and contributes about 25.8 percent to the national GDP (United Republic of Tanzania [URT, 2008).

The need for agricultural information for the rural people, especially rural farmers, cannot be taken for granted. Agricultural information is considered as one of the most important resources in agricultural and rural development that assists the farmers to make decisions and take appropriate actions for further farming-related development (Stefano *et al*., 2005). Despite of its importance, Ozowa (1995) opines that the vital role played by scientific and technical information for agricultural and industrial development in developing countries is still neglected and accorded a lower status than other sectors. This view is also supported by Alam and Haque (2014) who argue that most of the farmers in rural areas still lack of information and modern agricultural knowledge.

Mass media approaches to agricultural information dissemination generally are useful in reaching a wide audience at a very fast rate. They are useful as sources of agricultural information to farmers in addition to constituting ways of notifying farmers of new developments and emergencies. Mass media could play an important role in disseminating information towards agriculture development and, hence, poverty alleviation. They are seen as a critical resource in the promotion of agricultural development, with a power to alleviate poverty (Gopalakrishna, 2005).

2. Problem Statement

Adequate and relevant information from any means of communication is one of the key requirements for increased productivity and increased income, which could ultimately lead to poverty reduction among the food producers (Nkrumah, 2008). In this regard, communication technology is playing very important role in raising awareness on different agricultural technologies among farmers. For example, the mass media offer powerful channels for transferring agricultural messages and related information which can enhance poverty reduction of rural farmers. Mass media have the ability to disseminate information to large audiences efficiently (Nazari & Hassan, 2011). In addition, Mahmood and Sheikh (2005)

assert that the mass media constitute one the best sources of disseminating information on new technologies and new agricultural innovations of among farmers, and are faster than personal contacts. The achievement of agricultural development programmes in developing countries largely depends on the nature and extent of use of the mass media in the mobilisation of people for development. The planners in developing countries recognise that the development of agriculture could be speeded up through effective use of the mass media (Purushothaman, 2003).

Despite the potential the mass media have exhibited in the provision of agricultural information for poverty alleviation for both rural and urban communities, it is not known how these media can facilitate access and use of agricultural information towards poverty alleviation among farmers in Tanzania. Kilombero district was used as a case study to assess how mass media can facilitate easy access and use of agricultural information for poverty alleviation among farmers in Tanzania. Specifically, the study aimed at:

a) Identifying the different sources of mass media used by farmers to access agricultural information.

b) Examining the relevance of agricultural information received by farmers through the mass media.

c) Identifying the constraints farmers face in receiving agricultural information through the mass media and recommend solutions to addressing such constraints.

3. Literature Review

This section reviews literature related to the study topic. The literature review is organised around broad themes and covers the following areas: the role of the mass media in accessing agricultural information, the types of mass media used in accessing agricultural information, the challenges farmers face in accessing agricultural information through the mass media and the research gap that the study sought to fill**.**

4. Role of mass media in accessing agricultural information in Tanzania

The mass media are considered to be an effective tool in disseminating agricultural information among farmers and they constitute the most powerful mass media for disseminating information quickly (Kakade, 2013). Moreover, the mass media are essential in

providing information for enabling the rural community to make informed decisions regarding their farming activities, especially in the rural areas of developing countries (Lwoga, 2010). For instance, a study by Ariyo (2013) in Nigeria found that most of the farmers receive agricultural innovations through the mass media. Also, Abu Hassan *et al*. (2009) conducted a study on the use of the mass media among farming communities in the rural areas and found that the majority of them still depend on the "traditional mass media" such as, newspaper, television and radio, thus raising a probability that these three mass media sources can be effective sources of agriculture information among the farmers in rural areas. Furthermore, a study by Farooq (2007) in Pakistan found that the leading agricultural information sources were print media.

The mass media in Tanzania have evolved overtime since independence (Kasanga, 1999). It is acknowledged that there are currently close to 47 FM radio stations, 537 registered newspapers, a dozen television stations and 25 cable television operators in Tanzania (Tanzania Media Fund [TMF], 2012). However, according to Mlozi *et al*. (2012), in Tanzania, agricultural information is mainly disseminated through agricultural extension officers and farmer-to-farmer extension.

5. Types of mass media used in accessing agricultural information

The mass media include farm magazine, leaflets, newsletters, newspapers, pamphlets, radio and television (Dare, 1990). Generally, the mass media can be classified as print media and electronic media (Farooq, 2007). Various mass media communication channels have been used by farmers to receive agricultural information. Some of these media have been discussed below.

5.1 Radio

Radio has been used as a powerful communication tool that has proven to be the most effective media in stimulating agriculture and the development in the rural areas (Nakabugu, 2001). Omenesa (1997) observes that radio programmes are usually timely and capable of spreading messages to the audience no matter where they may be as long as they have a receiver with sufficient supply of power. The absence of facilities such as roads, electricity and piped water are no hindrance to radio broadcasts. In fact, when used efficiently, the radio can provide broad information about agriculture quickly and accurately to a large number of

farmers and create awareness of extension production recommendations (Ozowa, 1995). Indeed, radio is the most preferred tool of mass communication in Nigeria (Zaria & Omenesa, 1992; Omenesa, 1997; Ekumankama, 2000). A further study by Alam and Haque (2014) in Bangladesh found that radio and television have been useful sources of agricultural information to farmers in addition to constituting methods of notifying farmers of new agricultural innovations and emergencies.

Since the 1960s, radio programmes in Tanzania have been playing a significant role in information dissemination. Moreover, Mbwana (1994) identifies problems associated with radio broadcast information as uncertain reliability (few broadcasts use professional agricultural staff), difficulties in knowing when agricultural broadcasts will occur, and choice of agriculture issues to be discussed, choices that are often made according to sponsors interest rather than the information user needs, in this case those of farmers.

5.2 Television

Television is one of the mass media that can be used for disseminating information, making use of a variety of techniques, ranging from lectures and demonstrations to panel discussions, interviews and dramatisations (Majed, 1990). This tool is one of the great channels of mass media, which communicate information very fast on agricultural technology among the farming community. Through such communication technology, agriculture-related information can be transmitted easily to the farmers (Irfan *et al*., 2006). A study in China by Yu (2010) shows that about 90 percent of the farmers interviewed obtained information from television. Furthermore, study by Alam and Haque (2014) carried out in Bangladesh found that the highest percent of agricultural information was adopted thanks to the use of television.

On the other hand, a study by Omosa (1998) conducted in Kenya found that television ownership and use in rural areas remained quite low and, thus, could not be relied upon to share agricultural information in such areas. Similarly, Kiondo (1998) affirms that the low level of access to television as source of information was a common feature in most developing countries. Furthermore, a study carried out in Tanzania by RLDC (2011) reported that television sets are not used on a wide scale to access agricultural information due to inadequate power supply and high costs. Chhachha *et al*.'s (2012) findings in Pakistan show

that the only 18 percent of respondents preferred to watch agriculture-related programmes on television and 54.3 percent respondent understood that television was not the main source for disseminating agriculture information among farmers.

5.3 Print media

Print media refers to written words in the form of leaflets, brochures, posters, journals, newsletters, newspapers, magazines, bulletin boards, etc. Printing helps preserve information in the form of books, booklets, brochures, newspapers, and magazines (Irfan *et al.,* 2006). With print media, information is permanent and sustainable, easily accessible, and easily duplicated and distributed (Wesseler & Brinkman, 2002). Farmers can use print media alongside other communication channels to strengthen the learning process of farmers. For instance, a study by Farooq *et al*. (2007) in Pakistan found that farmers relied more on the print media such as pamphlets followed by posters, newspapers, book/booklets, magazines and journals in getting agricultural information than on any other source. In Tanzania, a study by Lwoga (2009) shows that very few farmers made use of printed materials, such as leaflets, posters, books and newsletters to access agricultural information. This can be attributed to the language used, their availability as well as affordability.

6. Challenges farmers face in accessing agricultural information through mass media

Several barriers to accessing agricultural information through the mass media by farmers have been identified. For example, Mtega and Benard (2013) found that the major barriers to accessing agricultural information through mass media for farmers included relatively narrow coverage of the mass media, high level of illiteracy among rural communities and high poverty level. Furthermore, a study by Ramli *et al.* (2013) in Pakistan identified as a problem competition such farming information had to face from other categories of programmes such as news, entertainment, and sports coupled with unsuitable air time of the television and radio agriculture programmes. As a result, the farmers faced challenges in accessing and using agricultural information derived through the media. There was also a problem of limited rural electrification, which has to a great extent reduced the effectiveness of television in rural areas where most farmers dwell (Mtega & Msungu, 2013). Moreover, a study by Mgbakor *et al.* (2013) revealed that language and inappropriate time for broadcasting agricultural

information were the main problems hindering farmers from accessing agricultural information through the mass media.

The literature reviewed thus far shows that studies have varying been conducted on the accessibility and use of the mass media in accessing agricultural information by farmers. However, the accessibility and use of mass media by small-scale farmers in accessing agricultural information for poverty alleviation in Tanzania, especially in Kilombero, Morogoro region in Tanzania has not been adequately addressed. This is the gap that this study set out to fill.

7. Research Methodology

A cross-sectional research design was used in this study. The design allows a scholar to collect data at once in a single point. The nature of the study objectives dictates the acceptance of such kind of a research design. Three wards—Ifakara, Lumemo and Kibaoni—from Kilombero district in Morogoro region were studied. Kilombero district was selected because it is one of the areas where agricultural production among small-scale farmers was high and the mass media infrastructure was comparatively more decent in the area than in other rural-based districts (Kato, 2007).

In this study, both random and non-random sampling techniques were used. Purposive sampling was used to pick the wards and villages to be included in the study. John and Christensen (2004) argue that purposive sampling relies on the decision of the researcher, centred on some well-known criteria. In this regard, the three wards of Ifakara, Lumemo and Kibaoni were selected purposively. These wards are areas rich in agricultural production and have a relatively high development of mass media infrastructure compared to other wards. In each ward, two villages were selected purposively, hence the six study villages. The sampling process required the development of a sampling frame. As such, a list of all the farmers in the selected villages contained in the government office was drawn in co-operation with the Village Executive Officer (VEO) in each village. Thus, 20 respondents were randomly selected from each village to bring the sample size of 120 respondents. Saunders *et al*.(2007) argue that a sample size of 30 or more usually results in a sampling distribution that is close to the normal distribution and the larger the absolute size of a sample, the closer its distribution will be to the normal distribution. Simple random sampling was used since it

gives each case in the population an equal chance of being involved in the sample (Singleton, 1993).

Data were collected from the respondents through the use of a questionnaire that was administered with 120 respondents. Both closed and open ended questions were incorporated in the questionnaire. Moreover, focus group discussion and personal observation were also carried out to supplement information. The quantitative data collected from questionnaire was coded and summarised prior to analysis by using the Statistical Package for Social Sciences (SPSS) version 16.1. The researchers utilised descriptive statistics, such as frequencies, percentages in data analysis. Qualitative data, on the other hand, was subjected to content analysis.

8. Study findings and Discussion

This chapter presents the findings of the study and the discussion of the findings. The discussion based on objectives of the study.

9. Background Characteristics of Respondents

The findings presented in Table 1below summarise the demographic characteristics of the respondents. The results show that 55 percent of the respondents were males and 45 percent were females. About 41.25 percent of the respondents were in the age group of 31-40 years, 25.8 percent were aged of 41- 50 years, 3.3 percent were aged below 20 years. In other words, most of the respondents were in their productive age. With regard to the marital status, the findings show that about 67.5 percent of the respondents were married, 20 percent of the respondents were single, 6.5 percent were divorced and six percent of the respondents were widowed. This means that a great majority of the respondents in the study area were married couples.

On the other hand, the results show that the majority of the respondents (77.5%) had completed primary education, 9.2 percent reported that they had never attended any education, 13.3 percent of the respondents had secondary education. This means that the respondents were moderately educated, hence able to read and write. In this regard, they were in a position where they could receive agricultural information through various sources including the print media.

In addition, the majority of the respondents (38.3%) had a farm size of 1-2 acres, 29.2 percent had a farm size of 3-4 acres, 28.3 percent had a farm size of above four acres and only 4.2

percent had a farm size below one acre. This shows that small holder farmers were in the majority in the study area. This dominance is a common in Tanzania where farming is dominated by subsistence and peasant farmers as opposed to commercial or large-scale farmers. Other studies by Shao (2007) and Matovelo (2008) came up with similar findings. Also, the findings presented in Table 1 on farming experience portrays that 49.2 percent of the respondents had experience of above 15 years in farming, 23.3 percent had experience of 10 - 15 years, 19.2 percent of the respondents had experience of less than five years with only 8.3 percent of the farmers having experience of 5 - 9 years. The implication is that the respondents had generally been involved in farming for many years. The farming experience of farmers to a large extent affects their managerial know-how as well as the use of different extension methods including the mass media (Aina, 2006).

Table 1: Distribution of respondents according to their demographic characteristics (N=120)

Variable		Frequency	Percent
Sex	Male	66	55
	Female	54	45
Age	<20	4	3.3
	21_30	22	18.3
	31_40	26	21.7
	41_50	31	25.8
	51_60	18	15
	>60	19	15.8
Education level	Non	11	9.2
	Primary	93	77.5
	Secondary	16	13.3

Marital status	Married	81	67.5
	Single	25	20
	Divorced	8	6.5
	Widow	6	6
Land size (Acre)	Bellow 1 acre	5	4.2
	1-2 acres	46	38.3
	3-4 acres	35	29.2
	Above 4 acres	34	28.3
Farming experience	Below 5 years	23	19.2
	5-9 years	10	8.3
	10-15 years	28	23.3
	Above 15 years	59	49.2
	Total	**120**	**100**

Table 2: Annual income of farmers

Income	N	%
less than 100 000	24	20.0
100 001 - 200 000	25	20.8
200 001 - 300 000	26	21.7
more than 400 000	45	37.5
Total	**120**	**100**

10. Income level of the farmers

Table 2, which illustrates, the annual income level of the respondents in the study area, shows that 37.5 percent of the respondents earned an annual income of above 400,000 Tshs per year, 21.7 percent had an income of 200,001 - 300,000 Tshs per year, 20.8 percent had an income of 100,001 -200,000 Tshs whereas 20.0 percent earned an income of less than 100,000Tshs per year. This indicates that the majority of the respondents in the study area earned income which was satisfactory to meet their daily needs. This is probably because most of farmers in the study area produced both food and cash crops. This advantageous financial position can have impact on information accessibility. Indeed, an extension officer said that the farmers with good harvests were the ones who frequented their offices, asking for different information and sometimes they went outside the villages in search of information. Swanson (1997) also supports the view that income influences farmer's information source preferences.

Table 3: Source of mass media used by farmers in accessing agricultural information

sources of mass media used by farmers	n	%
Radio	108	90.0

Television	65	54.2
Posters	1	0.8
Magazine/Newspaper	46	38.3
CD/Cassette Video	3	2.5

Table 4: Frequency of use of mass media

Media	Frequencies of use of mass media					
	Frequently		Occasionally		Never	
	n	%	N	%	N	%
Radio	71	59.2	37	30.8	12	10.0
Television	6	5	59	49.2	55	45.8
Posters	0	0.0	1	0.8	119	99.2
Magazine/Newspaper	1	0.8	45	37.5	74	61.7
CD/Cassette Video	0	0.0	3	2.5	117	97.5

Source: Field Data (2014)

11. Sources of mass media used by farmers in accessing agricultural information

The results in presented Table 3 indicate the sources of mass media used by respondents in accessing agricultural information in the study area. The findings reveal that 90.0 percent of the respondents used the radio as a source of agricultural information, 54.2 percent used television, 38.3 percent consulted newspapers/magazine whereas 0.8 percent and 2.5 percent of the respondents used CD/video and posters, respectively as sources of agricultural information. None of the respondents mentioned the use of the internet as a source of information for the farmers in this locality.

This indicates that radio, television and newspapers were the main mass media sources used by the farmers in accessing agricultural information. The results in Table 4 also show that radio was the mostly frequently consulted source of mass media by the farmers in accessing agricultural information. This implies that the majority of the farmers still relied on the "traditional mass media", thus suggesting that these three mass media sources can still be effective sources for agriculture information dissemination among the farmers in the rural areas, particularly in the absence of reliable power supply and ICT infrastructure to support new media in these rural outposts.

Similar findings which show radio as main sources of mass media being used by farmers in accessing agricultural information were observed in other studies such as Meitei and Devi (2009) in India, Agwu and Adeniran (2009) in Nigeria, and Lwoga (2009) in Tanzania. This is probably because the radio is cheap and affordable for most of the farmers. In this regard, Kakade (2013) argues that radio is an extremely economical medium as compared to other extension media and methods involving individual and group contacts. This calls for the government and other information providers to establish more community radio that to assist in disseminating agricultural information to the farmers and, hence, increase their agricultural production and alleviate poverty.

Moreover, higher percentages of respondents claimed to have never used posters, CD/cassette video and newspapers in the study area as sources of mass media in accessing agriculture information. This was not surprising because Hassan et al. (2011) also found such low usage of posters and CD/cassette video technology in accessing agricultural information in Malaysia. This could be contributed by lack of power supply, low level of education, unavailability and lack of awareness on the use of CD/cassette video as agricultural information sources.

Table 5: Farmers' convenient time for listening to agricultural-based broadcasts

Time	N	%
Morning	20	16.7
Afternoon	7	5.8
Evening	49	40.8
Night	44	36.7

Source: Field Data (2014)

12. Farmers' convenient time for listening to agricultural broadcasts

The results presented in Table 5 depict the farmers' convenient time for listening to agricultural broadcasting programmes. The findings show that 40.8 percent of the respondents prefer listening to agricultural broadcasts during evening, 36.7 percent prefer during the night , whereas 5.8 percent prefer listening to agricultural broadcasting programmes in the afternoons. Farmers were found to be involved in either farm or home activities almost throughout the day. It was evident that a convenient time for listening to any agricultural programme was very important but time consuming. Therefore, any agricultural programme that needs the attention of the farmers has to be aired at an appropriate time of the farmers. Due to their preoccupations during the day, the majority of the farmers in this study reported listening to agricultural programmes in the evening hours. This finding is not in line with that of Yahaya (2001) who suggests that farmers own functional radio sets and prefer listening to agricultural programmes during morning and night hours of the day. The difference in time zone, the nature of economic activities and cultural difference might explain this discrepancy. Also, a radio receiver can be carried anywhere and thus can allow the farmers to listen to the programme as they laboured with farming chores. The implication is that media owners and other information providers have to be creative in setting the convenient time for the farmers to ensure that they were able to listen to the agricultural broadcasting programmes targeting them.

Table 6: Frequency distribution of relevance of agricultural knowledge farmers' gain through the mass media

	Frequency		percentage			
	very relevant		Relevant		Not relevant	
	N	%	N	%	N	%
Television	20	30.7	45	69.2	55	84.6
Radio	7	6.5	61	56.5	40	37
Poster	1	0.8	11	9.2	108	90
Magazine	0	0	22	18.3	98	81.7
CD	0	0	9	7.5	111	92.5

Source: Field Data (2014)

13. Relevance of agricultural knowledge that farmers gain through mass media

Ferris (2005) argues that access to accurate, timely and appropriate information enables farmers to make better informed decisions on what to produce, when to produce and where to sell it. Those who have timely access to relevant information can make more rational decisions than those without it. The research findings presented in Table 6 show that most of the information that was aired through radio was relevant to the farmers' needs. This implies that radio agricultural programmes are relevant because the knowledge gained helps farmers to improve their agricultural activities, hence improving the farmers' livelihoods. Omenesa (1997) observes that radio programmes are generally timely and capable of spreading messages to the audience no matter where they are as long as they have a receiver with adequate supply of power with them.

However, a great deal of information that was accessed through magazine, posters and television was found to be partially relevant to the farmers' information needs. This means that efforts should be intensified in delivering more relevant agricultural information to the farmers through magazine, posters and television. This can have a significant impact on farmers' agricultural productivity. According to Meitei and Devi (2009), rural farmers are not

receiving the right information at the right time, hence leading to slow development of rural farmers' community in sustainable agricultural development activities.

13. Does these mass media sources meet the farmers information need

The respondents were also asked to indicate whether the mass media used met their information needs. The findings show that 58.3 percent of the respondents mentioned that the mass media sources did not meet their information needs whereas 41.7 percent claimed the opposite. This means that most of the mass media sources were not able to meet the farmers' information needs. These findings are inconsistent with that of a survey report of the Pakistan Agricultural Research Council (2008), which established that the radio alone catered for the information needs of the farmers three times as much as the extension workers and 66 percent of the Pakistani farmers meet their information needs through the mass media. The discrepancy can be due to little coverage and relevance of agricultural information programme, poor television signals as most of the farmers indicated during the focus group discussion. Most of the farmers complained about poor television signals in some of the study areas

Table 9: Challenges farmers face in accessing agricultural information through mass media (N=120)

Challenges	Frequency	Percent
Poor signal	91	75.8
Poor internet Connectivity	6	5.0
Poor power supply	94	78.3
Highly cost of purchasing and maintain media source	53	44.2
Inability to write and read	7	5.8
Inadequate feedback mechanism	10	8.3

Source: Research Data (2014)

14. Challenges farmers face in accessing agricultural information through mass media

Data from presented in Table 7 indicates that the majority of the respondents encountered problems when accessing agricultural information through the mass media. The problems they encountered were power supply (78.3%), poor signals (75.8%), high cost of purchasing and maintaining media source (44.2%), inadequate feedback mechanism (8.3%), inability to write and read (5.8%), and poor internet connectivity (5.0%). It was also evident from focus group discussion that lack of funds, lack of awareness by some of the farmers on use of various mass media sources in accessing agricultural information and the irrelevance of agricultural programmes broadcast through various mass media sources were the other challenges they had to contend with.

This implies that poor power supply was the main problem the farmers faced when it came to accessing agricultural information through the mass media. This was true because in some of the study areas, there was no power supply and this hindered the farmers from receiving information through the mass media channels that depend on power supply. The researchers found in the field that in areas where there was electricity connection farmers also relied on television as a source of agricultural information. Similarly, Sife (2008) who mentioned that the limited television viewing is mostly due to limited power supply and few number of TV stations in the country. This can have impact on information accessibility among farmers and hence poor agricultural productivity in the country.

These findings further reveal poor radio and television signal as major challenges constraining farmers from accessing information through these sources. Similarly, the results with regard to television and radio signals are in line with those of Mtega and Malekan (2009) who found that poor television signals as the main factor hindering information accessibility among farmers in rural areas. Therefore, there was a need for the government and other information providers to increase more signals so that we can have sustainable information accessibility and, hence, improve the farmers' livelihood.

Furthermore, the results show that high cost of purchasing and maintaining media source was another impediment that hindered farmers from accessing information from the mass media. For instance, during the focus group discussion, some of the farmers lamented over the high cost of purchasing dry cells for their radio, high cost of purchasing newspapers/ magazine as well as the high cost of acquiring television and radio sets. Therefore, government should

subsidise dry cells, magazines, television sets, radios and other media source in these rural areas to enhance farmers' access to agricultural information and, hence, increase their farm income.

Furthermore, it was established that inadequate feedback mechanism was another problem that the farmers had to contend with when it came to accessing information as some of the farmers reported. For example, during interviews some farmers complained that during programmes aired on radio or television it was not possible to ask for clarifications or solutions to certain agricultural queries. This observation is supported by Ariyo *et al.* (2013) who argued that the mass media involves one-way communication from information source to the receivers; they permit limited and delayed feedback. In other words, elements of interactivity could be introduced, for example, through call-ins.

15. Conclusions and Recommendations

Based on the findings of the study, it can be concluded that radio, television, and newspapers are types of mass media used in the study area, but radio was the most frequently consulted by the respondents. Generally, the agricultural information received by the respondents through radio was relevant to their farming activities. On the other hand, the agricultural information received by the respondents through television and newspapers was only partially relevant to their farm activities. Challenges the farmers faced when accessing information on agriculture from the mass media include poor power supply, poor signal, high cost of purchasing mass media source, and inadequate feedback mechanism. However, to provide better access and improve the effectiveness of the mass media in the dissemination of agricultural information for agricultural development in the study area, the following recommendations are made:

(i) Agricultural extension services, for example, in the Morogoro region need to be strengthened and the Ministry of Agriculture should enhance the use of radio and television in information dissemination among farmers in the study area. There is also a need for more expert presenters, who are knowledgeable in agriculture, to handle agricultural programmes.
(ii) Adequate publicising of radio and television agricultural programmes relevant to farmers' activities will keep the farmers up-to-date and enable them to plan their time to listen to and watch such programme.

(iii) Establishment of farm radio to rural farmers or listening groups among farmers should be encouraged.

(iv) The government should support rural electrification and improve the rural transport system so that modern agricultural mass media sources/facilities can be made available and used in these areas.

(v) Similarly, there is also a need for the government to supply more print media to rural areas to improve information accessibility among the farmers.

(vi) Media owners should air more agricultural programmes on both radio and television and should make sure that the programmes are broadcast at appropriate and convenient times for farmers, especially in the evenings.

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The Role of Community Information Centres (CIC) in Enhancing Farmers' Access to Information: A Case Study of CIC Models in Morogoro Region, Tanzania

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Abstract

This paper presents the findings of a study which was conducted in Morogoro region to identify farmers' current information needs. It also examines an approach that could enhance farmers' access to and use of agricultural information with a view to promoting the practice of proactive information acquisition for empowerment and improved livelihoods. The study set out a participatory action research to pilot models for stimulating the proactive practices in accessing and utilising agricultural information. The model which was employed for this study evolved from the Village Information Centres (VIC) model and gave way to Community Information Centres (CIC) given the realisation that VICs have application and relevance to broader communities that may not necessarily be village-based. The study found that farmers' information needs are not necessarily related to agricultural activities taking place at that particular time in a particular area. In some cases, exposure to information brought about information needs that were not expressed in the first place. This also implies that in some situations exposure to information is needed to stimulate a demand for information. The content, presentation style and language used were among the determinants influencing the demand for particular information. The study found adequate levels of literacy among smallholder farmers such that they could effectively access and make use of printed information. The findings also demonstrate the presence of reading skills that are otherwise underutilised. In conclusion, the study advocates for "pulled information" phenomenon as opposed to "pushed information" in building sustainable knowledge acquisition skills among smallholder farmers.

Keywords: Community Information Centres, Smallholder Farmers, Information Needs

1. Introduction

Information poverty has been identified as a contributory factor to poverty, especially in rural communities, as it leads to lack of empowerment and confidence in decision-making and consequently socio-economic deprivation. The need for information in rural communities has been identified to rank high among key areas that require intervention in the Agricultural Sector Development Strategy [ASDS] (URT, 2001: ix). However, given the initiatives that have been attempted to address the information needs of the rural communities, what remains to be addressed are approaches that are appropriate, effective and sustainable (Kullaratne, 1997).

In an attempt to address this challenge, the National Strategy for Growth and Reduction of Poverty (NSGPR) has advocated for establishing and strengthening Community Information Centres as a measure for providing cost-effective information services for improving information welfare for rural communities (URT, 2005_a: 18). It is in the light of the observations above, that concepts, policies and approaches for meeting the information needs of rural communities remain an attractive research subject.

This paper reports selected findings from a research which was conducted from 2005 to 2008 in Morogoro region, Tanzania. The research was motivated by the existence a wide range of literature indicating the information gap relating to agricultural information for farmers, as generated from research for the improvement of rural livelihoods, as cited by, among others, (Ochieng, 2004 ; URT, 2001: 7; Laizer, 1999: 58; Matee and Mollel, 1990; ISNAR, 1989). In addition, discussions with some farmers during agricultural exhibitions ("Farmer's day") revealed farmers' craving for agricultural information and a desire for printed agricultural materials to meet their information needs. As Manda (2002) and Mascarenhas (1992) point out, the information sector still faces a number of challenges in a bid to make a meaningful contribution to agricultural development. One of the challenges is how to play an active role in enabling farmers to become proactive in information seeking rather than remaining passive recipients of information, as it appears to be the case in most extension-driven information delivery initiatives.

Studies demonstrate that there is a wide range of printed materials that could be used by farmers in many agricultural research and outreach institutions. However, these have not yet

been taken beyond boundaries of the institutions of their origins. Even for some of the extension materials that are disseminated, the majority have a limited circulation. The abundance of useful agricultural information in research institutions, on the one hand, and the existence of unmet information needs among farmers, on the other hand, pose a challenge of innovating ways of narrowing the gap between sources of agricultural information and the small-scale farmers.

Admittedly, the extension services have over the years made a significant contribution in this arena, but given the scope of the challenge, it is imperative that other innovative ways are developed to complement such extension services. These services have characteristically employed to a large extent the "push" strategy whereby farmers are furnished with information without paying particular attention to the type and category in demand. The "pull" strategy, on the other hand, may inspire and empower farmers to play a proactive role in acquiring and utilising information because with "pulled information" phenomenon, target agents are exposed to a wide range of information resources from where they only pick and internalise what adds value to their needs.

The objective of this study was, therefore, to identify the farmers' current information needs, identify constraints in accessing information and examine an approach that would enhance access to and use of agricultural information with a view to promoting the practice of proactive information acquisition for empowerment and improved livelihoods.

2. Methodology

2.1 Research design

The study set out an action research to pilot models for stimulation among the farmers in accessing and utilising agricultural information for development purposes. The study was employed the Community Information Centres Model, herein used as synonymous with the Village Information Centres (VICs).

The study used a combined research method framework whereby both qualitative and quantitative data were collected concurrently. Three instruments were used. They included the questionnaire surveys, focus group discussions and a longitudinal intervention study in which the trial models of VICs were established, put into use, monitored and evaluated

through a participatory approach. During the intervention study, document collection and improvement, and monitoring and evaluation visits were carried out. During these visits, informal and formal discussions were conducted, followed by reflection which formed the basis for subsequent improvements in the collection and management of the VIC model according to the participants' experiences in the respective villages. Towards the official end of the research an impact assessment was conducted, which made use of a questionnaire, focus group discussion (FGD) and information acquisition test to have an empirical basis for recommending the VIC as models for the stimulation and promotion of the practice of proactive information seeking.

2.2 Area and population of the study

The study was conducted in three out of six districts of Morogoro region, namely Morogoro Rural, Mvomero and Ulanga. Morogoro region was selected because of the diversity of its agro-ecological endowments and farming systems. The population of the study comprised smallholder farmers who constitute the majority (about 80%) of the population, with agriculture as their main economic activity.

2.3 Sampling method

A multi-stage purposive-stratified simple random sampling technique was used to draw a sample of the districts and wards that were involved in the study. One village was selected from each ward where 60 farmers were drawn from each village, hence making a sample of 600 farmers. The number of districts and villages selected for the intervention stage was reduced from three to two and from ten to four for the districts and villages respectively to obtain smaller samples to allow for active participation.

2.4 ***The pre-intervention survey***

A cross-sectional survey was carried out for a situation analysis. The survey was carried out to benchmark the study parameters as far as access to information by smallholder farmers is concerned.

2.5 The intervention

The research intervention stage was participatory action-oriented in nature. Action research was contemplated because of the intention of demonstrating a practical difference to the participants' practice of acquisition of information.

2.6 Assessment of impact, awareness and acceptability of the VIC

The third stage was aimed at assessing the farmers' awareness and acceptability of the VIC. It was also used to determine whether the intervention had made an impact on individual participants and the community at large. The assessment also included two control villages.

2.7 Visits for monitoring of the VIC

Visits to the VIC were done once a month to monitor and evaluate how the VIC were being used in different villages and who used them. In this regard, logbooks were used to register the user profile and fill in user preferences and comments.

2.8 Focus Group Discussions

The FGDs were conducted in the villages as a triangulation method and to verify the information obtained in the survey and also to capture preliminary indications of the research intervention impact. Two FGDs were held for each VIC.

2.9 Pre- and Post-intervention agricultural information tests

The test was administered in the four villages under intervention and in two control villages at two different times during the study period: one at the beginning of the intervention and the second before the official end of the research in each village. In the control villages, the tests were administered at the beginning of the intervention and after all other villages had had the post-intervention test.

2.10 Impact, awareness and acceptability of the VIC

The questionnaire was administered with 240 randomly selected farmers in the four villages under the intervention to determine their level of awareness of the existence of the VIC, their attitude, acceptability and limitations, and any other opinion regarding the VIC.

2.11 The control villages

The control villages did not have any intervention measure except for the knowledge test that was conducted twice. The purpose of having the control villages was to find out whether there would be any difference in the information that the farmers had between the villages under intervention and the control villages at the end of the research.

3. Results and discussion

3.1 General Overview

The study was originally projected to involve ten villages in Morogoro, Mvomero and Ulanga districts. The villages were later reduced to four villages, namely Dihinda and Melela in Mvomero district and Kongwa and Kiroka in Morogoro Rural district, where the VICs were established and monitored. The two control villages were Milengwelengwe (Control 1) in Morogoro Rural district and Wami Sokoine (Control 2) in Mvomero district. This study demonstrated the existence of unmet needs regarding information resources in general and of agricultural information resources in particular. The agricultural information and knowledge paucity appears to be a function of a number of factors including geographical and functional isolation.

The study has shown that Community Information Centres (CICs) can serve as effective information resources outlets for farmers. Moreover, the CICs proved feasible and effective convergence points for self-motivated learners to meet for socialisation and peer education.

3.2 Profile of the respondents

3.2.1Age and gender distribution

A total of 600 smallholder farmers were interviewed. Out of these, 349 (58%) were men and 251 (42%) were women. As indicated in Fig. 1, the majority of the respondents, 318 (53%), were aged 28 - 47 years.

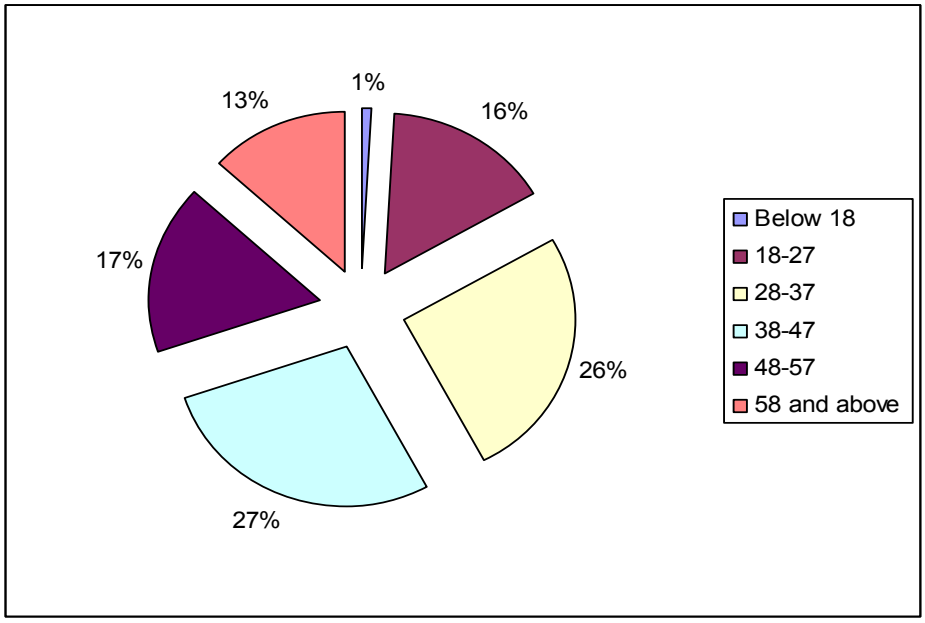


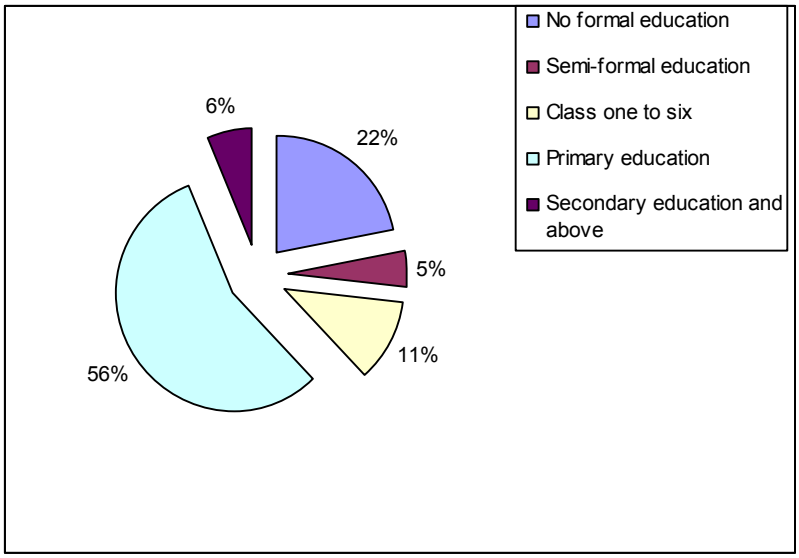
Figure 1: Distribution of age of the respondents

The finding was particularly interesting given the fact that this 28-47 age bracket is normally the most economically active and, therefore, would be willing to participate in the research. It was also assumed that it would be easier to encourage this group to practise reading simple or short instructions as a way of acquiring information and knowledge than elderly farmers.

3.2.2 Education and functional literacy

A majority of the respondents, 76 percent (454 out of 600), had attended some form of school and reported to be literate as indicated in Fig. 2.

Figure 2: Distribution of respondents by types of education



However, a follow-up question revealed that the actual number of respondents who had attended formal school classes, i.e. class one up to secondary school or above, was 440 (73%). It was found that the respondents who completed primary school level formed the majority 337 (76%) of those who had been to formal school classes. This implies that 76 percent of all the farmers had functional literacy.

Comparing the levels of education between gender revealed that 79 percent (or 275) of all the men (n = 349) and 66 percent (or 165) of all women (n = 251) had attended formal classes. The dominance of male farmers in the relatively better educated category is not a surprising finding because of cultural and historical gender imbalances in Tanzania's education system (Mbilinyi *et al*., 1991: 5-6). However, recent developments indicate that there is a positive change towards gender balance in education particularly at the primary school level (UNDP, 2012), and this has resulted in increased educational opportunities for women.

4. Determining the information needs of farmers

Two approaches were used to establish the farmers' information needs: (1) The critical incident approach (Mchombu, 1993; Kaniki, 1995) and (2) the needs in relation to innovations, ideas or technologies they wished to know more about.

In the critical incident approach, the information needs were established as reflected by revelations of the problems experienced by the farmers during three preceding farming seasons as summarised in Table 1.

Table 1: Problems identified as most disturbing during three preceding farming seasons

Most disturbing problem	*Respondents who indicated a particular problem as most disturbing*		
	N	Frequency	Percentage
Rodent infestation	540	266	49.3
Crop diseases	502	310	61.8
Bad weather	497	178	35.8
Frequent deaths of local chickens	467	191	40.9
Lack of money to buy implements	461	14	3.0
Lack of market for the produce	459	55	12.0
Diseases of other livestock	453	76	16.8
All others (e.g. pests, lack of transport, etc.)	533	208	39.0

The assumption in this case was that some of these problems could probably have been overcome by having access to information and knowledge. Almost all the farmers (97.5%) reported facing problems and wished they had information and knowledge on how such problems could be addressed.

4.1 Information needs determined by farmers' wishes

The second approach required the respondents to indicate any agricultural innovation, idea, or technology that they probably had heard of and would have wished to know more about. Some of the needs were found to be specific to a particular village, probably because of slight variations in agricultural activities. A total of 510 farmers (85%) responded to the question. Their information needs were grouped into ten subjects as illustrated in Table 2:

Table 2 Summary of farmers' unmet information needs

Subject area	*Frequency and percentages of subjects as mentioned by farmers*	
	Frequency	Percentage
Modern agriculture	440	73
Control of crop diseases	256	43
Better seeds	243	40.5
Control of livestock diseases	240	40
Food processing & preservation	120	20
Vegetable growing	100	17
Use of fertilisers	87	14.5
Weed control	73	12
Irrigation agriculture	67	11
Beekeeping	15	2.5

As is apparent from their responses, among other needs, there was an indication by most of the respondents of the need for "Modern or Modernising Agriculture" which in Kiswahili was taken to mean "Kilimo cha Kisasa". This Kiswahili term tends to have very broad meaning such as information on methods for controlling crop diseases or information about "better seeds" and so on. Moreover, as kind of a paradox, new information needs emerged as farmers got exposed to information resources in the VIC.

6. Availability of information resources

An assortment of relevant printed materials was sought and gathered from four agricultural-related institutions that were visited, namely Sokoine University of Agriculture (SUA), Ministry of Agriculture and Food Security (MAFS), INADES (l'Institut Africain pour le Développement Economique et Social), an NGO dealing with farmer information, and MVIWATA (Mtandao wa Vikundi vya Wakulima Tanzania), a network of smallholder farmers in Tanzania. The materials in the form of booklets, pamphlets, leaflets, magazines, newsletters and posters were collected and organised into different agricultural subjects.

An attempt was also made to determine whether the respondents owned or held any form of reading materials as a source of some form of information. It was revealed that 89.6 percent of those who responded to this question (344 out of 384) had some printed information materials at home. It was also found that 35 percent (120 out of 344 farmers) of those who owned the materials were women.

The materials were categorised into six groups according to nature of content. It was revealed that agricultural materials were penultimate in frequency with respect to the types of reading materials which respondents kept in their homes (see Table 3).

Table 3: Types of information materials available in respondents' homes

Type of information material available	***Possession of information materials in respondents' homes***		
	N	Frequency	Percentage
Newspapers	361	211	58.4
Religious publications	359	182	50.7
Health publications	359	162	45.1
Recreational publications	358	164	40.8
Agricultural publications	359	135	37.6
Government and political	359	121	33.7

With respect to this observation, it is probable that the presence of certain types of information in the respondents' homes could either be a function of the perceived need for the materials or most likely a function of the relative differences in the initiative and innovativeness in the disseminating printed materials by respective advocacy agencies of both governmental and non-governmental organisations. This appears to be particularly the case with respect to health and religious materials that are normally distributed en masse during health campaigns and religious meetings.

An attempt was also made to determine the sources and means by which farmers obtained printed information materials that they had in their possession. The majority of the respondents (86.6%) said they received no information materials from researchers. It would

appear that researchers who made visits to villages do not necessarily bring reading materials for farmers with them. Probably this is one avenue that is significantly underutilised in dissemination of information materials.

7. Farmers' attitudes towards printed information

An attempt was made to gain an insight into the farmers' attitudes towards the role of recorded and printed matter as sources of information to address their information needs. The majority of the respondents (91.3%), that is, 532 out of 583, irrespective of their reading abilities, regarded printed materials as a useful source of information on agricultural knowledge and skills. This finding seems to underscore the importance of printed sources of information for keeping farmers informed and encouraging the habit of active acquisition of information. As reported earlier (Matovelo *et al*., 2006), preferences of farmers in this research were similar to farmers in Uganda and Ghana, where farmers preferred printed information to other formats, arguing that they could be used for reference once the extension staff had gone or a radio programme was over (Carter, *op. cit*.).

8. Farmers' information-seeking practices

The study also explored alternative approaches to cultivating the attitude of proactive information acquisition by farmers. It was established that, although the literacy rate is reported to be fairly high, the percentage of farmers getting information through printed materials is as low as 24 percent (130 out of 534 farmers). This finding suggests that despite the ability to benefit from printed materials being potentially high, access to such materials remained severely limited. In such a scenario, there is a role to be played by information professionals to complement the current role being played by extension staff and NGOs.

9. Farmers' reading habits

The study also attempted to establish whether farmers who had functional literacy skills read anything at all at any moment during their daily activities. It was found that slightly more than half of the respondents, 255 (55%), read once in a while (once in several months), 126 (27%) read something at least once a week, whereas 84 (18%) of all literate farmers never read anything (see Figure 3).

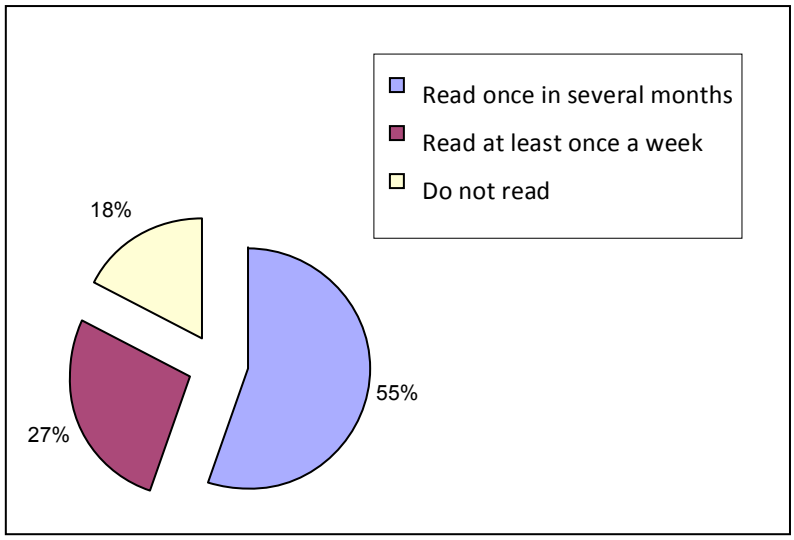


Figure 3: Reading habits of the respondents

Some people with functional literacy skills were unable read any materials due lack of reading materials as indicated by 43 (51.8%) out of 84 respondents; lack of time for reading 27 (31.7%); difficulties in reading meaningfully 13 (15.3%); sight problems 11 (13.1%); and lack of interest 10 (12%). Only one respondent (1.2%) felt that reading may not benefit him. Lack of perceivable benefit could also be a reason for lack of interest in reading. It is also possible that the low frequency of reading could be attributed to the perceived benefit that is realised out of reading.

10. Gender differentials in reading

The extent to which respondents practised the habit of reading was slightly different for male and female farmers (see Figure 4).

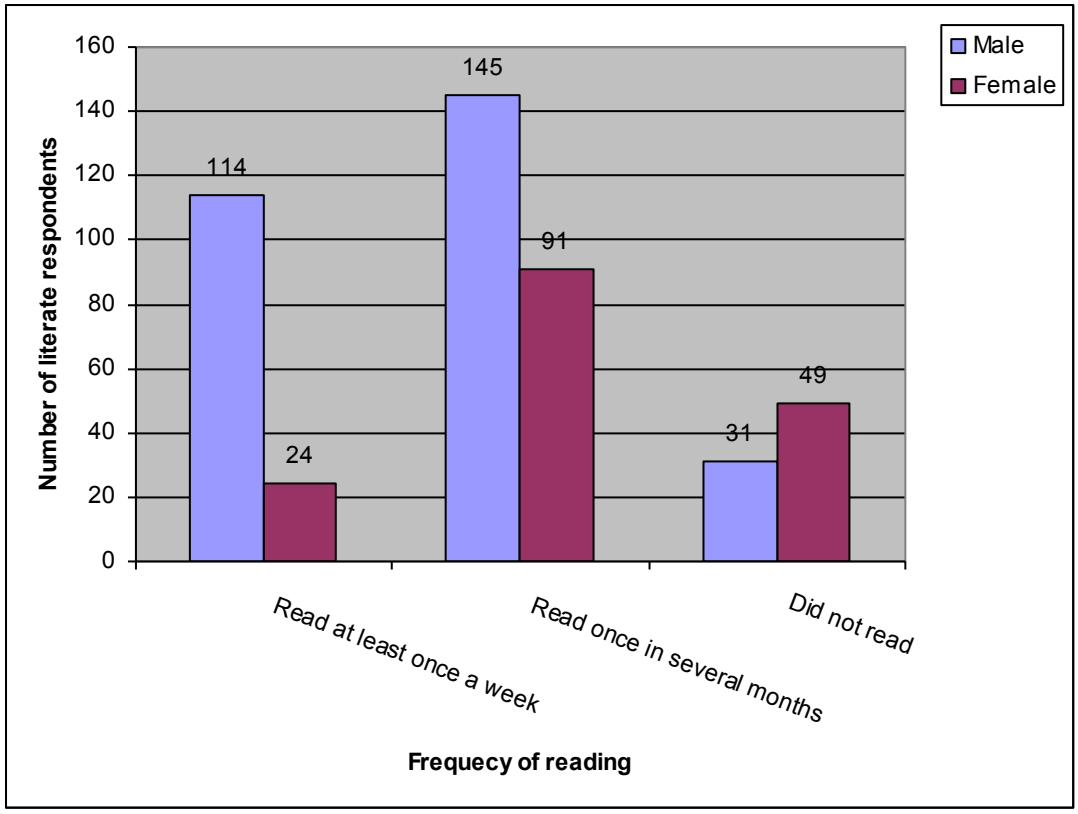


Figure 4: Gender differentials in reading among respondents

Figure 4 shows that although a total of 114 (40.4%) of all literate male farmers read at least once a week (n=282), only 24 (13.9%) of literate female farmers had the same frequency of reading (n=172). Out of 80 literate respondents who had no habit of reading anything at all, 31 (38.7%) were men and 49 (61.3%) were women. In most rural households women are captive to domestic chores, hence having less time to spare for reading. This may warrant gender consideration when planning for the dissemination of information to farmers.

11. Preferred format and language of printed materials

The study investigated the preferred format of reading materials. It was found that most farmers preferred short text publications in the form of leaflets, posters and booklets rather than books with detailed information. The majority of the respondents, 538 out of 595 (90.4%), preferred materials printed in Kiswahili. Only 57 (9.6%) respondents preferred materials in ethnic/indigenous languages. This finding is not surprising since Kiswahili, being the national language, is enforced as the medium of instruction in all public primary schools and is widely spoken throughout the country.

12. Preferred places and methods for accessing printed materials

Respondents were also asked to select the place they would most prefer for the location of reading materials from amongst four proposed places: village government office, schools, social clubs and places of worship. The majority, 521 out of 585 respondents (89.1%), chose the village government office. The single major reason was because most of them were more centrally located than other places. The centrality of the village government offices was also helpful with respect to the location of other facilities such as shops and markets that are normally available within the same location, making it convenient for the users of the facilities. In addition, it was also probably because the village offices were more open to the public unlike the other alternative places, such as places of worship, schools, and social clubs that were restrictive.

13. Pre- and post- intervention knowledge testing

Participants were subjected to a simple test to find out their level of knowledge about basic information concerning selected agricultural activities before and at the end of the intervention.

A total of 338 and 367 farmers participated in the pre- and post-intervention test, respectively. These figures include participants in the two control villages. The total number of farmers who attended the meeting and the actual number of those who participated in the test, as well as the distribution of their scores for each village, are as indicated in Table 4:

Table 4 Results of the Test: distribution of participants' scores

Village name		*Dihinda*	*Melela*	*Kongwa*	*Kiroka*	*Control 1*	*Control 2*
Total No. of attendees to the meeting	Pre	165	97	103	87	124	98
	Post	141	110	120	75	112	101
	Difference	-24	13	17	- 12	- 12	16
No. of	Pre	63	43	59	41	70	62

participants	Post	65	52	66	51	72	61
	Difference	2	9	7	10	2	-1
Lowest	Pre	6	3	2	3	8	3
scores %	Post	8	2	9	19	6	5
	Difference	2	- 1	7	16	- 2	2
Highest	Pre	74	61	64	62	76	65
scores %	Post	96	72	98	86	78	61
	Difference	22	11	34	24	2	-4
Average	Pre	38.5	31.5	29.5	35	39	33
scores %	Post	51.5	40.8	46.8	50.2	40.2	32.5
	Difference	13	9.3	17.3	15.2	1.2	-0.5
Scores	Pre	32	26	19	29	35	21
above 50%	Post	56	48	47	51	33	24
	Difference	24	22	28	22	- 2	3

Table 4 indicates a clear difference between the intervention and the control villages, particularly with respect to the highest scores, average scores and percentage of participants who scored more than 50 percent for the pre- and-post intervention tests. The post-intervention scores in almost all the villages under intervention were more than 30 percent higher than the pre-intervention scores. On the other hand, both control villages showed a negligible difference between the pre- and post-intervention scores. The observed difference most likely resulted from the access to relevant information available at the VIC. In this respect, the only obvious difference between villages under intervention and the control villages was exposure and use of the VICs.

Likewise, the average score rose by more than 25 percent in all intervention study villages, and for Kongwa village the increase was more than 40 percent. This marks a clear improvement of performance in all the villages under the intervention study, unlike the control villages where the average remained more or less the same between the two tests, that

is, at the beginning and at the end of the study period. It can, therefore, be inferred that access to and use of information that was available at the VIC was an underlying reason behind the increase in post-intervention scores in the study villages.

14. Conclusion

This study explored an intervention approach that could stimulate, cultivate and promote proactive information acquisition to enhance access to and use of agricultural information by smallholder farmers. The study found that smallholder farmers have diverse information needs that have not been met. Information content, presentation style and language used were among determinants influencing the demand for particular information. The study also established the presence of adequate reading skills and literacy levels among smallholders, enough to effectively make the use of printed information that is highly underutilised. In view of this finding, information professionals have a challenge and an opportunity to assume a role which is complementary and parallel to extension workers. Specifically, they have a greater role to play in encouraging farmers to proactively seek information by teaching them "how to fish rather than giving them fish". In the process, farmers would acquire useful information search skills for sustainable knowledge building, which is the function of "pulled information" phenomenon rather than "pushed information". Having demonstrated that VICs are relevant, appropriate and effective tools for enhancing access to and use of recorded agricultural information, as well as inculcating proactive information seeking behaviour, it is recommended that VICs be mainstreamed into the village government body so that they can be truly owned by the respective communities. The presence of the VIC as one of the facilities in the village could be a further motivation for propagating the practice of information acquisition by farmers.

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The Role of ICTs in managing Electronic Records in the Commercial Division of the High Court of Tanzania

Maulid Dotto

Abstract

This study establishes the link between ICTs and poverty reduction strategy by investigating the extent to which implementation and utilisation of ICTs/e-records management systems enhances court operation in the Commercial Division of the High Court of Tanzania. The motivation of the study was to understand why the commercial court still utilises the conventional records management system despite the installation of new information and communication technologies and some training of staff in the various aspects of electronic records management. A total of 60 respondents were involved, 49 among them managed to respond to the study. Qualitative and quantitative methods were used to gather data for the study. Statistical Product and Service Solution (SPSS) version 1.9 and Audacity Open Source software were employed in data analysis. Despite constraints and challenges identified in the study, the results show that ICTs/e-records management systems improved access to information and documents; speed up court services; reduction of time delay of the court proceedings; job improvement; reduction of paper work and operating costs in the Commercial Division of the High Court of Tanzania. Thus, the study establishes the link between ICTs/e-records management systems and poverty reduction strategy. The findings suggest that the Judiciary should formulate an integrated ICT policy and harmonise the legal framework to give direction towards effective and efficient implementation and utilisation of ICTs in judicial proceedings and operations.

Keywords: ICTs, E-records management, Commercial Division, Poverty, Tanzania legal sector

1. Introduction

Good records management and information is fundamental to a well-functioning organisation since it supports business activity and provides a basis for efficient service delivery. Studies by Danda (2000) and Hassan (2007) underscore the importance of effective records management in enhancing service delivery. Recognising the significance that records have in

promoting access to justice, the Commercial Division of the High Court of Tanzania made some efforts to improve the entire court administration particularly management of Judicial records through ICTs. Despite the recent initiatives, the selected court relies largely on conventional records management system (manual) to manage case records, hence difficulty in accessing the required records; control of access to critical records and poor storage facilities to keep its vital records.

The main constraining factors in the management of electronic records in Tanzania are lack of financial resources, lack of trained personnel, lack of ICT plan policy, lack of initiatives, and lack of knowledge and skills (Semkuya, 2012), shortage of ICT facilities and accessibility of records (Twining & Quick, 1994). It is not clearly understood why the judiciary still utilises conventional records management system despite the installation of new information and communication technologies and training staff in various aspects of electronic records management. Thus, this study investigated the extent to which the implementation and utilisation of e-records management systems enhance court operation. The study had two main questions: Firstly, to what extent does the e-records management system enhance court operations? Secondly, what factors influence the use of the Electronic Records Management System?

2. Methods

A case study approach was considered relevant to developing an understanding the extent to which the implementation and utilisation of the e-records management system enhance court operations. The Commercial Division of the High Court of Tanzania is located in Ilala Municipality of Dar es Salaam City close to Indian Ocean along Magogoni ferry. The selection of the area was guided by the following factors: Firstly, in the Commercial court there are various ongoing ICT initiatives and projects aimed at improving the judicial administration particularly the management of electronic records; secondly, the study area offers a convenient environment in terms of time and financial resources at the disposal of the researcher; and, finally, availability of relevant information and manageable size in terms of area and population.

The study population for this study was drawn from the Commercial Division of the High Court of Tanzania in Dar es Salaam headquarters using purposive and convenience sampling techniques. The units of analysis were record managers, librarians, clerks, secretaries, transcribers, IT people, advocates and registrars. The data were collected using structured

questionnaire with both open and closed ended questions, interview schedule and observation tools. In all, sixty (60) respondents were involved in the study but forty-nine (49) managed to respond. Thirty-five (35) respondents were given questionnaires whereas fourteen (14) others were interviewed.

The interview schedule and the questionnaire used were translated into Kiswahili from the English language to ease access of information from the respondents. Data collected were analysed by using the Statistical Product and Service Solution (SPSS). Through the analysis, data were differentiated regarding the respondents' roles and responsibilities in the implementation of e-records management. Descriptive statistics, namely average and percentages were applied to summarise the information collected. Furthermore, the collected data from interviews were tape-recorded machine. The audacity open source software was used for such data.

3. Results and Discussions

3.1 Enhancement of Court operation through Electronic Records Management Systems

The respondents were asked to rank in the scale of preference the extent to which electronic records management systems enhance the Commercial court's operation. Table 1 below presents the potential contribution of Electronic Records Management System (ERMS) in enhancing court operations.

Table 1: Enhancement of Court operation through ERMS

Advantages of ERMS (N=49)	**Very satisfied**		**Satisfied**		**Unsatisfied**		**Very unsatisfied**	
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Enhance access to info & documents	38	77.6	7	14.3	0	0	0	0
Speed up court services	35	71.5	13	26.5	0	0	0	0
Reduction of time delay of court	34	69.4	10	20.4	0	0	0	0

proceedings								
Job improvement	31	63.3	14	28.6	1	2	0	0
Reduction of paper work	28	57.1	12	24.5	1	2	3	6.1
Physical space not required	22	44.9	8	16.3	2	4.1	2	4.1
Reduction of operating cost	21	42.9	13	26.5	2	4.1	1	2

Source: *Field Data (2014)*

The findings revealed that ERMS has enhanced court operations and service delivery in Commercial Court. In this regard, 12 out of 14 (85%) respondents, who were interviewed, said that electronic records management system had improved access to information. Previously, access to case records was done manually. The study has observed the use of multiple access to information and documents through adoption of ICTs. Currently, through the usage of ICTs an individual can use the internet cafe, display boards, mobile phones and website to access information and documents. In view of this, COSCA (2005) asserts that easy and economical access to the record broadens a person's access to justice and maintains the transparency of the court proceedings.

The findings revealed that 71.5 percent of the respondents were very satisfied with the way ERMS speed up service delivery. The study observed that the Commercial court has established e-case filing system which facilitates records management and ensures good file movement. This is considered to be a remarkable achievement in the courts of Tanzania.
Similarly, Dakolias (1999) notes that in 2010 Korea launched an electronic case filing system, which enables electronic submission, registration, service notification and access to court documents. Also, the author asserts that the system enables some judges to adjudicate up to 3,000 cases a year, manage up to 400 a month and hear up to 100 pleas a month.

Also, the findings show that 69.4 percent of the respondents were very satisfied with the way the ERMS reduces time delay of the proceedings. The Commercial court nowadays experiences a reduction of time delay of the proceedings since it has introduced digital recording system such as the digital computer aided recording and transcription system. In

this system, there is naturally spoken dragon software. So the evidence in trial in commercial court case is recorded using special computers and then transcribed into text using this software. This has enhanced the efficiency of judges by relieving them of the tedious job of recording evidence manually using long hand and, therefore, it has managed to reduce the time spent on trials.

The findings show that 63.3 percent of the respondents were satisfied with way the ERMS improves job performance. A summary of performance of ten years since the inception of the Commercial division, from September 1999 to 2010, reveals that a total number of 1,977 cases had by 2010 been filed in this division, out of which 1,729 had been disposed of, which makes 89 percent of the cases filed (ComCourt, 2011). In line with this, the researcher has observed from the field that previously, a case could take up to six months or a year to be determined but currently the average time from filing to determination of a single case has been reduced to three months. However, the future plan of the court is to fully utilise social networks and other relevant platforms such as video conferencing to conduct court proceedings so that evidence can be adduced even from remote areas.

The study findings revealed that 57.1 percent of the respondents were very satisfied with the way electronic system helps reduction of paper use. The study has observed that most of the time staff members are engaged with computers, scanners, phone and internet to accomplish their daily job activities. This implies that the implementation of e-system has reduced the use of paper in the court. Dakolias (1999) concurs with the findings that an e-court is a suite of services that entails minimum use of paper from the moment a case is filed until its disposal. The author asserts that with e-courts, information is captured and passed on digitally, data exchange is not fragmented and case histories are completed and are ready on demand, case management is automated, correspondence is exchanged electronically, fee payments are dealt with through decided websites and forms that simplify and streamline court proceedings are available to court users online.

The findings reveal that only 44.9 percent of the respondents were very satisfied with the fact that physical space is not highly required in the presence of ERMS. This implies that the construction of physical storage space for paper-based records management costs more than using ICTs gadgets. Therefore, the adoption of e-systems in the Judiciary of Tanzania has

reduced the demand of physical space in managing court records. Likewise, a study by World Bank Group (2013) shows that in the United states, it costs $ 360,000 to build and $18,000 a year to heat, cool and maintain a 20 by 60 foot file room. By comparison, a 150 gigabyte hard drive costs less than $100 and has storage capacity equivalent to 70 filing cabinets. That many filing cabinets with floor space required costs $ 22,000. In this regard, court houses has proved to be expensive storage spaces, so implementing e-court system helps to eliminate several miles of archives and can save a lot of money.

The findings reveal that 42.9 percent of the respondents were very satisfied that the electronic system reduces operating cost. In support of this finding is a study by the World Bank Group (2013) revealed that the implementation of Korea's e-court system resulted in savings of $ 221 per e-filing. These savings result from a reduction in the use of paper, the time spent in court, cheaper service of process, lower transportation costs, easier archiving of documents, and easier payment of fees. Currently, in the Judiciary of Tanzania limited funding is directed to key important areas such as purchasing of ICT gadgets with enough capacity to store many files instead of constructing buildings, training for the existing staff instead of recruiting new staff, and maintenance of the system.

3.2 Factors Influencing the Use of Electronic Records Management Systems

Several factors were identified to influence the use of ERMS in surveyed courts of Tanzania. Table 2 presents data on the factors influencing the use of electronic records management systems:

Table 2: Factors Influencing the Use of Electronic Records Management Systems

Factors (N=49)	Frequency	Percent
ICT facilities	43	87.8
Technical support	43	87.8
Power supply	43	87.8
Implementation strategy	41	83.7
Staffing	41	83.7
Internet	40	81.6
Funding	36	73.5

Legal framework	34	69.4
Policy	34	69.4
Space	27	55.1
Staff awareness and attitude	17	34.7
Management support	12	24.5

Source: *Field Data (2014)*

Factors such as ICT facilities, technical and specialist support and power supply were identified by 43 (87.8%) whereas management support, staff awareness and attitude were mentioned by 12 (24.5%) and 17 (34.7%), respectively. Other factors mentioned were the implementation strategy (41; 83.7%); internet connection (40; 81.6%); funding (36; 73.5%); policy and legal framework (34; 69.4%) and Space (27; 55.1%).

The study findings indicate that 87.8 percent of the respondents strongly agreed that ICTs facilities such as computer hardware and software, scanner, audio recording machines, mobile phones etc are critical to the implementation of e-records management system. These facilities support the management of court records from the creation to disposition stage. However, IRMT (2009) cautions that ICT infrastructure does not solve the problem of managing electronic records but the availability of ICT is the basic underlying factor for managing e-records as it opens up the possibility that the creation and management of records may be satisfying in different ways.

Also, 87.8 percent of the respondents reported that technical and specialist support is inadequate. This implies that the technical problems on the e-system in the Commercial court still pose some challenges, hence hindering the effective implementation of the system. A study by Natarajan (2008) argues that company support most of their enterprise hardware and software, databases, operating systems, applications, frameworks, etc). Moreover, companies spend a lot of cash on support mainly for getting help from technical IT people/vendors to fix critical production issues and to keep up-to-date with the latest version of the software and security patches released by the vendors (ibid.). Due to budgetary constraints, the Commercial court depends on its existing manpower (IT staff) which is too inadequate to solve the problems that might arise in the usage of e-system.

Another 87.8 percent of the respondents strongly agreed on the importance of reliable power supply to support the implementation of records management system. These findings imply that the institutions need to have backup power sources such as generators to start up automatically when electrical power is lost. This is because reliable power supply is crucial in e-records management systems. Indeed, a power cut can obstruct court proceedings in the court rooms. Inevitably, most of the workers in the selected courts who were asked about the power source recommended having alternative power sources such as generators and inventors for ensuring there was constant power supply.

Human capital identified to be a resourceful towards implementation and utilization of ICTs. This factor was identified by 42.9 percent of the respondents. Despite its potential contribution, the overall findings of this study show that the selected courts suffer from a shortage of experts in ERMS. In this regard, Alberts and Dorofee (2003) argue that human expertise is one of the important factors in the implementation of ICTs as hardware, software and procedures need the human agent. Although there are remarkable achievements registered in terms of ICT usage in courts under study, the problem in ICT management remains glaring. Furthermore, there were no plans and no formal training on offer. Instead, the respondents reported that the issue of training was left to the employees themselves and, as a result, most of them failed to gain the knowledge needed for ICT applications in their place of work. Accordingly, in the selected courts the number of staff should be increased to comply with the demand as it was suggested by the majority of the respondents. Alternatively, the courts should opt to provide more training, workshops and seminars to staff instead of concentrating on recruiting new faces.

Poor implementation strategy on e-system was indicated by 83.7 percent of the respondents. This implies that a serious mechanism should be put in place to make sure that the implementation of e-system is effective. Reid *et al*. (2005) assert that the biggest obstacle to the implementation of e-system was lack of institutional commitment and lack of capital, engineering, functionality and technical issues. Moreover, lack of people who understand the court practice, project management and software technology and equipped with practical strategic vision, wisdom and experience was critical in the effective implementation of ICT initiatives (*ibid*.).

The interview conducted with the Heads of Department revealed that the court used to involve stakeholders (i.e. advocates and other business stakeholders) in the so-called round table discussion which was held once a year. The objective of these discussions is to let stakeholders identify diverse issues pertaining to the improvement of commercial court service provision. One of the respondents said:

> It is during the round table discussion that the new programme/service is launched. For example, the KIOSK service was launched in last year's round table discussion. Also, participants were told to include their emails and mobile phone numbers when filing a case to simplify communication during court proceedings.

This practice of meeting together with stakeholders has great impact on the implementation of the e-records management system as it provides room for identifying the areas of strengths to maintain and areas of weaknesses to improve upon.

Findings indicate that 79.6 percent of the respondents strongly agreed that the internet influences the use of ERMS. They said that the internet supports wide and local area connections, which in turn supports the communication of registries/courts in the selected courts and stakeholders in court proceedings. Internet connectivity entails the availability of technological infrastructure and acquisition of bandwidth and other important equipment and facilities that support ERMS. Indeed, internet connection is identified as an important factor that influences the implementation of ERMS.

Inadequate fund was identified by the majority (73.5%) as an impediment to effective deployment of e-systems in management in the courts. The findings suggest that the Judiciary depends on the government subventions and donor funds. This over-reliance on the central government stems from failure to well-mobilise internal financial resources to support recurrent expenditures of the selected courts. These findings imply that funding is what determines the effective/ineffective implementation of electronic systems. Funding enables the acquisition of equipment and facilities, training to staff and maintenance of the existing system. In fact, many organisations currently tend to focus on creating internal sources of funding to supplement the budget cut off and reduce dependence on donor funded/ government subsidies. In this regard, the literature available suggests that, archivists and

records management personnel should have skills on how to seek funds. A study by Ray *et al*. (2012), for example, found that archivists/records management were lacking in confidence and experience in a range of fundraising techniques hence the failure of the sector as a whole to access additional external funds.

The findings reveal that 69.4 percent of the respondents mentioned legal framework as the factor that influenced the implementation and utilisation of ERMS. It was observed that in records management system, the selected courts applied the National Records and Archives Management Policy. Also, the courts relied on various laws such as the Records and Archives Management Act No.3 of 2002, Law of Limitation Act of 1971, the National Security Act No.3 of 1970 and Evidence Act No. 6 of 1967 revised in 2002. However, this legal framework was observed to be ineffective as most of the laws were outdated hence did not comply with or rather touched only superficially on the usage of ICTs/e-records.

In fact, the existing literatures on records management show that not many developing countries have a legal framework that supports ICTs and skills required to support court proceedings using ICTs. According to the Legal Reform Commission of Tanzania (LRCT, 2005), the basic commercial laws in Tanzania originated in nineteenth century and most of them were enacted under the British Colonial rule before the 1960s (the Ordinances) and, therefore, were designed to handle paper-based court transactions. Despite the regulatory steps in the laws, electronic transactions such as digital signatures, reforms to contract laws, dispute settlements and others were still not given sufficient attention (LRCT, 2005). In the same vein, Chibambo (2003) asserts that a good records management framework consists of information-related laws, policies and programmes, records management standards and practices, and the necessary qualified human resources to implement and manage the systems. Currently, the Legal Reform Commission of Tanzania is working on a legal framework that is compatible with and responsive to the digital age.

Policy issues are critical in the implementation and utilisation of ERMS. The findings of this study reveal that 69.4 percent of the respondents mentioned policy as a factor that influenced the effective implementation of ERMS. These findings concur with those of a study by Luyombya (2010), which examined the framework for effective management of digital records in Uganda. The study found that key players in communication and information

management in Uganda had poorly developed document and records management policies and did not have an integrated document and records management strategy.

Staffing is one of the key ingredients when thinking about effective implementation and utilisation of ERMS to enhance courts operations. This was identified by 83.7 percent of the respondents. With regard to staffing, the critical aspect pointed out by majority respondents who were interviewed was inadequate training to equip staff with requisite knowledge and skills. The shortage of trained staff could be contributed by inadequate staff development including in-house training, workshops and seminars. This challenge was also identified by Hashim (2010), who found that in court administration the large quantity of records coupled with lack of human resource provided a daunting challenge to the court officials in ensuring effective case management.

In addition, the study findings indicate that staff awareness and attitude is constitutes another factor that influenced the effective implementation of e-records management systems. This was earmarked by 34.7 percent of the respondents. One of the interviewed respondents said:

> *Previously the attitude was a challenge, but after being trained on the importance of ICTs/e-system, now they have changed into a positive direction. It was just like a u-turn from negative to positive direction.*

A study by Thurston (n.d.) found that most of the development partners and government stakeholders were not aware of preservation and access issue. Moreover, the stakeholders tend to assume that digital information would survive without intervention. In addition, the stakeholders tend to focus on dramatic benefits of digital systems without considering the integrity of the digital information that these systems generate (ibid.).

Management support was identified by 24.5 percent of the respondents as crucial in effective implementation of e-information systems. These respondents identified management as critical factor in the implementation of ICTs/e-records to enhance work performance. The contribution of management can be evident in areas such as the establishment of programme, its inception, raising awareness, outsourcing funds (apart from donor funds) for the sustainability of projects, preparing workshops and in-house training. The study observed that

in the courts under review management support to the implementation of e-records management system was geared towards creating networks whereby stakeholders can meet through round table discussions to review the status of the court and service provision.

Despite all the initiatives, achievements and strategies in implementation of ICTs in the Commercial court there were still some pitfalls that obstructed the effectiveness of the e-systems (e-records management systems). Firstly, the Commercial division stands alone in championing issues of ICTs in the Judiciary. Secondly, the ICT policy remained largely inadequate. Thirdly, there was inadequate funding to acquire up-to-date equipment and facilities and provide training to staff to equip them with knowledge and skills. As a result, the workers were ill-prepared to cope with rapid technological changes. Whereas the Commercial court has adopted the use of ICTs other divisions, it still relied largely on manual format. In fact, most of the initiatives on ICTs that have been done so far in the Commercial courts were donor-funded and, therefore, raising the issue of sustainability of such projects amidst budget constraints.

3.3 Relevance/Impact on Policy and Practice

The mission of Commercial Division of the High Court of Tanzania is to provide just, quality, efficient, effective and speedy disposal of commercial cases through modern systems and practices. Therefore, the Division embraces technology as a way of fulfilling its mission in line with the current changes brought about due to developments in ICTs. Indeed, the use of ICTs in Commercial court is considered to be one of the key elements to improving significantly the administration of justice. In this regard, the Commercial court has played a fundamental role in instituting legal changes that have allowed for the admissibility of electronic evidence in Tanzania. The first law that was amended following the court decision was the Evidence Act of 2007 via the written laws (Miscellaneous Amendments) Act. Before the amendments, electronic evidence was inadmissible in Tanzania. As ICT systems continue to be deployed, it is imperative that necessary policies, guidelines and operational procedures be put in place to ensure their proper usage, management, administration and security in the judiciary.

3.4 Conclusion and Recommendations

The computer universally one of the key ICT facilities as it facilitates all the functions of records management from the creation to the disposition stage. In fact, ICTs are the lifeblood

of business and support institutions including the government. The Judiciary, as a crucial business support, cannot afford to be left behind. Therefore, it is unfortunate that the legal sector reforms came a little bit late in Tanzania's reform process. Despite the legal sector lagging behind in the effective adoption of e-systems in records management and administration, the eventual adoption of such systems has translated into improvement in the general court operation, time management in the collection, organisation and management of court records and documents, hence reducing operating costs in the process. Due to the pitfalls identified such lack of policy and ineffective legal framework, the study recommends that:

1. Judiciary should have a policy on ICTs, which should cut across all court levels from the Primary to the Supreme Courts.
2. The Government should increase funding allocation to the Judiciary, and the Judiciary should outsource funds from development partners.
3. Staff training should be given priority to ensure effective implementation and utilisation of ICTs in records management and administration, and
4. Revising of the legal framework to comply with the ICT environment.

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Bridging the Socio-Informational Divide for Poverty Reduction in the North 'A' District, Zanzibar

H. A. Haji & A. M. Omar

Abstract

Information inclusion has direct impacts on the reduction of poverty. This is even more apparent with rural environment. Failure to consolidate information with strategies for poverty reduction produces severe negative consequences. In Zanzibar, the non-involvement of information professionals in the implementation and review of the PRSP (2010/11 – 2015/16) is believed to be one of the main causes of government failure in achieving the poverty reduction goals. This paper, therefore, is explores the concept of information divide in the execution of poverty reduction strategies in the context of rural Zanzibar. It is based on a study that was carried out to achieve the following specific objectives: to assess the comparable level of education of small-scale fishermen and farmers of different genders in the North 'A' District; to examine the range and accessibility of information resources by farmers and fishermen of different genders; to identify the link between socio-informational exclusion and poverty; to identify the challenges small-scale fishermen and farmers face; and to suggest measures that could be introduced to fight poverty through information inclusiveness. The study was a case study and employed mainly a qualitative method, using interviews to collect data. Essentially, the study's analysis of the poverty problems in Zanzibar sought to detail the socio-informational gap between the "haves" and the "have-nots" and use the findings to make a number of recommendations.

Key words: Information, library services, socio-informational divide, poverty reduction, Zanzibar

1. Background and rationale

Zanzibar is an autonomous partner of the United Republic of Tanzania. According to the Population and Housing Census (2013) Zanzibar had a population of about 1.5 million with a growth rate of 3.1 percent and a population density of 412 per square km, which is the highest in Africa. Out of the total population, 40 percent live in urban area and the remaining 60 percent live in rural areas. The North 'A' District is the third most densely populated after Zanzibar Urban and West Districts, respectively. There are about 42,000 inhabitants scattered

along 40 sq. km with five electoral constituencies and 38 *shehias*. The headquarters of the district is Mkokotoni Township.

2. Achieving the Goal of Eradicating Extreme Poverty and Hunger in Zanzibar

According to the Zanzibar Strategy for Growth and Poverty Reduction, commonly referred to as MKUZA using its Kiswahili acronym (2007), the agricultural sector has remained the dominant sector of the economy as 40 percent of the population of Zanzibar depends on it for their livelihood. The share of agriculture in Gross Domestic Product (GDP) stood at 25 percent in 2002, declined to 21percent in 2003 and slightly rose to 23 percent in 2004. Recent data was not obtained. Overall, the declining GDP share of agriculture could be explained partly as a consequence of the rising contribution of other sectors, particularly trade, transport and tourism. The same source identified North 'A' District as the second poorest district of the Zanzibar archipelago, after Micheweni in Pemba.

3. Social-Informational Inclusion

Social inclusion is an area of public concern which has always been high on many governments' agendas, but the role of libraries and other information centres in this area has not always been clearly defined. The availability of a large section of society who are called the "information poor", the "information have-nots", the "information disadvantaged" the "information underprivileged" and the like, has been an increasingly unsettling issue for the information society throughout the world. Yu (2009) observes that within the broader academic community the issue has become a focal point of research in multiple disciplines, such as communication studies, library and information studies, and sociology and Ethics.. Yu (2009) further opines that in most studies, the socio-economically disadvantaged groups are taken for granted as the information poor.

Social inclusion, according to Train *et al*. (2000), implies the right of every citizen to be included fully in the society, a notion which is akin to the public library service ethos that the public library should be equally and universally available. Train *et al*. (2000) analysed what constitutes social exclusion in all its forms, and ultimately suggested that, all libraries should be secure, risk free, social places that are welcoming to all; caring, helpful, supportive places where people meet on equal terms; and above all, meeting places for individuals and ideas, shaped by and shaping the community.

4. Role of Information on Poverty Reduction

Research at the University of Reading conducted by Cris Garforth *et al.* (2010) shows that material poverty is often associated with exclusion of sources of information and communication. In his monumental three volumes analysis of the Information Age, Manuel Castells (1998, 2002) predicted that Information and Communication Technologies (lCTs) and the ability to use and adapt them will be the most critical factors in determining wealth and power in our time (Warah, 2004). Information is, therefore, an essential tool for enabling people to understand the different options available before making decisions. People who are often disadvantaged in society need information to empower them. The information they need must be specific with regard to its availability and applicability. It must also be provided at the right time, to the right person and at a reasonable cost.

5. Study Rationale

Zanzibar launched its first comprehensive Poverty Reduction Strategy (ZPRP, commonly referred to as MKUZA by its acronym in Kiswahili) in May 2002. The ZPRP was the first medium-term programme for implementing the country's Vision 2020. It was an operational plan with strategies aimed at mobilising and utilising domestic financial resources, both public and private, and a framework for attracting external resources to support prioritised expenditure plans. It focused on reducing income poverty, improving human capabilities, survival and social well-being and containing extreme vulnerability.

Subsequent reports for the implementation of ZPRS confirms that poverty in Zanzibar is largely characterised by higher poverty incidence in rural than in urban areas. Various measures have been taken to reduce poverty, but seldom is information placed among the alternatives. Although there is a solid policy framework for the general poverty reduction strategies, as well as sustained and strong relationship between the national and local communities, there is less emphasis placed on the role that information provision can play in poverty alleviation. Bridging the informational gap, it seems, has not been given the consideration it deserves in many government strategies. Despite policy documents giving a good signal of the need for poverty strategies programme to originate from local communities, less emphasis was placed on the provision of information to empower the local communities and help fight against rural poverty. Therefore, it is essential to conduct a study

that provides empirical evidence on the current information gap and how information provision can accelerate the achievement of poverty reduction in rural Zanzibar.

6. Methodology

This study was carried out in the Northern 'A' District, Zanzibar. A case study design was chosen because of the presence of a large number of agricultural fields and fishing landing sites across Zanzibar. The design was also deemed appropriate because it enabled the researchers to concentrate on specific issues of interest and to identify various interactive processes at work which could otherwise remain hidden when a survey method is deployed. The study employed mainly a qualitative method with some quantitative aspects integrated. The interview was main method for data collection. The qualitative method was used because it was deemed appropriate to provide in-depth understanding, a holistic picture of the problem based on individual respondents on the study. It was also used based on the researcher's assumption that most of the small-scale fishermen and farmers found it difficult to grasp questionnaires having dropped out of elementary school at lower levels.

The North 'A' District was particularly chosen because it is considered to be the second poorest district (after Micheweni in Pemba) according to the MKUZA report (2012). Moreover, it was within easy reach. The district was also selected because it was considered to have the highest percentage of people engaged in subsidiary farming and fishery activities in Zanzibar. The population of the study comprised all small-scale farmers and fishermen who trade their business in the North 'A' District. The researchers interviewed them until a theoretical saturation was met at 72 respondents. The sample size also included eight librarians as key informants.

7. Results of the Study

This section presents, interprets and discusses the data derived from the interviews schedules. Apart from the narrative presentation that also integrates verbatim transcription, data is also presented in tables showing frequencies and percentages.

8. The Range and Accessibility of Information Services in North "A" District

The second objective of the study was to examine the range and accessibility of information resources by farmers and fishermen of different genders in the North 'A' District.

9. The Range of Information Services

The importance of information as a vital resource for national development is unquestionable (Odini, 1993). Based on this fact, respondents were asked to comment on the range of sources of information within the district. They provided multiple responses as Table 1 illustrates:

Table 1: Range of Sources of Information in the North 'A' District, Zanzibar

Range of sources of information	No of responses	Percentage %
Telephones services	52	81
Radio broadcasting	31	43
Television broadcasting	23	36
Traditional announcements (upatu)	7	11
Outdated newspapers	5	8
Book boxes (school)	4	6
Internet services	4	6
Posters	3	5
Leaflets	2	3
Public meetings	2	3
Mobile loud speakers	1	2
Games and bonanzas	1	2
School dramas	1	2
Campaign clothes	1	2

Table 1 shows that telephone services (including and especially mobile/cell phones), radio broadcasting and television broadcasting, traditional announcement (upatu), outdated newspapers, book boxes (in schools), internet services, and posters were deployed at to varying degrees as sources of information. It can be observed from Table 1 that even those respondents who did not possess a telephone set acknowledged its importance and was widespread.

The study further found that most of the Zanzibar FM radios and some from East Africa and beyond were obtained at varying degrees of clarity. The ZBC was claimed to be the most

accessible radio and the Radio Aboud was the least. About six local and community radios stations were accessible and about four cable television networks were also widely accessible. Accessible radios that were cited by the respondents (apart from the ZBC) included *Noor FM*, *Radio Adhan*, *Radio Iman*, *Radio Istiqama* and *Tumbatu Community FM* radio. Some of the International radios cited include *Radio China International*, *BBC*, *Sauti ya America*, and *Radio Berlin*. Among the televisions cited were *ZBC*, *TVT*, *ITV*, *Star TV*, *TV Aboud*, *TV Mlimani, East Africa TV* and *Channel 10*. *Citizen TV* and *KTN* of Kenya were also accessible.

With the opening of various tourism hotels and restaurants and the extension of electricity services to the remotest areas of the district, television and radio broadcasting were accessed almost everywhere. The situation was quite similar to the regional ICT development report. Indeed, AISI (2002) reports that radio programmes were the most powerful means of information dissemination in rural Africa. The researchers found that radios were most widespread because they could also use alkaline batteries. Radio programmes could be used to create greater awareness of the information society, hence serving as a tool for media practitioners, especially radio broadcasters to engage with various groups in debating on the role of information in the development process. However, as Odini (1993) puts it, despite this rather wide coverage, there is still the need to improve access to information by various user groups and to ensure the information was available at the right time and in an appropriate form.

10. The Accessibility of Information Services

Sixty-four respondents (32 farmers and 32 fishermen) were asked about the accessibility of information materials available. They provided multiple answers as indicated in Table 2 below:

Table 2: Accessibility of information services among respondents (N=64).

Information accessibility	**No of responses**	**Percentage**
Have mobile phones	49	77
Own radio sets	19	30
Own home television sets	6	10

Use internet Services	4	6
Own computer	3	5
Have access to library Services	3	3
Have fixed telephone lines	1	2
Pay Television	1	2
Daily Newspapers	1	2

Table 2 indicates that the best tool accessed by rural population was mobile phones (77%) followed by the radio (30%) and home television sets (10%). Fixed telephone lines, pay television services and daily newspapers were all accessed by only two percent of the respondents. Although fixed telephone lines could be explained by having been replaced by cheap mobile phones, further clarifications from respondents revealed that pay TV stations could not be accessed based on their monthly subscriptions which were generally beyond the ordinary citizenry's size of pocket and buying newspapers was considered a wastage of money. The researcher understood that there was not a single library establishment in North 'A' District, as in any other district of Zanzibar apart from the Central Library at the Zanzibar town and the Chake Chake Library in Pemba. The findings of this study concur well with Ng'ang'a (1998) who observed that attempts made in many countries in Africa towards development tended to neglect rural areas in the process of industrialisation and this posed a serious problem such as the acceleration of rural-to-town migration.

11. Comparison of Access to Information Services between Farmers and Fishermen

The study also sought to compare the accessibility of information services among farmers and fishermen and the results are shown in Table 3:

Table 3: Comparable Accessibility of Information services

Information accessibility	**Among Farmers (N=32)**		**Among Fishermen (N=32)**	
	No of responses	Percentage (%)	**No of responses**	Percentage (%)
Have Mobile phone	19	59	23	72
Own radio set	8	25	11	34

Own Home Television set	4	13	2	6
Have access to library services	2	6	2	6
Own Computer	2	6	1	3
Use Internet services	2	6	0	0
Pay television	1	3	0	0
Have Fixed (Telephone) Line	1	3	0	0
Read Daily Newspapers	1	3	0	0

Table 3 reveals strange results in that although more fishermen owned mobile phones (72%) and radio sets (34%) compared to farmers (59% and 25%, respectively), it was the farmers who most had computers (6%), had television sets (3%), consulted library services (6%) and read newspapers (3%) compared to three percent for the use of computers and zero percent for the rest of information media among the fishermen. The two groups drew level (6%) on the use of the internet. According to Ng'ang'a (1998) this scenario could not have emerged had information on the rural folk and their needs been taken into account, hence the importance of libraries and other information centres in to enhance sustainable rural development.

These findings imply that mobile phones and the radio are the most widely accessed informational materials among the rural populations of Zanzibar. The two media enjoyed the widest coverage and this makes them an effective mode of disseminating information. More telephone messages and radio programmes could be broadcast on important issues such as credit facilities, education, primary health care, agriculture, nutrition, and HIV/AIDS. In addition, as suggested by (AISI, 2002) although not captured in the present study, brochures and posters should be distributed widely to strengthen such programmes.

This scenario places libraries (and other information units) in an advantageous position as they can help bridge the information gap. Libraries still have a vital role to play in collecting, storing and disseminating information. However, in many countries where they are few, there is an even more pressing need to collaborate with other information providing organisations to achieve the desired effect. Such collaboration would effectuate wider dissemination of relevant development information. Libraries could collect such information from those organisations and disseminate it.

12. Gender differences in Accessing Information Services

The information tools presented in Table 4 were distributed fairly between farmers and fishermen and between different fields or landing sites. However, the divide between females and males was rather wide.

Table 4: Gender-based Access to information services (N=64)

Information accessibility	**Male (N=39)**		**Female (N=25)**	
	No. of responses	**Percentage %**	**No of responses**	**Percentage%**
Have Mobile phone	31	79	12	48
Own radio set	14	36	5	20
Own Home Television set	6	15	0	0
Have Fixed Telephone Lines	1	3	0	0
Own Computer	3	8	0	0
Use Internet services	3	8	1	4
Pay television	1	3	0	0
Library Services	2	5	0	0
Daily Newspapers	1	3	0	0

Table 4 indicates that the best information source accessible by female respondents were mobile phones (48%) followed by radio sets (20%) compared to 79 percent and 36 percent for the same materials accessed by male respondents, respectively. Perhaps based on their roles as housewives, rural women neither owned home TV sets, fixed telephone lines, nor computers, and neither did they access on their own budgets, pay TV programmes nor purchased daily newspapers. Another explanation which may be given to this wide gender-based access information gap could be psychological. According to Xie, Bao and Morais (2000) gender has been identified as a factor that influences information search and other meaningful consumers behaviour constructs. According to the authors, females are usually more subjective, intuitive, comprehensive and relational processers of information whereas males are usually more logic, analytical, selective and item-specific processers. Despite these psychological differences the overall accessibility of information was not encouraging even with male respondents, as Table 4 illustrates.

13. Reasons for Inadequate Utilisation of Information Services

The researcher also sought to find out why the respondents were not adequately utilising the information services to improve their products. Asked why they did not use library services, 37 (57.8%) of the respondents said that they did not understand how the library could help them and 21 (33.8%) said that there were no public libraries in their vicinity. Five (7.8%) respondents said that they had long completed school and were in no need of going back to school. One (1.6%) respondent declined to comment. One farmer from Mto-wa-maji rice field was one of those who said they were not ready to go back to school:

> *I am not prepared to go back to school. If there is any new farming method the government would like to initiate, the government can send its extension officers to the field to demonstrate. But nobody can persuade me to abandon my work and go back to the classroom after so many years. Sorry! I am not prepared for that.*

Information professionals were asked to comment on the lack of information materials in North 'A' District. They said that the government concentrated on establishing school libraries first and thus the establishment of community libraries remained a responsibility of local communities. One respondent from the central library said:

> *You know the government cannot build libraries everywhere. We know that we are obliged to help local communities with books and other reading materials, but don't forget that this government is poor. If there comes no help from donors, the government cannot by itself initiate a library project. Don't forget also that if the government established a project in one community, other communities will cry foul.*

Similarly, another librarian from the Central Library (Zanzibar Library Services [ZLS]) said that there was already a community library project which was established by local community at Jongowe village. The respondent said that "ZLS will help the community with reading materials and technical training when the project is completed." Another officer of the Central Library said: "If a particular community comes forwards with a project and has secured fund, the ZLS will help with the technicalities."

When asked to comment on the state of library service provision in the district, most of the

librarians acknowledged the importance of district libraries, but said that they did not have enough funds to execute the projects. These responses imply that the Central Library was not in a position to implement library projects in rural areas but could to assist only if local communities took the initiative.

14. Link between Socio-Informational Exclusion and Poverty

The third objective of the study was to identify the link between socio-informational exclusion and poverty in the words of the respondents. Asked about the link between the provision of information services and the reduction of poverty, most of the farmers and fishermen claimed that they could not see the connection. However, when asked why most of them had mobile phones, they said that the electronic gadget had developed into a very effective marketing tool. In this regard, one fisherman from Matemwe landing site said:

> *In addition to its usual usage as a mode of communication, mobile phones have become good marketing tools. Sometimes, if we are not satisfied with the market prices, especially during evenings, we use our phones to contact potential buyers elsewhere… With these phones, at least we have alternative markets within our hands.*

Fishermen from other areas provided similar responses, although those at Mkokotoni claimed that "marketing with telephones is effective only during tourism peak seasons."

When the same question was asked to Central Library employees, they said that there was a strong connection between the provision of information and the reduction of poverty. One such officer explained:

> *Those local citizens who can connect with the outside world through various media have more opportunities to discover the market trends and are more likely to improve their product and, thus, increase the poverty reduction speed, compared to those who only depend upon traditional means of production and distribution. Those who directly take their product to a wider market are more likely to get a better price than those who only sell their product locally*.

It was further understood that some fishermen used the mobile phone to contact purchasing officers in the tourism industry, especially when they had caught certain types of fish that

were highly prized in the tourism industry such as crabs and lobsters

The study also sought to find out from the information professionals how the poverty problems can be linked to information exclusion. Different responses given by different respondents have been summarised below:

(i) Rural population will fail to get appropriate market prices if they continue facing difficulties in getting important information in a timely fashion and in an appropriate format.

(ii) Rural population will fail to apprehend the meaning of information if it is only disseminated in the written form as that would make it difficult for the rural dwellers with low or no literacy skills to access it;

(iii) Extension (agricultural) officers and field workers will only have little impact if they have little access to information on their areas of interest and if they could and when they were unable to access current research findings from their local information units.

The respondents further reported that if such situations continued unabated, then the farmers and other rural entrepreneurs could fail to act on potential opportunities towards poverty reduction and would most likely remain impoverished.

15. Challenges small-scale fishermen and farmers face in North 'A' District

The respondents were also required to identify the challenges they faced in their fight against poverty and information exclusion. The results are presented in tables 5 (a) and (b) below:

Table 5 (a): Challenges identified by small-scale fishermen

Challenges	No of responses	Percentage (%)
1. Outdated fishing gears	13	41
2. Lack of information about outside markets	9	28
3. Low market price outside the tourism peak seasons	6	19
4. Frequent interference from the fisheries	5	16

authority and environmental activists		
5. High taxes levied by the district council's representatives	4	13
6. Rough seas at times	1	3

Table 5 (a) indicates that the greatest challenge the fishermen faced was outdated fishing gears (41%) followed by lack of information on external markets (28%) and low market price of fish catch outside the tourism peak seasons (19%). Other challenges identified include frequent interference from fisheries and environmental activists (16%), high tax levied by the district council representatives (13%) and rough seas at times (3%). It is encouraging to note that the respondents remembered to cite lack of relevant information (at 28%) as the second biggest challenge they faced. In an ideal situation, you would have expected them to cite only income and production issues, as they did with the rest of the challenges. Similar challenges were identified by farmers, as demonstrated in Table 5 (b):

Table 5 (b): Challenges identified by small-scale farmers

Challenges	**No of responses**	**Percentage (%)**
1. Low purchasing power of local residents	11	34
2. Long distance from production sites to market places	7	22
3. Poor road conditions	6	19
4. Unqualified extension officers	4	13
5. Lack of local agricultural information centres	3	9
6. Lack of irrigation schemes and infrastructure.	1	3

Table 5 (b) indicates that the greatest challenge farmers faced was the low purchasing power of the local residents (34%) followed by long distance from production sites to the market place (22%) and poor road conditions (19%). Other challenges identified include unqualified extension officers (13%), lack of local agricultural information centres (9%) and lack of irrigation schemes and infrastructure (3%). Unlike fishermen, information-related challenge

was cited as the penultimate least challenge (9%), which only topped lack of irrigation scheme and infrastructure (3%). This implies that fishermen are less knowledgeable with the power of information on poverty reduction.

16. Suggestions of Respondents

The fourth and final objective of the study was to suggest measures that could be introduced to fight poverty through information inclusion. Various levels of respondents were requested to suggest measures that they thought would promote inclusion and assist in reducing poverty. The following are summary of suggestions made by respondents:

17. Suggestions of fishermen

Small-scale fishermen made multiple suggestions on fighting poverty through information inclusion. Table 6 indicates the suggestions of small-scale fishermen on poverty reduction through information inclusion:

Table 6: Suggestions of fishermen (N=32)

Suggestion	**No of responses**	%
Remove the District Council's levy	10	31.2
Provide fishing gears for free	7	21.9
Intervene to fix market prices	5	15.6
Identify fishermen's aspirations	5	15.6
No comment	4	12.5
Establish mobile libraries	1	3.1

Table 6 indicates that most of the fishermen (31.2%) would like the government to remove the district council's and constituency levies from the local markets. Their second suggestion was to be given fishing gears for free-of-charge, as recommended by seven (21.9%) fishermen followed by five suggestions made for either the need for government intervention in setting prices for their catch or the need for government to identify fishermen's actual requirements and aspirations. Four respondents declined to comment and one recommended for the ZLS to establish mobile libraries. It can be observed from the recommendations that none of the responding fishermen was concerned about information provision. This strongly

implies that the respondent did not value the power of information in fighting poverty.

18. Suggestions of farmers

Small-scale farmers were also requested to make their suggestions to fight poverty through information inclusion. Table 7 indicates the suggestions of the small-scale farmers on poverty reduction through information inclusion:

Table: Suggestions of farmers (N=32)

Suggestion	**No of responses**	%
The ZLS should extend services to the remotest possible areas	9	28
The ZLS and the party (CCM) should organise agricultural information through exhibitions in rural areas	6	19
Provide special current awareness services, and document delivery services to rural citizens	5	16
No comments	5	16
Involve agricultural extension officers when developing new approaches of disseminating agricultural information to the farmers	4	12.5
Establish rural agricultural information centres	2	6.3

Table 7 shows that nine (28%) farmers suggested the Zanzibar Library Services (ZLS) should extend their services to the remotest areas and six (19%) called on the ZLS in collaboration with the ruling party, CCM, to disseminate agricultural information through exhibitions in rural areas. Five (19%) respondents called for the provision of special current awareness services, and document delivery services to rural citizens. Five (16%) others had no comment. Four respondents (13%) suggested involving agricultural extension officers when developing new approaches to disseminating agricultural information to the farmers. The remaining two (6%) farmers suggested establishing rural agricultural information centres.

Comparing the recommendations of the fishermen and the farmers, it appears that the farmers

had a better understanding of their information needs than the fishermen. This conclusion is based on the quality of suggestions made by each category of respondents. Whereas 15 (46.9%) farmers acknowledged the role of the ZLS in information dissemination, no fishermen appreciated the centrality of such a role. Similarly, whereas most suggestions of the farmers were on information dissemination, only a handful of suggestions of the fishermen were minutely related to information access and usage. Unlike the fishermen's, the suggestions also indicate that the responding farmers also appear to identify development initiatives with the ruling CCM and few could distinguish between the party and its government.

19. Suggestions of Information Professionals

Information professionals were also requested to provide suggestions on the subject of information inclusion. Table 8 below indicates the suggestions of the information professionals on the subject:

Table 8: Suggestions of Information professionals (N=8)

Suggestion)	**No of responses**	%
Speed up opening of library services branches in all districts across Zanzibar.	3	37.5
Abolish all forms of closed access to information such as the 30 year rule archives closure period	2	25
Allow free flow and flexibility in disseminating information.	1	12.5
The local communities should identify themselves with the libraries as a source of information and education in relation to poverty problems	1	12.5
Incorporate local citizens before adapting to new technology	1	12.5

The information professional also made suggestions to fight poverty through information inclusion. Five suggestions were made which included speeding up the opening up of library services branches in all districts across Zanzibar (37.5%); abolishing all forms of closed access to information such as the 30-year rule archives closure period (25%); allowing for

free flow and flexibility in disseminating information; the local communities to identify themselves with the libraries as a source of information and education in relation to poverty problems; and brining local citizens on board before adapting new technologies (all suggested by single respondents each). It is encouraging to note that all of their suggestions were concerned about information provision and dissemination. However, these suggestions added little value as they were made by information specialists because of their specialisation and responsibilities.

20. Relevance and impact of the study to MKUZA II

This paper has attempted to summarise the role of information inclusion on poverty reduction and to discuss the relevance of libraries and other information centres to the policy and practices of poverty reduction in Zanzibar. This paper argues that attempts to reduce poverty have much to gain from information inclusion. Two groups of small-scale producers (farmers and fishermen) were interviewed to assess the degree of awareness of their inclusion and propagate the role of information inclusion on poverty reduction. A number of challenges pertaining to the access and use of information sources and resources by small-scale farmers and fishermen were identified. These challenges attest to the truism that information inclusion has much to offer to achieve the poverty reduction goals in terms of providing unbiased, right information from a wide range of studies of national economic policies and practices.

The Zanzibar Poverty Reduction Programme (2010/11-2015/16) provides a right mechanism for preparing, maintaining and disseminating systematic reviews of the effects of information interventions, policy and practice. The quality of MKUZA reviews and their periodical reports depends upon how information is collaborating in the process, especially on the side of inclusion and exclusion criteria which must be considered by reviewers when doing their periodical review. This is essential to ensure systematic reviews deliver what they promise, that is high quality reviews of the existing and emerging evidence in poverty reduction. If the idea of information inclusion proposed in this paper is not adhered to, the achievement of the millennium goals (especially the reduction of abject poverty) is likely to fail. On the contrary, when it is applied thoughtfully and carefully it can provide valuable insights that could translate into groundbreaking results. The study is, therefore, relevant to the realisation of goals and objectives of the Zanzibar Poverty Reduction Strategy Programme (2010/11-2015/16/ MKUA II).

21. Conclusion

The study was conducted to examine the extent to which the socio-informational divide hindered the objectives of poverty reduction in Zanzibar and to suggest strategies to reduce poverty through information inclusion. The study has come up with significant findings regarding bridging the socio-informational divide in Zanzibar's poverty reduction in the rural areas. It is apparent from the study that poverty reduction measures demand that rural people get access to the information they need in forms that they can understand. However, although libraries and other information providers are known to be good agents of social change, the findings show that they were not identified as adequate partners in the fight against poverty as the respondents were not aware of the role and significance of information in poverty reduction. These findings correspond well with the study objectives and adequately answer the research questions. The study, therefore, concludes that without addressing the information needs of rural dwellers, other development efforts may fail to achieve their potential impacts. Indeed, if such circumstances persist, realising the goals of poverty reductions could be defeated.

22. Recommendations

Although many of the recommendations of the study were originally proposed by the respondents, they were edited with some additions and corrections for clarity. Many other suggestions of the respondents were either repetitions or were irrelevant to the objectives of the study.

22.1 Recommendations on poverty reduction

In view of the findings of the study, which are presented and discussed above, the study makes various recommendations as outlined below:

- Reviewing the existing Zanzibar Poverty Reduction Strategy (ZPRS, 2010) to incorporate information inclusion;
- Improving entrepreneurial skills of small-scale fishermen and farmers; and
- Opening up new markets for small-scale fishermen and farmers.

Recommendations on information inclusion

- Opening up local branches of library services to at least district levels;
- Establishing current information awareness services for poverty reduction;
- Establishment of mobile library and information user educational services; and

- Carrying out periodical information, exhibitions and displays in rural areas.

The researchers believe that the implementation of these strategies with their linked activities would ultimately help to reduce poverty faced by small-scale fishermen and farmers, who make up the majority of residents of the North 'A' District, Zanzibar.

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Role of libraries, information centres and archives in poverty reduction

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Abstract

Information and knowledge are increasingly being recognised as effective means towards poverty alleviation, especially in developing countries. The available literatures show that traditional methods used to focus on addressing the problem from the outside. One of the approaches to reducing poverty is the appreciation of the poor people's potential in reducing poverty through searching for and using appropriate information and knowledge. This approach could lead to the identification of different categories of the poor and address problems each category was facing accordingly. This article presents the opinions of the poor people who took part in a study on how they use information and knowledge to reduce poverty. The insistence on the poor accessing and using information and knowledge for poverty reduction is motivated by the fact that change should start with the conscious individual then to society. However, to deal with this relentless social scourge a truly joint effort is needed including governmental effort.

Keywords: Poverty reduction, knowledge management, information sharing

1. Introduction

Transformation of information and knowledge into a relevant tool in poverty reduction intervention presupposes the availability of individual motivation, interest and effort that encourages the targeted group's ownership of the relevant knowledge (Steele, 2008; Talisayon & Suministrado, 2008; Mchombu & Mchombu, 2014). The role of information and knowledge in poverty reduction is perhaps the most significant and troubling issue in poverty reduction efforts. The ability of the poor in dealing with this problem by searching for and using quality information and knowledge is important. In fact, barriers to accumulating, accessing resources and accessing information contribute to the continuation of poverty. Nevertheless, this does not necessarily suggest a watertight causal connection between information and knowledge, on the one hand, and poverty reduction, on the other. At best, it

suggests an interaction between these variables. A multitude of other factors for example, policy instruments influence this relationship.

The researcher in this study explored the views of the poor because of the conviction that they knew that they were poor because they were experts in poverty; they had useful and productive knowledge and were motivated and determined to pull out of this mire by any means. They could explain, theorise, discover, identify suitable development projects, determine a receptively productive knowledge and how to disseminate it, elect their dynamic leadership and identify any bottleneck to their endeavour to change. In fact, for effective poverty reduction to take place it is necessary to improve personal capacities and to facilitate access to information and knowledge that can lead to change. Nevertheless, the poor people differ from one another in terms of levels of poverty. There are extreme, moderate and progressive poor people. Some of the poor people, for example, those in extreme poverty, are harder to reach and they require stronger and longer-term support as they have a limited political influence (Institute of Development Studies, 2014) and they are less willing to accept change. This article reports on findings of a study that focused on the moderate and progressive poor because they were ready to embrace change. Their willingness to participate in the change process was reflected in their endeavour to search for information and knowledge in the poverty alleviation process.

The research question of this article was: "How did the moderate and progressive poor people (in short, poor people) use information and knowledge for poverty reduction?" The research investigated the experience of the participants in relation to the role of information and knowledge in poverty reduction. The assumption was that the determinants of poverty reduction were either unknown or known but not effectively considered in poverty reduction policies.

2. Definition of key terms

2.1 Poverty reduction

Poverty reduction is a difficult concept to define because there is a danger of assuming that the determinants of poverty reduction are known. If this were the case, then, there would be no need for this work. The central issue lies in defining poverty because being poor is associated with the deprivation of the means to live happily and in decent life. There have been different definitions of poverty but the issue lies in establishing a causal link between

the policy instrument for poverty reduction and the improved conditions of the poor people. The first thing to consider here is the difficulty in establishing that causal link, for example, between economic growth that will lift many people above a particular poverty line and poverty reduction. There could be a correlation but to establish the causal connection might be difficult. In addition, it is difficult to determine the policy instruments that lead to poverty reduction. The second thing to consider is the issue of deprivation in different dimensions of poverty other than income. What instrument will focus on a particular dimension and become effective again might be difficult to establish. After all, the poor people are diverse and have different cultures and understanding of their respective situation. Thus there is a need to adopt a definition that cuts across different dimensions of poverty and which will lead toward understanding poverty reduction.

According to Barder (2009), poverty reduction refers to an effort to promote economic growth that results in permanently uplifting many people out of poverty. This sounds like a universal policy leading to a consideration of whether to apply universalism or selectivity approach by targeting specific groups to ensure the policy was a success. Since the target is poverty reduction among the poor, then let us consider the poor as the universal and the entire population of the poor people would be beneficiaries of the social benefits brought about through the implementation of poverty reduction policy. Targeting would require determining those who deserve to benefit from such a policy and it would be difficult to ascertain that they all would be included. Nevertheless, it is difficult to have a pure universal or pure selective approach. Thus the inclination here is to lean towards the universal approach.

The definition given above only introduces the problem. In poverty reduction, we need to consider different objectives to be achieved to engender poverty reduction affecting different people in different circumstances and in different levels of poverty. We also need to consider poverty reduction in different periods, for example, one year against ten years to come, a sustainable process against a stopgap policy and poverty reduction involving few people against many people. These are tradeoffs which must be considered in the poverty reduction process. As such, it is difficult to have one definition that encompasses everything on poverty reduction. In this study, poverty reduction is a process that involves the progressive poor people in an effort to become aware of their condition and work towards bettering their living standard to specific agreed upon standards.

2.2 Information

Information is news or knowledge given that leads to understanding something real or abstract. It passes from one person to another as content of massage or through direct or indirect observation of a thing. It can be encoded, encrypted or transmitted. However, information as a message can have different meanings to different people and in different socio-economic contexts. It can result into a change because it has a potential to stimulate change. In this sense, Casagrande (1999) uses the concept as a verb to refer to a state change and not merely to the reduction of uncertainty or something emerging from raw data only. If poverty is considered as lack of basic capabilities, resources and money then access to information is a key to addressing poverty-related problems.

2.3 Knowledge

Knowledge is familiarity, awareness and understanding of something. More specifically, the knowledge obtained through personal learning effort tends to empower and has the capacity to be permanent. Learning contributes to increased knowledge, self-confidence, creativity, improved imagination, memory and ultimately happiness.

3. Literature review

Poverty reduction is a challenge many countries face. Poverty is a leading problem in Africa. By 2010, 49 percent of the African people were living under US$ 1.25 a day, down from 58 percent in 1999 (Beegle & Ferreira 2014). Different approaches to addressing this problem such as the economic growth approach, basic needs approach, rural development approach, targeting approach and structural change approach have been applied but with relatively severely limited success. Different strategies to address that problem have been initiated. Yet, poverty persists regardless of the efforts made by different international organisations, the national government and the advancement in technology. The efforts are generally directed towards development and poverty reduction in poor countries, but it is not clear as to what is essential and what is not in these efforts. What needs to be clear is what to start with and what should come later, what should be achieved in the short-term and what in the longer term. The other dilemma whether the coverage of these poverty alleviation efforts should be targeted or universal. We are learning from this vexing poverty reduction paradox is that it would be fruitless efforts unless we have a deep understanding of the barriers that prevent the

poor people from escaping poverty. Alkire's (2002, p. 2) capability approach was fundamental in this study. The basic argument in this approach is:

> *The goal of both human development and poverty reduction should be to expand capability that people have to enjoy valuable beings and doings. They should have access to positive resources that they need in order to have these capabilities. They should be able to make choices that matter to them.*

This approach leads to understanding what prevents the poor from escaping poverty because it values individual freedom to make choices regarding what is best for him/her as well as making productive decisions. It views poverty as a multifaceted reality. But much as this is a good approach to poverty reduction, still there is a need to have some standards because people's tastes are diverse and some of them deviate much from the social standards. Poverty reduction should strengthen human capability, raise per capita income, increase knowledge, strengthen power especially for decision-making and address all dimensions of poverty surround the poor person. This is in line with the ideas presented in the World Development Report of 2000/2001 which suggests that poverty reduction should follow a multidimensional approach in a bid to lead to increasing poor people's access to opportunity, security and empowerment.

Alongside the issue of poverty reduction is role that information and knowledge play in this endeavour. In fact, the extent of controversy surrounding poverty reduction confirms the need to examine what information and knowledge can contribute in the poverty reduction process. The World Bank (1993) on the Asia Miracle presented nine success elements which could be transferred to other countries and one of them was a heavy investment in human capital and, more significantly, investment in information and knowledge, which is considered to be a real mover in poverty reduction because it equips the individual with necessary tools for quality decision-making. The individual plays a central role in poverty reduction. In contrast, Brock *et al*. (2002) characterised poverty reduction in Uganda as a political process. Although it is true that some political input for mobilisation reasons is needed, a decisive and primary role is played by the individual poor and in the secondary place the government structural inputs should come in.

4. Methodology, field findings and discussion

A qualitative approach was used with interpretive phenomenological paradigm following the advice from Patton (2005) and focused on exploratory phenomenology (Ensslen, 2013; Yates *et al*., 2008). The qualitative methodology was appropriate in exploring this problem because the researcher knew very little about the research phenomenon. As Strauss and Cobin (1995) contend, this methodology enables the researcher to get deeper insight into the problem at hand. Phenomenology research takes an experiential view regarding the phenomenon being studied, highlighting human experience as valid and important in understanding the problem under inquiry. The aim was to identify and describe the meaning the respondents had concerning their experience in the use of information and knowledge in poverty reduction (Flick, 2009) as well as learning from their experiences about the use of information and knowledge for poverty reduction.

The study covered Kagera, Shinyanga, Mara, Mwanza and Arusha Regions in Tanzania. An exploratory phenomenology design was adopted to generate insights into the research problem. The regions covered were conveniently selected due to easy access. The sample size of 76 was conveniently and subjectively selected based on the researcher's judgement, the purpose of the study and experience with the problem to enable the researcher to maximise the generalisation of insights but without providing a conclusive solution to the problem. Hycner (1999, p. 156) argues that phenomenon influences method and not the other way round. This idea strongly influenced the researcher's decisions. In addition, the researcher was interested in uncovering deep understanding and experiences of the respondents about the use of information and knowledge in poverty reduction. The selected design was deemed appropriate for the study and its basic presuppositions. The purpose of this study from the outset was to determine the function of information, knowledge, libraries and archives in poverty reduction. The study involved non-structured interviews, focused group discussions, in-depth interview and direct observation and data were collected from both rural and urban areas from 12 August 2014 to 30 October 2014.

5. How the study unfolded

An effective research work begins with identification of the topic, then the problem and then the development of the research question out of which a title is formulated. Creswell (1994) underscores the importance of the paradigm in research undertaking. The paradigm provides

patterns of thinking and beliefs and also guides how design actions are taken. Thus the epistemological position taken by the researcher in this study involved the following: a) a belief that respondents had knowledge about poverty, information search, appropriate knowledge they needed to help them address their life challenges and information quality; and b) a belief that respondents would fully co-operate with the researcher in data collection because the problem under study was not new to them. Thus, the opening question was: "What is your experience of searching and using information and knowledge for improving your life?". This question evoked memories of various things relevant to the problem. Other issues in the form of thematic followed to gain a deep understanding of the perceptions of experience. Cross-referencing questions were also asked to ensure rigour in the interviewing exercise and to get clarification on the experiences of the respondents.

The researcher met the respondents in the field and conducted the interviews with them accordingly. Internet search was also conducted. To ensure ethical research conduct, the researcher obtained informed consent from the participants. Since the research problem was of interest to the respondents, the issue of deception was minimal or absent. Moreover, voluntary participation was guaranteed. Respect for the participants' rights was also observed and confidentiality was confirmed. In addition, the focus group discussions (FGDs) followed the guidelines by Eliot and Associates (2005) and Dzija *et al*. (2005). Some groups had eight participants whereas others had 10. The in-depth interview was natural and was considered a form of conversation in which the respondent participated voluntarily and the researcher posed questions which were answered by the respondent. This followed Kvale's (1996, p. 4) idea that the researcher may be an active player in developing data and meaning.

With different FGDs and different in-depth interviews conducted it was possible to triangulate data to compare and contrast as well as validate the data to determine whether they yielded similar findings. The interview exercise stopped when the problem was exhausted and no new perspectives were being obtained.

6. Data handling

Bailey (1996) recommends audio-recording the findings after obtaining permission from the interviewee. But this was not done because the tools were not available. Instead, the researcher had a notebook in which all notes were recorded and stored. The researcher took

all necessary precautions as advised by Lofland and Lofland (1999, p. 5) and Bailey (1996). The field notes also marked the beginning of data analysis (Morgan, 1997, p. 57) because they reflected a kind of interpretation. In phenomenology research the datum is the consciousness of human being, the lived experience of the respondents. As such, the data were not prematurely categorised into the researcher's biased categories.

The field findings were congruent with the reality on the ground because they reflected the attitude of the respondents in their respective areas. Lincoln and Guba (1985) suggest conducting long interviews and these were undertaken with the respondents. Furthermore, Yin (1994) calls for the operationalisation of key variables to facilitate measurements; however, there were no measurements in this qualitative study. In addition, major data collection strategies involved triangulating of data collection methods as it involved interviews and observation whose combination compensated for the individual limitations of each data collection method (Guba, 1981; Brewer & Hunter, 1989). Moreover, the respondents were picked from different parts and similar findings emerged, hence bolstering the credibility of the research findings.

Data analysis followed a descriptive path for promoting understanding from patterns. However, generalisation was not included; instead, transferability to other similar settings was acknowledged (Trochim, 2006). Weick (1979) considers this method to be fair and meaningful. The study considered verbal dimensions only. Also, the study employed thematic analysis. According to Boyatzie (1998), thematic analysis is a categorizing strategy for qualitative data, which focuses on identifying patterns from broad reading of data and developing themes (Braun & Clarke, 2006). The researcher developed themes that emerged from the research questions.

Table 1 summarises findings. The findings came from the respondents' opinion on the use of information and knowledge in poverty reduction efforts. During fieldwork four types of field notes emerged: a) observational and interview notes whereby the former involved making observation with all senses of the researcher active and the latter which involved conducting interviews; b) theoretical issues which involved attempts at developing a deep understanding and derivation of meaning and experiences from the respondents; c)

methodological notes which involved reminding the respondents about appointments; and d) end notes which summarised the daily work.

Table 1: Field findings

Theme (central themes)	Sub theme	Appearance/interview
Meaning of poverty and poverty reduction	a. conceptualisation of those concepts	100
	b. poverty reduction possibility	70
	c. causes of poverty: multiple, complex and their mutual reinforcement	60 61
	d. accepting the state of poverty	
	e. what the poor living in poverty think about themselves	56
	f. what the poor people say about living in poverty	89
Readiness to accept and carry out poverty reduction measures	a. not ready	76
	b. not wanting change	80
	c. wait and see	85
	d. ready to act	65
	e. someone will do something	60
Awareness of library, information centres and archives	a. they are for education and training	14
	b. sources of information and knowledge	70
	c. do not know them	80
	d. not aware of them	54
	e. library as a meeting place	46
	f. planning period	78
Link between information, knowledge and poverty reduction	a. information and knowledge do not lead to poverty reduction	109
	b. no relation/link	97
	c. information necessary for poverty reduction	89
Quality and quantity of information and knowledge	a. searching for information and knowledge	76
	b. projects that need information	90

	c. credibility of the information and knowledge sources	65
	d. adequacy of information and knowledge	73
	e. knowledge in life	86

The study findings came from respondents' perception of role of information and knowledge in poverty reduction. Another part of the findings came from the literature. The thematic process revealed five large areas of concern presented in Table 1.

7. Data explicitation

Hycner (1999 p.161) advises that it is advisable in phenomenology research to use explicitation which allows for an investigation of phenomenon while keeping the content of the whole context instead of going for data analysis as is the case with other types of research. In this regard, the phenomenon studied should not be reduced to the cause-effect relationship but it should be considered it in its own right with its own meaning (Hycner, 1999; Fouche, 1993). The researcher attempted to ensure that his interpretations, meanings and theoretical concepts did not derail the meaning held by the respondents. The researcher read three times the field notes to become familiar with the respondents' words and language and develop a holistic picture. Then the researcher made a list of all the statements that were relevant to the study phenomenon, the literal content, how many times similar statements sharing meaning appeared and how they were stated. Then the researcher formed clusters of themes out of which central themes were developed (see Table 1). Five central themes were identified. When comparing the themes, the researcher read the original data again and again for cross-viewing. The findings reflect the way the respondents used information to make decisions pertaining to poverty reduction. This presented in Figure 1 showing the linkages.

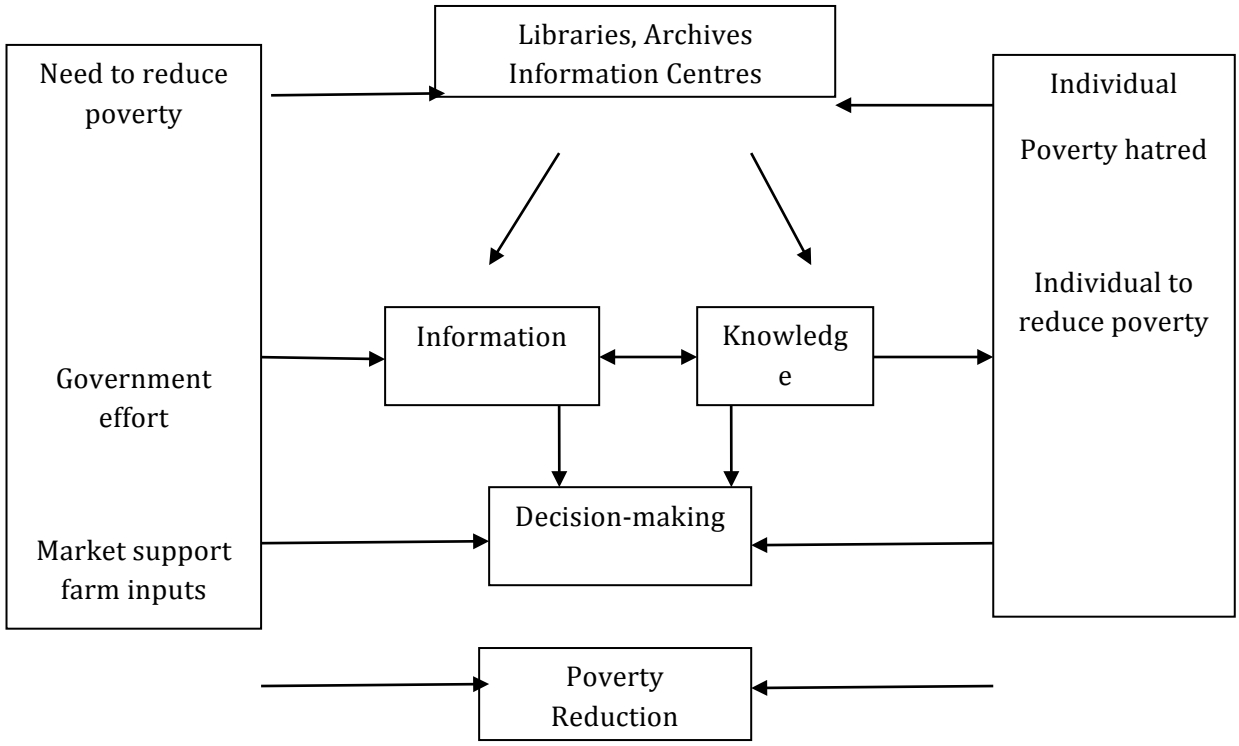

Figure 1: Poverty Reduction Model

8. Discussion

Figure 1 shows how information and knowledge led to decision-making rather than to poverty reduction. In other words, this is not a direct link. In fact, it is a complex chain of linkages until there is something noticeable at the poverty level. It takes time depending on parameters involved, and this needs some further studies to determine them.

Generally, exploratory-phenomenology research has two important things. The first is that experience is valid, important, strong and constitutes a source of knowledge, and the second is the idea that everyday life is a valuable and productive source of knowledge (Becker, 1992). The respondents' experience on the role of information and knowledge in poverty reduction illuminated on their understanding of the nature of poverty reduction effort. The meaning was co-created by the researcher and the respondents who experienced the phenomenon.

One basic experience noted from the study was that the respondents were aware of searching and using information for productive use and the researcher was able to establish how the

respondents were using information and knowledge in consciously or unconsciously reducing poverty. Study participants spoke of accessing information through their mobile phones, oral and from notice-boards. They accessed knowledge through reading books. But libraries were absent altogether and there was no effort to start them even locally within the residential houses. In remote areas they did not even know that obtaining information leads to knowing where they could sell something at prices likely contribute to poverty reduction. Respondents in semi-urban areas, on the other hand, enjoyed quick and uninterrupted access to information and expressed how valuable it was for them regarding the market condition. Participants indicated the need to improve the communication network so that they would continue getting timely information and whenever they needed it. The findings from this study provide a strong argument that participants were aware of the functions of information and knowledge in increasing their income.

After examining the elements or sentences from the respondents, the researcher produced a model that provides further insights into the use of information and knowledge in poverty allegation efforts. The model does not suggest a linear relationship or a causal relationship. Instead, it shows that the government effort and individual effort are equally important in poverty reduction initiatives. As a process, poverty reduction proceeds in stages and the government may help in monitoring the changes because necessary inputs for that process differ from one stage to another. One of the areas the government may act upon is strengthening the sources of information and knowledge and enhance their ready availability to ensure they were helpful to the poor people.

9. Conclusion

This study reflects the desire to reconsider various strategies in poverty reduction in Tanzania. Politicians, scholars, religious leaders and various people have been searching for answers to questions on why the poverty level in Tanzania remains so high after more than 50 years of independence and concerted efforts aimed at addressing the problem. Wanting to contribute to the debates on poverty reduction, wanting to understand the social world of the poor people and wanting to explore how the poor people use information and knowledge in poverty reduction were the motives behind this study. Much more significant was to get a firm grasp of the poor people's views on the role of information and knowledge either from libraries, information centres, and archives or from different other sources in poverty

reduction. The crux of the matter was whether the poor people understand that information and knowledge contribute to poverty reduction. The model generated from the findings from this study reveals a link between the two variable sets. It has been established that information and knowledge empower recipients. Since poverty reduction involves decision-making, quality information and knowledge are necessary inputs. The quality component has to be ascertained by the poor people themselves although the government also has a role to play. Therefore, the model provides insight into that relationship and thus can be used as a technical tool to remind the government of the role it has to play in this regard as well as the poor people that are central and whose meaningful contribution can help keep poverty at bay. It is hoped that the understanding generated and incorporated in this model can help demonstrate the importance of libraries, information centres, and communication network and infrastructure in Tanzania in efforts aimed at alleviating poverty.

The study used the qualitative methodology of exploratory-phenomenology to collect in-depth information on the complex problem of the role of information and knowledge in poverty reduction. The goal was to demonstrate that libraries, information centres and archives have a cardinal role to play in poverty reduction by providing and enhancing information and knowledge. Specifically, it explored the poor people's views on their usage of information and knowledge in poverty reduction efforts. The quality of findings in this study lies in the complex and comprehensive themes that emerged from the findings, which illuminate areas of knowledge about poverty, actions toward poverty reduction, reading culture, searching and using information and knowledge, use of information and knowledge in poverty reduction efforts and searching for quality information and knowledge to add value to poverty reduction efforts. The research was limited in its ability to generalise the findings. A total of 76 participants drawn from different contexts reflecting varied poverty situations were involved in the study. The findings enrich our understanding of the linkage between information and knowledge access and acquisition and poverty reduction strategies. In this regard, the findings have potential value that development scholars can exploit and build on. As such, further studies are recommended in establishing the relationship between information obtained and poverty reduction initiatives. Furthermore, studies are needed in determining the quality information that is appropriate to sustainable for poverty reduction efforts. Finally, there is a need to investigate the link between information flow and stages in poverty reduction.

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